American Urological Association

Education and Research, Inc.

PRIAPISM

Panel List

Drogo K. Montague, M.D., *Co-Chairman*
Jonathan Jarow, M.D., *Co-Chairman*
Gregory A. Broderick, M.D.
Roger R. Dmochowski, M.D.
Jeremy P.W. Heaton, M.D.
Tom F. Lue, M.D.
Ajay Nehra, M.D.
Ira D. Sharlip, M.D.

Consultants and Staff

Hanan Bell, Ph.D.
Diann Glickman, Pharm.D.
Charles Hathaway, Ph.D.
Patrick Florer
Kirsten H. Aquino
Carol Schwartz
Masika McCoy

Guideline on the Management of Priapism

Acknowledgements and Disclaimers: AUA Guideline on the Management of Priapism

This document was written by the Erectile Dysfunction Guideline Update Panel of the American Urological Association Education and Research, Inc. ®, which was created in 1999. The Practice Guidelines Committee (PGC) of the AUA selected the Committee chairs. Panel members were selected by the chairs. Membership of the Committee included urologists with specific expertise on this rare disorder. The mission of the Committee was to develop recommendations, that are analysis-based or consensus-based, depending on panel processes and available data, for optimal clinical practices in the diagnosis and treatment of Priapism. This document was submitted for peer review to 64 urologists and other health care professions. After the final revisions were made based upon the peer review process, the document was submitted to, and approved by the PGC and the Board of Directors of the AUA. Funding of the Committee was provided by the AUA. Committee members received no remuneration for their work. Each member of the Committee provided a conflict of interest disclosure to the AUA.

This report is intended to provide medical practitioners with a consensus of principles and strategies for the care of Priapism. The report is based on current professional literature, clinical experience and expert opinion. It does not establish a fixed set of rules or define the legal standard of care and it does not pre-empt physician judgment in individual cases. Physician judgment must take into account variations in resources and in patient needs and preferences.

The Management of Priapism

I. Introduction

Priapism, a relatively uncommon disorder, is a medical emergency. Although not all forms of priapism require immediate intervention, ischemic priapism is associated with progressive fibrosis of the cavernosal tissues and erectile dysfunction.[1, 2] Thus, all patients with priapism should be evaluated emergently in order to intervene as early as possible in those patients with ischemic priapism. The goal of the management of all patients with priapism is to achieve detumescence and preserve erectile function. Unfortunately, some of the treatments aimed at correcting priapism have the potential complication of erectile dysfunction. Therefore, the currently employed treatment modalities for priapism represent a range of options. These options are applied in a step-wise pattern with increasing invasiveness and risk balanced against the likelihood of prolonged ischemia and permanent damage to the corpora cavernosa if treatment is absent or delayed.

Because priapism is rare and usually unpredictable, the literature related to its management is neither voluminous nor rigorous, comprising mostly case reports and small case series rather than controlled trials. As a result, the relative efficacy and safety of different treatments are not clear. The purpose of this guideline is to provide physicians with a consensus of principles and strategies for the management of priapism based on the current state of both clinical practice and the medical literature.

Significant advances in the study of erectile physiology during the 1980s and 1990s have led to a better understanding of the pathophysiology of priapism and its management. For instance, prior

to the discovery of pharmacological stimulation of an erection with vasodilators and the subsequent development of tests for penile blood flow, there was little awareness of the difference between ischemic and nonischemic priapism and the role of vasoconstrictor agents (alpha adrenergic sympathomimetics) in the treatment of these disorders. Much of the literature on the management of priapism was published in an era in which the management of patients with priapism was largely empirical and sometimes misguided due to a lack of understanding of erectile physiology. However, even in the absence of effective treatment, it was recognized that, given enough time, ischemic priapism would eventually resolve on its own albeit with possible permanent damage to the penis. The literature reviewed for this guideline straddles both empirical and pathophysiology-based eras and some of the reported positive responses to treatment may reflect the natural course of priapism rather than a true treatment success. In addition, the literature is bereft of follow-up data on patients with priapism.

This document derives from a comprehensive review of the medical literature related to the management of priapism. As noted, deficiencies in this literature made it impossible to develop strict evidence-based guidelines. Most of the recommendations contained herein are based upon expert consensus following review of the literature. Where possible, expert consensus is supplemented with review of limited data. Because the literature review only considered reports of cases in which the duration of erections were longer than four hours, the recommendations made may not apply to erections of shorter duration.

This guideline does not establish a fixed set of rules or define the legal standard of care for the treatment of priapism. Above all, it does not pre-empt physician judgment in individual cases.

Variations in patient subpopulations, physician experience and available resources will necessarily influence choice of clinical strategy. Adherence to the recommendations presented in this document cannot assure a successful treatment outcome.

For ease of review, the recommendations are bolded and followed by supporting text. The basis of each recommendation, consensus of the expert Panel with or without data obtained by systematic review of evidence, is noted. In addition, an evaluation table appears on page 10, and a diagnostic and treatment algorithm is presented on page 31.

II. Definitions

Priapism is a persistent penile erection that continues hours beyond, or is unrelated to, sexual stimulation. Typically, only the corpora cavernosa are affected. For the purposes of this guideline, the definition is restricted to only erections of greater than four hours duration. Priapism requires prompt evaluation and may require emergency management. Subtypes of priapism include:

- **Ischemic** (veno-occlusive, low flow) priapism is a nonsexual, persistent erection characterized by little or no cavernous blood flow and abnormal cavernous blood gases (hypoxic, hypercarbic, and acidotic). The corpora cavernosa are rigid and tender to palpation. Patients typically report pain. A variety of etiologic factors may contribute to the failure of the detumescence mechanism in this condition. Ischemic priapism is an emergency.

Resolution of ischemic priapism is characterized by the penis returning to a flaccid, nonpainful state. However, in many cases, persistent penile edema, ecchymosis and partial erections can occur and it may mimic unresolved priapism. Resolution of priapism can be verified by measurement of cavernous blood gases or blood flow measurement by color duplex ultrasonography.

- **Nonischemic** (arterial, high flow) priapism is a nonsexual, persistent erection caused by unregulated cavernous arterial inflow. Cavernous blood gases are not hypoxic or acidotic. Typically the penis is neither fully rigid nor painful. Antecedent trauma is the most commonly described etiology. Nonischemic priapism does not require emergent treatment.

  Resolution of nonischemic priapism is characterized by a return to a completely flaccid penis.

- **Stuttering** (intermittent) priapism is a recurrent form of ischemic priapism in which unwanted painful erections occur repeatedly with intervening periods of detumescence. This historical term identifies a patient whose pattern of recurrent ischemic priapism encourages the clinician to seek options for prevention of future episodes.

III. Methods

The Erectile Dysfunction Guideline Update Panel of the American Urological Association (AUA) was convened in April 2000 at the request of the AUA Board of Directors. The Practice

Guidelines Committee of the AUA selected the Erectile Dysfunction Guideline Update Panel Co-Chairmen. The full Panel roster was assembled by invitation to experts in the field.

Literature searches were performed using the MEDLINE database. All searches were restricted to articles written in English and published between 1966 and January 2001, which reported data from human subjects. The search was performed using a group of MeSH headings related to erectile dysfunction. An initial extraction process reviewed the articles and characterized their content in order to retrieve the subset of articles concerning priapism (Appendix 1). Additional relevant articles (e.g. publications prior to 1966) were added at the recommendation of individual Panel members. More detailed data extraction was performed on the articles dealing with priapism (Appendix 2). Of the 217 articles reviewed, 195 were ultimately considered acceptable. The complete list of 217 references is contained in Appendix 3. Reasons for rejecting articles during this stage included inadequate description of methods or definitions, lack of relevant data, or coverage of the same data set in a later publication.

Due to the nature of the disease and the status of the literature, a meta-analysis was deemed inappropriate for this topic. Instead, a series of clinically important and potentially answerable questions was developed (Appendix 4) and the data extracted from the articles were organized to answer these questions. The evidence tables developed from this process focused on three primary outcomes: resolution of the priapism (flaccid penis for at least 24 hours), recurrence of priapism (after 24 hours of flaccidity) and erectile dysfunction. Additional tables detailing side effects were developed for some treatments. These results were then summed to provide crude estimates of treatment effects. The evidence tables were originally arranged to match the

questions, but have been reordered by patient characteristics and treatment and included in Appendix 5. A summary of the results, similarly reordered, is included as Appendix 6. Unless otherwise noted, the statistics cited in this document are derived from the evidence tables.

Recommendations were developed either strictly by consensus or by consensus combined with review of the available, limited data. Following review and approval by the entire Panel, the draft guideline was submitted for peer review to 64 urologists and other health care professionals. The Panel made revisions based on peer review comments and the document was submitted to and approved by the Practice Guidelines Committee and the Board of Directors of the AUA.

IV. Evaluation of the Priapism Patient

The diagnosis of priapism is self-evident in the untreated patient. The evaluation of priapism should focus on differentiating ischemic from nonischemic priapism (Table 1). Once this differentiation is made, the appropriate management can be determined and initiated. The evaluation of the patient with priapism has three components: patient history, physical examination and laboratory/radiologic assessment.

****

Recommendation 1:

In order to initiate appropriate management, the physician must determine whether the priapism is ischemic or nonischemic.

[Based on Panel consensus.]

History

Understanding the history of the episode of priapism is important because the history and etiology may determine the most effective treatment. Historical features that should be identified are:

- Duration of erection
- Degree of pain (ischemic priapism is painful while nonischemic priapism usually is not)
- Previous history of priapism and its treatment
- Use of drugs that might have precipitated the episode. Drugs that have been associated with priapism are: antihypertensives; anticoagulants; antidepressants and other psychoactive drugs; alcohol, marijuana, cocaine and other illegal substances; and vasoactive agents used for intracavernous injection therapy such as alprostadil, papaverine, prostaglandin E_1, phentolamine and others.
- History of pelvic, genital or perineal trauma, especially a perineal straddle injury
- History of sickle cell disease or other hematologic abnormality

Table 1. Key Findings in the Evaluation of Priapism		
Finding	Ischemic Priapism	Nonischemic Priapism
Corpora cavernosa fully rigid	●	○
Penile pain	●	○
Abnormal cavernous blood gases	●	○
Blood abnormalities and hematologic malignancy	◉	○
Recent intracavernous vasoactive drug injections	◉	○
Chronic, well-tolerated tumescence without full rigidity	○	●
Perineal trauma	○	◉
● Usually present; ◉ Sometimes present; ○ Seldom present		

Examination

The genitalia, perineum and abdomen should be carefully examined. In patients with priapism, the corpora cavernosa are affected while the corpus spongiosum and the glans penis are not. In patients with ischemic priapism, the corpora cavernosa are often completely rigid. In patients with nonischemic priapism, the corpora are typically tumescent but may not be completely rigid (Table 1). Abdominal, pelvic and perineal examination may reveal evidence of trauma or malignancy.

Laboratory and Radiologic Evaluation

The laboratory evaluation of patients with priapism should include a complete blood count (CBC) with special attention to the white blood count (WBC), white blood cell differential and platelet count. Acute infections or hematologic abnormalities that can cause priapism, such as

sickled red blood cells, leukemia and platelet abnormalities, may be suggested or identified by the CBC.

The reticulocyte count is often elevated in men with sickle cell anemia. Hemoglobin electrophoresis identifies the presence of sickle cell disease or trait as well as other hemoglobinopathies. Because hemoglobinopathies are not confined to African-American men but may be found in Caucasian men, especially of Mediterranean descent (e.g., thalassemia), a reticulocyte count and hemoglobin electrophoresis should be considered in all men unless there is another obvious cause of priapism. However, in an emergency setting, hemoglobin analysis may not yield results in a timely fashion. In such cases, screening for sickle cell disease or trait should be performed by either the Sickledex test or examination of a peripheral smear, preferably with consultation by a hematologist and subsequent confirmation using hemoglobin electrophoresis.

Screening for psychoactive drugs and urine toxicology may be performed (if suspected) because standard doses of antidepressants and other psychoactive drugs, as well as overdoses of legal and illegal drugs, may cause priapism.

Blood gas testing and color duplex ultrasonography are currently the most reliable diagnostic methods of distinguishing ischemic from nonischemic priapism (Table 1). Blood aspirated from the corpus cavernosum in patients with ischemic priapism is hypoxic and therefore dark, while blood from the corpus cavernosum in patients with nonischemic priapism is normally oxygenated and therefore bright red. Cavernosal blood gases in men with ischemic priapism

typically have a P_{O_2} of < 30 mm Hg, a P_{CO_2} of > 60 mm Hg and a pH < 7.25. Cavernous blood gases in men with nonischemic priapism are similar to the blood gases of arterial blood. Normal flaccid penis cavernous blood gas levels are approximately equal to those in normal mixed venous blood. Typical blood gas values are shown in Table 2.

Table 2 – Typical Blood Gas Values			
Source	P_{O_2} (mm Hg)	P_{CO_2} (mm Hg)	pH
Ischemic priapism (cavernous blood)[3]	<30	>60	<7.25
Normal arterial blood (room air)	>90	<40	7.40
Normal mixed venous blood (room air)	40	50	7.35

Color duplex ultrasonography may be utilized as an alternative to cavernosal blood gas sampling to differentiate ischemic from nonischemic priapism. Patients with ischemic priapism have little or no blood flow in the cavernosal arteries, while patients with nonischemic priapism have normal to high blood flow velocities in the cavernosal arteries. Ultrasonography will reveal the absence of any significant blood flow within the corpora cavernosa. It may also be performed as a screening test for anatomical abnormalities, such as a cavernous artery fistula or pseudoaneurysm, in men who already have the diagnosis of nonischemic priapism. These abnormalities are most often due to a straddle injury or direct scrotal trauma and are, therefore, most often found in the perineal portions of the corpora cavernosa. Color duplex ultrasonography should be performed in the lithotomy or frogleg position, scanning in the perineum first and then along the entire shaft of the penis.

Penile arteriography may be used as an adjunctive study to identify the presence and site of a cavernous artery fistula (ruptured helicine artery). Since color duplex ultrasonography has largely supplanted arteriography for the diagnosis of cavernous artery fistulae, arteriography is usually only performed as part of an embolization procedure.

In summary, the laboratory and radiologic tests that should be considered in the diagnostic evaluation of priapism are:

- CBC
- Reticulocyte count
- Hemoglobin electrophoresis
- Psychoactive medication screening
- Urine toxicology
- Blood gas testing
- Color duplex ultrasonography
- Penile arteriography

V. Ischemic Priapism

Ischemic priapism is an acute problem with increasing potential for injury over time. Although the etiology of the ischemic priapism may be an important factor to the future management of the patient (to prevent subsequent episodes), it is rarely relevant to the initial management of the ischemic priapism. Because the response to treatment is not always predictable, the Panel's recommendations comprise a step-wise approach beginning with intracavernous injection of an

alpha-adrenergic sympathomimetic agent, with or without evacuation of old blood, and followed, when necessary, by a surgical shunting procedure.

****

Recommendation 2:

In patients with an underlying disorder, such as sickle cell disease or hematologic malignancy, systemic treatment of the underlying disorder should not be undertaken as the only treatment for ischemic priapism. The ischemic priapism requires intracavernous treatment, and this should be administered concurrently.

[Based on Panel consensus.]

Ischemic priapism is a compartment syndrome and thus requires intracavernous treatment. In patients with an underlying disorder, such as sickle cell disease or hematologic pathology, intracavernous treatment of the ischemic priapism should be provided concurrently with appropriate systemic treatment for the underlying disease. The ischemic cases reported in the literature resolved in 0 to 37% of patients with sickle cell disease managed only with systemic treatments (transfusion, alkalinization, hydration, oxygen) while much better resolution rates were achieved with therapies directed at the penis. There are few published reports on patients with hematologic disorders other than sickle cell disease. Three of 4 patients with hematologic malignancies treated with pheresis procedures experienced resolution of the priapism, but only 3 of 15 treated with other chemotherapies resolved. Moreover, many of the "treatment successes" with systemic therapy occurred after very prolonged periods of ischemia and may represent the end result of the natural history of ischemic priapism rather than a true treatment-related resolution. Even without treatment, all priapism will resolve but erectile function may be

compromised. Review of the published cases of ischemic priapism managed with systemic treatments alone found that 7 of 20 (35%) patients had erectile dysfunction. Thus, while systemic treatments may ultimately prove to be effective, the current data suggest that any delay in the direct treatment (i.e. intracavernous treatment) of the penis is not justified.

****

Recommendation 3:

Management of ischemic priapism should progress in a step-wise fashion to achieve resolution as promptly as possible. Initial intervention may utilize therapeutic aspiration (with or without irrigation) or intracavernous injection of sympathomimetics.

[Based on Panel consensus and review of limited data.]

****

Recommendation 4:

If ischemic priapism persists following aspiration/irrigation, intracavernous injection of sympathomimetic drugs should be performed. Repeated sympathomimetic injections should be performed prior to initiating surgical intervention.

[Based on Panel consensus and review of limited data.]

Vasoactive properties of sympathomimetic drugs confer on these agents the potential to relieve priapism by facilitating detumescence mechanisms. Review of the literature reveals significantly higher resolution of priapism following sympathomimetic injection with or without irrigation (43 to 81%) than aspiration with or without irrigation alone (24 to 36%; see below). The risk of

postpriapism erectile dysfunction also appears to be lower when sympathomimetic agents are employed.

Therapeutic aspiration is often the first maneuver employed following insertion of a scalp vein (19 or 21 gauge) needle into the corpus cavernosum for diagnostic purposes. This procedure lowers intracorporal pressure thus facilitating subsequent intracavernous injections. Priapism resolved in 36% of patients with ischemic priapism treated with aspiration alone. Other studies have shown resolution of priapism in 24% of patients treated with aspiration plus irrigation. Due to the limitations of the literature, the Panel believes that this difference is not real and the efficacy of aspiration with or without irrigation is approximately 30%. The physician should be prepared to continue treatment with administration of a sympathomimetic agent if therapeutic aspiration, with or without irrigation, fails to relieve priapism.

The value of aspiration as an adjunct to sympathomimetic injection is unclear from the literature reviewed. Summary data showed a 58% resolution rate with no recurrences following sympathomimetic injection without prior aspiration or irrigation. A 77% resolution rate was achieved by sympathomimetic injection in patients who had undergone prior aspiration or irrigation; however, recurrence occurred in 6 out of 16 patients where recurrence was reported. It is possible that some of these recurrences were in fact initial failures according to the Panel definition (post-treatment flaccidity lasting less than 24 hours). Thus, the apparent improved resolution rates with sympathomimetic injection after aspiration, with or without irrigation, are questionable.

****

Recommendation 5:

For intracavernous injection of a sympathomimetic agent, the Panel recommends use of phenylephrine because this agent minimizes the risk of cardiovascular side effects that are more common for other sympathomimetic medications.

[Based on Panel consensus and review of limited data.]

The sympathomimetic drugs include epinephrine, norepinephrine, phenylephrine, ephedrine and metaraminol. There are no published direct efficacy comparisons of these agents. The summary data developed by the Panel showed that for all patients with ischemic priapism, resolution occurred in 81% of cases treated with epinephrine, 70% with metaraminol, 43% with norepinephrine and 65% with phenylephrine. Post-treatment erectile function was generally not reported in published studies; however, among those in which it was reported, erectile dysfunction was found in only one patient after treatment by sympathomimetic injection. Many sympathomimetic agents (e.g. epinephrine) are direct activators of both alpha and beta adrenergic receptors. Indirect actions of these drugs often include stimulation of endogenous norepinephrine release with subsequent mixed alpha and beta effects.[4] Significant cardiovascular side effects of sympathomimetics released into the systemic circulation derive from actions on both the peripheral vasculature (alpha-mediated hypertensive effects) and the heart (beta-mediated inotropic and chronotropic effects). The therapeutic efficacy of these agents for priapism relies on alpha receptor-mediated vasoconstriction within the corpora cavernosa. Phenylephrine is an $alpha_1$-selective adrenergic agonist with no indirect neurotransmitter-releasing action. Thus, it has the therapeutic action desired for treating priapism while minimizing other potential adverse effects.

****

Recommendation 6:

For intracavernous injections in adult patients, phenylephrine should be diluted with normal saline to a concentration of 100 to 500 mcg/mL, and 1 mL injections made every 3 to 5 minutes for approximately one hour, before deciding that the treatment will not be successful. Lower concentrations in smaller volumes should be used in children and patients with severe cardiovascular disease.

[Based on Panel consensus.]

****

Recommendation 7:

During and following intracavernous injection of sympathomimetic drugs, the physician should observe patients for subjective symptoms and objective findings consistent with known undesirable effects of these agents: acute hypertension, headache, reflex bradycardia, tachycardia, palpitations, and cardiac arrhythmia. In patients with high cardiovascular risk, blood pressure and electrocardiogram monitoring are recommended.

[Based on Panel consensus.]

****

Recommendation 8:

The use of surgical shunts for the treatment of ischemic priapism should be considered only after a trial of intracavernous injection of sympathomimetics has failed.

[Based on Panel consensus.]

A surgical shunt[5, 6] should not be considered as first-line therapy. The decision to initiate surgery requires the failure of nonsurgical interventions. However, deciding *when* to end nonsurgical procedures and proceed with surgery will depend on the duration of the priapism. For ischemic priapism of extended duration, response to intracavernous injections of sympathomimetics becomes increasingly unlikely. Phenylephrine is less effective in priapism of more than 48-hour duration because ischemia and acidosis impair the intracavernous smooth muscle response to sympathomimetics.[3] Under such anoxic conditions, phenylephrine produces poorly sustained phasic contractile responses. In particular, injection of sympathomimetics after 72 hours offers a lower chance of successful resolution and a surgical shunting procedure often is required to re-establish circulation of the corpora cavernosa.

****

Recommendation 9:

A cavernoglanular (corporoglanular) shunt should be the first choice of the shunting procedures because it is the easiest to perform and has the fewest complications. This shunting procedure can be performed with a large biopsy needle (Winter) or a scalpel (Ebbehøj) inserted percutaneously through the glans. It can also be performed by excising a piece of the tunica albuginea at the tip of the corpus cavernosum (Al-Ghorab). Proximal shunting using the Quackels or Grayhack procedures may be warranted if more distal shunting procedures have failed to relieve the priapism.

[Based on Panel consensus and review of limited data.]

Of the three methods of the cavernoglanular (distal) shunt, excision of both tips of the corpora cavernosa (Al-Ghorab) is the most effective and can be performed even if the other two

procedures fail. In most cases, shunts will close with time. However, long-term patency of the shunt may lead to erectile dysfunction.[7] Shunting procedures evaluated during analysis of evidence included distal shunts (e.g. Winter, Ebbehøj, and Al-Ghorab procedures), the cavernospongious (corporospongiosal) shunt (i.e. Quackels procedure) and cavernosaphenous (corporosaphenous) shunt (i.e. Grayhack procedure). The limited data preclude a recommendation of a greater efficacy for one procedure over another based on accurate outcome estimates. The summary data generated by the Panel show resolution rates of 74% for Al-Ghorab, 73% for Ebbehøj, 66% for Winter, 77% for Quackels, and 76% for Grayhack procedures. Erectile dysfunction rates are higher for the proximal shunts, Quackels and Grayhack, (about 50%) than for the distal shunts (25% or less). However, patient selection and time to treatment may be the main explanation for these differences. Each surgical shunting procedure may have its own constellation of adverse events. Assessing the literature was difficult due to the fact that patients frequently received multiple treatments and therefore, it was difficult to ascertain the treatment that produced an adverse event.

A distal shunting procedure is generally successful in re-establishing penile circulation in cases other than those with severe distal penile edema or tissue damage. In these cases, more proximal shunting procedures may be considered, and a shunt can be created between the corpus cavernosum and the corpus spongiosum (Quackels). Alternatively, a proximal shunt such as between the corpus cavernosum and the saphenous vein (Grayhack) is performed. These procedures are time consuming and technically challenging. Reports of serious adverse events include urethral fistulae and purulent cavernositis following the Quackels shunt[8] and pulmonary embolism following the Grayhack procedure.[9]

****

Recommendation 10:

Oral systemic therapy is not indicated for the treatment of ischemic priapism.

[Based on Panel consensus and review of limited data.]

The literature contains no data supporting the use of oral sympathomimetic treatment for ischemic priapism. Although not priapism, prolonged erections due to injection therapy may show some response to oral terbutaline treatment. Two randomized controlled trials examined the use of oral terbutaline in patients with prolonged erections of less than 4-hour duration following pharmacologic stimulation of an erection. Despite the lack of statistical significance, meta-analysis showed a trend suggestive of possible benefit. A summary of uncontrolled trials showed a 65% resolution rate. Despite infrequent use by urologists and evidence from only 2 randomized controlled trials, terbutaline may be effective in the treatment of prolonged erections due to self-injection therapy for impotence.[10] There is no evidence for the efficacy of oral pseudoephedrine in the treatment of either prolonged erections or priapism.

VI. Nonischemic Priapism

Nonischemic (high-flow) priapism is an uncommon form of priapism caused by unregulated arterial inflow. This condition may follow perineal trauma that results in laceration of the cavernous artery. However, many patients have no apparent underlying cause. Panel summary data found spontaneous resolution to be the outcome of untreated nonischemic priapism in up to

62% of the reported cases with an associated complaint of erectile difficulties in one third of patients.

Rare cases of a high-flow state occurring after resolution of ischemic priapism have been reported [11], but the cause is not understood. Possible mechanisms include the mechanical disruption of arteriolar or sinusoidal anatomy[12] and dysregulation of vasorelaxing/vasoconstrictive factors resulting from ischemic damage[13].

****

Recommendation 11:

In the management of nonischemic priapism, corporal aspiration has only a diagnostic role. Aspiration with or without injection of sympathomimetic agents is not recommended as treatment.

[Based on Panel consensus and review of limited data.]

Although aspiration is used in the diagnosis of nonischemic priapism, aspiration with or without injection of vasoconstrictive agents has no demonstrated therapeutic efficacy. In the data reviewed by the Panel, there were no cases of priapism resolution in patients who received aspiration or irrigation. In the patient with nonischemic priapism, administration of sympathomimetic agents may be expected to have significant adverse systemic effects given the pathophysiology of unregulated arterial inflow and large venous outflow that is characteristic of this condition. Injection of methylene blue, an inhibitor of guanylate cyclase, may have some efficacy.[14] However, the limited outcomes data on treatment of nonischemic priapism with methylene blue preclude any Panel recommendation concerning this approach.

****

Recommendation 12:

The initial management of nonischemic priapism should be observation. Immediate invasive interventions (embolization or surgery) can be performed at the request of the patient, but should be preceded by a thorough discussion of chances for spontaneous resolution, risks of treatment-related erectile dysfunction and lack of significant consequences expected from delaying interventions.

[Based on Panel consensus and review of limited data.]

Nonischemic priapism is not an emergency and will often resolve without treatment. Acute conservative treatment, such as ice and site-specific compression to the injury, may be employed. However, there are insufficient data to conclude that conservative measures offer any additional benefit beyond the spontaneous resolution rate. Several published case series are quite remarkable for showing that time from trauma to patient presentation, ranging from days to years, has no significant impact on subsequent outcome, and that many patients remain potent after spontaneous resolution of priapism.

****

Recommendation 13:

Selective arterial embolization is recommended for the management of nonischemic priapism in patients who request treatment. Autologous clot and absorbable gels, which are non-permanent, are preferable to coils and chemicals, which are permanent, in the interventional radiologic management of nonischemic priapism.

[Based on Panel consensus and review of limited data.]

Although the data are not robust enough to determine the effects of using permanent materials, the Panel's experience suggests that nonabsorbable materials used during embolization pose a greater risk for erectile dysfunction and other complications than absorbable materials. Several series have documented the efficacy of absorbable materials such as autologous blood clot and gelatin sponges in nonpermanent embolization. Permanent embolization techniques have utilized coils, ethanol, polyvinyl alcohol particles and acrylic glue. The reviewed literature showed resolution of high-flow priapism in 78% of cases treated with permanent embolization technologies and an associated erectile dysfunction rate of 39%. In contrast, temporary embolization technologies show a 74% resolution rate and 5% associated erectile dysfunction. There are few published surgical series in the management of high-flow priapism and no controlled trials of observation, embolization or surgery. Penile exploration and direct surgical ligation of sinusoidal fistulae/pseudoaneurysms has efficacy in up to 63% of cases with an associated erectile dysfunction rate of 50%. Surgical management of nonischemic priapism is the option of last resort for long-standing cases in which a cystic mass with a thick wall can be visualized with intraoperative color duplex ultrasonography. The patients who receive these treatments have usually failed other therapies and the erectile dysfunction rate may reflect this selection bias.

****

Recommendation 14:

Surgical management of nonischemic priapism is the option of last resort and should be performed with intraoperative color duplex ultrasonography.

[Based on Panel consensus and review of limited data.]

A number of radiologic technologies have been described in the diagnosis and management of nonischemic priapism: selective pudendal arteriography, nuclear imaging, cavernosography, computed tomography, and color duplex ultrasonography. Color duplex ultrasonography is the least invasive of the technologies employed in various studies and may be used to document spontaneous resolution or persistence of a high-flow state. This technique can reveal arterial dilation, increased cavernous arterial flow and a sinusoidal 'blush' or pseudoaneurysm cavity with turbulent flows. Using color duplex ultrasonography, the lesion is lateralized and localized, thus providing essential information prior to radiologic embolization or surgical intervention.

VII. Stuttering Priapism

Patients with ischemic priapism may develop a pattern of recurrence over time that is distinct from persistence or rapid recurrence of a single episode of priapism. This pattern of recurrence, known as stuttering priapism, challenges the clinician to develop a management strategy to prevent future episodes of priapism. Each episode of ischemic priapism in these patients should be managed as described in prior sections of this guideline. While the etiology of the recurrent ischemic priapism is often idiopathic, patients with hematologic abnormalities, such as sickle cell disease, are more prone to developing recurrent (stuttering) priapism.

****

Recommendation 15:

The goal of the management of a patient with recurrent (stuttering) priapism is prevention of future episodes while management of each episode should follow the specific treatment recommendations for ischemic priapism.

[Based on Panel consensus.]

There have been several reports in the literature of stuttering priapism in both children and adults.[15, 16] Each episode of priapism in these patients is distinct with multiple episodes over time. Hematologic abnormalities are commonly present in children with this disorder but the condition is often idiopathic in adults. Once the priapism has recurred, representing a failure of the prevention strategy, the patient should be managed as an emergency as described above.

Management strategies for patients with stuttering priapism have historically included prevention of priapism episodes with systemic therapies, early intervention by the patient with self-injection of sympathomimetic agents and, as a last resort, surgical placement of a penile prosthesis. Systemic therapies proposed for the prevention of priapism have included hormonal agents, [17,15, 18, 19, 20] baclofen,[21] digoxin,[22] and terbutaline[23]. Although terbutaline has been shown to be effective in the management of prolonged erections, there is little evidence to support its use in this clinical setting. Digoxin has no proven efficacy in the treatment of priapism. Recently, two cases of stuttering priapism have been successfully treated with oral baclofen.

****

Recommendation 16:

A trial of gonadotropin-releasing hormone (GnRH) agonists or antiandrogens may be used in the management of patients with recurrent (stuttering) priapism. Hormonal agents

should not be used in patients who have not achieved full sexual maturation and adult stature.

[Based on Panel consensus.]

Hormonal therapy for stuttering priapism has been aimed at suppressing serum testosterone levels by feedback inhibition (diethylstilbestrol), blocking androgen receptors (antiandrogens) and down-regulation of the pituitary gland (GnRH agonists). There is minimal information regarding the efficacy and safety of most of these agents and none have been investigated using controlled study designs. Hormonal agents, specifically GnRH agonists, appear to be effective and while they reduce libido, most patients are still able to engage in sexual activity.[17-20] The use of diethylstilbestrol has more risks including gynecomastia and embolic events.

Hormonal agents have a contraceptive effect and interfere with normal sexual maturation. In addition, they may interfere with the timing of the closure of the epiphyseal plates. Therefore, these agents are contraindicated in persons (children) who have not completed their growth and sexual maturation and those trying to conceive.

****

Recommendation 17:

Intracavernosal self-injection of phenylephrine should be considered in patients who either fail or reject systemic treatment of stuttering priapism.

[Based on Panel consensus.]

Several studies have shown that early management at home by the patient with intracavernosal injection of sympathomimetics can be an effective strategy to avoid hospitalization for patients with recurrent priapism.[24, 20, 25, 16] This method of management is not preferred over systemic therapies because priapism in such cases is being treated rather than being prevented, and the potential exists for adverse effects of inadvertent systemic administration of sympathomimetics. Patients who cannot be treated with hormonal therapy may be taught self-injection therapy of sympathomimetics. Patients should be counseled regarding injection site, dosing, systemic side effects and duration of erection prior to performing self-injection with sympathomimetic agents.

VIII. Conclusions

Clearly, despite the low incidence of priapism and the considerable challenge of providing successful treatment, clinical urology continues to address this potentially emergent condition. While still deficient in many respects, our understanding of the pathophysiology, diagnosis and management of priapism has been advanced by many significant basic and clinical investigative efforts. The published results of clinical studies on priapism have, in particular, made the present document possible.

The review of the clinical literature on priapism has answered some questions and raised new ones. The Panel has made specific recommendations when the weight of consensus and available data was sufficient to support confidence in a particular approach and it has noted when evidence was absent, incomplete, or ambiguous. Certain details of assessment and treatment of priapism are not uniformly reported in the literature. This information is needed to adequately

evaluate outcomes, improve practice guidelines and continue the progress to date in the management of priapism.

****

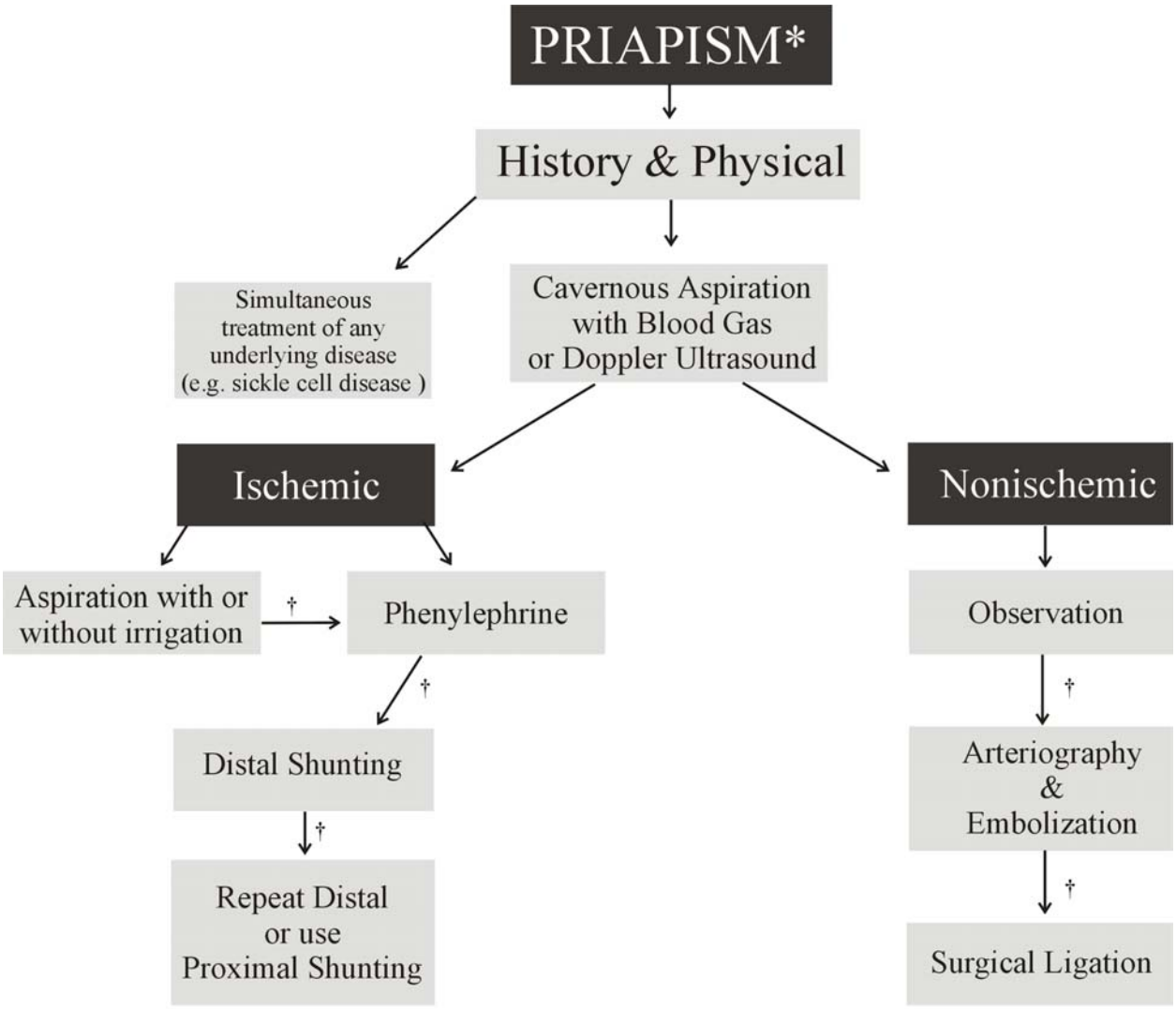
Recommendations for Future Research:

Clinical studies of priapism should be designed to consider and ultimately report on the following:

- **Documentation of pre-priapism erectile function by retrospective report from the patient, and when possible, also from the partner**
- **Time from onset of priapism to initial treatment and time to each subsequent treatment**
- **Measurement of sexual function after resolution of priapism**
    - **Using a standardized instrument for one year**
    - **Using contemporary validated instruments for assessing quality of life**
    - **Reporting erection potential as determined by a minimum of subjective reporting within three months of and up to one year after priapism diagnosis and, when not normal, the results of continued evaluation for up to one year**
- **Additional treatments used to regain erectile function**

[Based on Panel consensus.]

Management Algorithm for Priapism



*Erection greater than 4 hours duration.
†Proceed upon treatment failure.

References

1. El-Bahnasawy, M. S., Dawood, A., and Farouk, A. Low-flow priapism: risk factors for erectile dysfunction. BJU Int, **89**: 285, 2002.

2. Spycher, M. A. and Hauri, D. The ultrastructure of erectile tissue in priapism. J Urol, **135**: 142, 1986.

3. Broderick, G. A. and Harkaway, R. Pharmacologic erection: time-dependent changes in the corporal environment. Int J Impot Res, **6**: 9, 1994.

4. Hoffman, B. "Catecholamines, sympathomimetic drugs, and adrenergic receptor antagonists". In: Goodman and Gilman's The Pharmacological Basis of Therapeutics. Edited by J. G. Hardman, L. E. Limbird, and A. G. Gilman. New York: McGraw-Hill Professional Publishing, chapter 10 pp 215-268, 2001.

5. Nitahara, K.S., and Lue T.F. Priapism. In: Glenn's Urologic Surgery. S. D. Graham, Jr., J. F. Glen, and C. C. Carson. Philadelphia: Lippincott Williams & Wilkins, 1998.

6. Hinman F. Jr., Donley S., and Stempen P.H. Atlas of Urologic Surgery Second Editon. Philadelphia: WB Saunders, section 6, pp 177-228, 1998.

7. Kulmala, R. V., Lehtonen, T. A., Lindholm, T. S., and Tammela, T. L. Permanent open shunt as a reason for impotence or reduced potency after surgical treatment of priapism in 26 patients. Int J Impot Res, **7**: 175, 1995.

8. Ochoa Urdangarain, O. and Hermida Perez, J. A. [Priapism. Our experience]. Arch Esp Urol, **51**: 269, 1998.

9. Kandel, G. L., Bender, L. I., and Grove, J. S. Pulmonary embolism: a complication of corpus-saphenous shunt for priapism. J Urol, **99**: 196, 1968.

10. Lowe, F. C. and Jarow, J. P. Placebo-controlled study of oral terbutaline and pseudoephedrine in management of prostaglandin E1-induced prolonged erections. Urology, **42**: 51, 1993.

11. Seftel, A. D., Haas, C. A., Brown, S. L., Herbener, T. E., Sands, M., and Lipuma, J. High flow priapism complicating veno-occlusive priapism: pathophysiology of recurrent idiopathic priapism? J Urol, **159**: 1300, 1998.

12. Matson, S., Herndon, C. D. A., and Honig, S. C. Pathophysiology of "low flow" priapism: Intermediate phase- evidence of "high flow" defined with duplex ultrasound. Int J Impot Res, **11**: S27, 1999.

13. Bastuba, M. D., Saenz de Tejada, I., Dinlenc, C. Z., Sarazen, A., Krane, R. J., and Goldstein, I. Arterial priapism: diagnosis, treatment and long-term followup. J Urol, **151**: 1231, 1994.

14. Steers, W. D. and Selby, J. B. Jr. Use of methylene blue and selective embolization of the pudendal artery for high flow priapism refractory to medical and surgical treatments. J Urol, **146**: 1361, 1991.

15. Gbadoe, A. D., Assimadi, J. K., and Segbena, Y. A. Short period of administration of diethylstilbestrol in stuttering priapism in sickle cell anemia. Am J Hematol, **69**: 297, 2002.

16. Virag, R., Bachir, D., Lee, K., and Galacteros, F. Preventive treatment of priapism in sickle cell disease with oral and self-administered intracavernous injection of etilefrine. Urology, **47**: 777, 1996.

17. Dahm, P., Rao, D. S., and Donatucci, C. F. Antiandrogens in the treatment of priapism . Urology, **59**: 138, 2002.

18. Levine, L. A. and Guss, S. P. Gonadotropin-releasing hormone analogues in the treatment of sickle cell anemia-associated priapism. J Urol, 150: 475, 1993.

19. Serjeant, G. R., de Ceulaer, K., and Maude, G. H. Stilboestrol and stuttering priapism in homozygous sickle-cell disease. Lancet, **2**: 1274, 1985.

20. Steinberg, J. and Eyre, R. C. Management of recurrent priapism with epinephrine self-injection and gonadotropin-releasing hormone analogue. J Urol, **153**: 152, 1995.

21. Rourke, K.F., Fischler, A.H., and Jordan, G.H. Treatment of recurrent idiopathic priapism. J Urol, **168**: 2552, 2002.

22. Gupta, S., Salimpour, P., Saenz de Tejada, I., Daley, J., Gholami, S., Daller, M., et. al. A possible mechanism for alteration of human erectile function by digoxin: inhibition of corpus cavernosum sodium/potassium adenosine triphosphatase activity. J Urol, **159**: 1529, 1998.

23. Ahmed, I. and Shaikh, N. A. Treatment of intermittent idiopathic priapism with oral terbutaline. Br J Urol, **80**: 341, 1997.

24. Gbadoe, A. D., Atakouma, Y., Kusiaku, K., and Assimadi, J. K. Management of sickle cell priapism with etilefrine. Arch Dis Child, **85**: 52, 2001.

25. Van Driel, M. F. Joosten E. A. and Mensink H. J. Intracorporeal self-injection with epinephrine as treatment for idiopathic recurrent priapism. Eur Urol, **17**: 95, 1990.

Acknowledgements and Disclaimers: AUA Guideline on the Management of Priapism

This document was written by the Erectile Dysfunction Guideline Update Panel of the American Urological Association Education and Research, Inc., which was created in 1999. The Practice Guidelines Committee (PGC) of the AUA selected the committee chairs. Panel members were selected by the chairs. Membership of the committee included urologists with specific expertise on this rare disorder. The mission of the committee was to develop recommendations, that are analysis-based or consensus-based, depending on panel processes and available data, for optimal clinical practices in the diagnosis and treatment of priapism. This document was submitted for peer review to 64 urologists and other health care professions. After the final revisions were made based upon the peer review process, the document was submitted to, and approved by the PGC and the Board of Directors of the AUA. Funding of the committee was provided by the AUA. Committee members received no remuneration for their work. Each member of the committee provided a conflict of interest disclosure to the AUA.

This report is intended to provide medical practitioners with a consensus of principles and strategies for the care of priapism. The report is based on current professional literature, clinical experience and expert opinion. It does not establish a fixed set of rules or define the legal standard of care and it does not pre-empt physician judgment in individual cases. Physician judgment must take into account variations in resources and in patient needs and preferences.

The Management of Priapism: Appendices

Erectile Dysfunction Preliminary Scan Extraction/Evaluation Form

Reference Number_____ Reviewer_____
Article year____
Author_____ Date Reviewed_____

1. Study Design
____ Case Series/Report
____ Controlled trial
____ Review/policy
____ Case-control study
____ Cohort Study
____ Meta-analysis
____ Data base or surveillance
____ Letter: Ref._____
____ Opinion or testimony
____ Other: spec._____

Study Features (check all that apply)
___ Retrospective
___ Prospective
___ Randomized
___ Patient blinded
___ Provider blinded
___ Outcome evaluator blinded
___ Cross-over

2. Article excluded due to (check all that apply):
___ No data
___ Not dealing with erectile dysfunction
___ Treatments not available or current
___ Doesn't deal with treatment ___ Basic Science ___ Epidemiology ___ Other
___ Other reason for exclusion (specify_____)

3. Location of study
Location_____(City, State, Country)
___ Check if multi-center/location

4. Study areas covered (where outcomes are discussed—check all that apply):
___ Impotence ___ Peyronie's ___ Premature ejaculation ___ Priapism
___ Other (specify:_____)

5. Are there particular difficulties with this study that make it less useful for our purposes (include study flaws and items that cause the study interventions or population not to match our needs)?
___ Serious design flaws (specify_____)
___ Randomization failure
___ Confounders present
___ Selection bias
___ Patient population not relevant
___ Incomplete or biased statistics/data
___ Blinding failure or insufficient
___ Compliance problems (intensity)
___ Cross-over problems
___ Atypical intervention
Other: (describe)

6. Are there other data or points in this article that would be relevant that are not covered elsewhere?

7. Please either circle relevant citations in the reference list or list the citation numbers here.
_____

Reference number: _____ Reviewer_____

8. Comments:

Reference number: _____ Reviewer_____

Impotence

Patient characteristics

1. Age Min____ Max____ Mean____ Median____ Total number of patients_____

2. If the study differentiated outcomes or selected patients based on an initial or intermediate condition or cause or type of the impotence, indicate the condition(s) below:

___ Age
___ Disease duration
___ Prior therapy
___ Other (specify_____)

Cause:

___ Diabetes
___ Hypogonadism
___ Hyperprolactinemia
___ Immunosuppressed
___ Mixed
___ Neurogenic
___ Post prostatectomy
___ Post radiation therapy
___ Post-priapism
___ Peyronie's (secondary to)
___ Psychogenic (definition_____)
___ Spinal cord injury
___ Trauma
___ Vascular (arterial)
___ Vascular (venous)
___ Vascular (mixed or unspecified)
___ Other (specify_____)

Treatments

3. Indicate the treatment(s) given, by checking the appropriate lines. If the study had multiple arms check the lines under each arm that represent the treatment(s) given. If the study differentiated treatments by dosage level write the dosage information in the blank for that treatment under each appropriate arm.

	Arm 1	Arm 2	Arm 3
Psychotherapy			
In depth	_____	_____	_____
Behavioral	_____	_____	_____
Hypnotism	_____	_____	_____
Other (specify_____)	_____	_____	_____
Oral medications			
Apomorphine	_____	_____	_____
Phentolamine	_____	_____	_____
Sildenafil	_____	_____	_____
Other phosphodiesterase inhibitors (specify_____)	_____	_____	_____
Trazodone	_____	_____	_____
Yohimbine	_____	_____	_____
Placebo	_____	_____	_____

Reference number: _____ Reviewer_____

Impotence continued

Other oral (specify_____)	_____	_____	_____
Injection therapy (specify_____)	_____	_____	_____
Intraurethral (specify_____)	_____	_____	_____
Prostheses			
Malleable	_____	_____	_____
Inflatable – 1 piece	_____	_____	_____
Inflatable – 2 piece	_____	_____	_____
Inflatable – 3 piece	_____	_____	_____
Testosterone	_____	_____	_____
Vacuum device	_____	_____	_____
Surgery			
Arterial	_____	_____	_____
Venous	_____	_____	_____
Other (specify_____)	_____	_____	_____
Other (specify_____)	_____	_____	_____

Outcomes

4. Indicate the outcomes assessed:
___ Ability to have intercourse
___ Percent successful at intercourse
___ Patient satisfaction
___ Partner satisfaction
___ IIEF
___ Change in IIEF (___ Standard deviation data available)
___ Other measure of erection (specify_____)
___ Compliance (specify measure_____)
___ Durability of response
___ Quality of life (specify measure_____)
___ Other (specify_____)

Adverse effects
___ Cardiac
___ Dermatitis
___ Device mechanical failure
___ Erosion
___ Fibrosis
___ Flushing
___ GI symptoms (dyspepsia, nausea, vomiting)
___ Glans hyperemia
___ Headache
___ Hypotension/syncope
___ Impeded ejaculation
___ Ischemic tissue loss
___ Infection
___ Pain
___ Penile curvature
___ Penile edema
___ Petechiae
___ Priapism
___ Rhinitis
___ Sensory loss
___ Urethritis
___ Visual disturbance
___ Side effects (specify_____)

Reference number: _____ Reviewer_____

Peyronie's Disease

Patient characteristics

1. Age Min____ Max____ Mean____ Median____ Total number of patients_____

2. If the study differentiated outcomes or selected patients based on an initial or intermediate condition, indicate the condition(s) below:

___ Age
___ Disease phase (acute or chronic)
___ Disease duration
___ Prior therapy
___ Other (specify_____)

Treatments

3. Indicate the treatment(s) given, by checking the appropriate lines. If the study had multiple arms check the lines under each arm that represent the treatment(s) given. If the study differentiated treatments by dosage level write the dosage information in the blank for that treatment under each appropriate arm.

	Arm 1	Arm 2	Arm 3
Oral therapies:			
Potaba	_____	_____	_____
Vitamin E	_____	_____	_____
Placebo	_____	_____	_____
Other(_____)	_____	_____	_____
Topical therapies:			
DMSO	_____	_____	_____
Hyaluronidase	_____	_____	_____
Vitamin E	_____	_____	_____
Placebo	_____	_____	_____
Other(_____)	_____	_____	_____
Intra-lesional injections:			
Collagenase/ Hyaluronidase	_____	_____	_____
Verapamil	_____	_____	_____
Steroids	_____	_____	_____
Placebo	_____	_____	_____
Other(_____)	_____	_____	_____
Iontophoresis			
Steroids	_____	_____	_____
Verapamil	_____	_____	_____
Other(_____)	_____	_____	_____
Prosthesis insertion	_____	_____	_____
Radiation	_____	_____	_____
Shock wave	_____	_____	_____
Ultrasound	_____	_____	_____
Observation	_____	_____	_____

Reference number: _____ Reviewer_____

Peyronie's cont.

Surgical therapies:			
Plication			
With incision/excision	_____	_____	_____
Without incision/excision	_____	_____	_____
Excision & grafting	_____	_____	_____
Incision & grafting	_____	_____	_____
Graft type			
Dermis	_____	_____	_____
Fascia	_____	_____	_____
Vein	_____	_____	_____
Tunica Vaginalis	_____	_____	_____
Cadaveric	_____	_____	_____
Synthetic	_____	_____	_____
Other	_____	_____	_____

Outcomes

4. Indicate the outcomes assessed:
___ Change in curvature (___ standard deviation data available)
___ Degree of curvature
___ Fibrosis
___ Impotence
___ Patient satisfaction
___ Partner satisfaction
___ Penile length change (___ standard deviation data available)
___ Plaque size
___ Pain
___ Recurrence of deformity
___ Sensory loss
___ Straight
___ Other side effects _____
___ Other _____

Reference number: _____ Reviewer_____

Priapism

Patient characteristics

1. Age Min____ Max____ Mean____ Median____ Total number of patients_____

2. If the study differentiated outcomes or selected patients based on an initial or intermediate condition or cause or type of the priapism, indicate the condition(s) below:

___ Age
___ Disease duration
___ Prior therapy
___ Other (specify_____)

Disease cause

___ Anticoagulation
___ Drug induced (specify_____)
___ Hematologic malignancy
___ Hyperalimentation
___ Idiopathic
___ Metastatic carcinoma to the penis (type_____)
___ Penile injection therapy
___ Sickle cell disease
___ Trauma
___ Other (specify_____)

Type of priapism

___ Arterial, high flow
___ Ischemic, low flow
___ Recurrent "stuttering"
___ Other (specify_____)

Treatments

3. Indicate the treatment(s) given, by checking the appropriate lines. If the study had multiple arms check the lines under each arm that represent the treatment(s) given. If the study differentiated treatments by dosage level write the dosage information in the blank for that treatment under each appropriate arm.

	Arm 1	Arm 2	Arm 3
Oral therapies (specify_____)	_____	_____	_____
Exchange transfusions	_____	_____	_____
IV alkalization	_____	_____	_____
Local			
Ice	_____	_____	_____
Cold water enemas	_____	_____	_____
Hormonal therapy	_____	_____	_____
Penile injections (specify_____)	_____	_____	_____
Embolization	_____	_____	_____

Reference number: _____ Reviewer_____

Priapism continued

Surgical			
Irrigation and drainage	_____	_____	_____
Corporo-glandular shunt	_____	_____	_____
Corporo-spongiosal shunt	_____	_____	_____
Corporo-saphenous shunt	_____	_____	_____
Other (specify_____)	_____	_____	_____
Observation	_____	_____	_____
Other (specify_____)	_____	_____	_____

Outcomes

4. Indicate the outcomes assessed:
___ Cardiac (arrhythmia, tachycardia, hypertension)
___ Impotence
___ Penile necrosis
___ Recurrence of priapism
___ Resolution of priapism
___ Urethral stricture
___ Other side effects _____
___ Other _____

Reference number: _____ Reviewer_____

Premature Ejaculation

Patient characteristics

1. Age Min____ Max____ Mean____ Median____ Total number of patients_____

2. If the study differentiated outcomes or selected patients based on an initial or intermediate condition or cause or type of the premature ejaculation, indicate the condition(s) below:

___ Age
___ Disease duration (primary vs. secondary)
___ Prior therapy
___ Other (specify_____)

Treatments

3. Indicate the treatment(s) given, by checking the appropriate lines. If the study had multiple arms check the lines under each arm that represent the treatment(s) given. If the study differentiated treatments by dosage level write the dosage information in the blank for that treatment under each appropriate arm.

	Arm 1	Arm 2	Arm 3
Psychotherapy			
In depth	_____	_____	_____
Behavioral	_____	_____	_____
Other (specify_____)	_____	_____	_____
<u>Oral medications</u>			
Antidepressants:			
Tricyclic (specify_____)	_____	_____	_____
MAOI (specify_____)	_____	_____	_____
SSRIs (specify_____)	_____	_____	_____
Clomipramine	_____	_____	_____
Other (specify_____)	_____	_____	_____
Injection therapy (specify_____)	_____	_____	_____
Topical anesthesia (specify_____)	_____	_____	_____
Placebo	_____	_____	_____
Other (specify_____)	_____	_____	_____

Outcomes

4. Indicate the outcomes assessed:

___ Change in time to ejaculation (___ Standard deviation data available)
___ Patient satisfaction
___ Partner satisfaction
___ Time to ejaculation
___ Side effects (specify_____)

___ Other (specify_____)

American Urological Association, Inc. **Reference # _____**
ED Guidelines Panel

PRIAPISM
COVER Sheet
Case Reports

Citation:

Extractor A: _____ **Date**: _____

Extractor B: _____ **Date**: _____

Reconciliation Date: _____

____ **ACCEPTED** and Extracted

____ **REJECTED** and not Extracted
(If REJECTED, please complete sections 3 & 4)

Article REJECTED due to (check all that apply):
___ No data
___ Not dealing with Priapism
___ Treatments not available or current
___ Doesn't deal with treatment:
___ Basic Science ___ Epidemiology ___ Other
___ Other reason for exclusion:
specify: _____

1. Study: Total Patients Reported**:** _____ **(N)**
Location:_____(City, State, Country)

2. Patient Definitions: number and describe each patient

Patient #	**Description**

3. Comments

PRIAPISM
COVER Sheet
Case Reports

4. Time to complete this extraction _____ (minutes)

PRIAPISM
Patient Characteristics
Case Reports

Patient Number: _____

1. Patient Characteristics

Age: _____

If this patient has outcomes that are differentiated based upon an initial or intermediate condition or cause or type of the priapism, indicate the condition(s) below:
___ Prior therapy (specify_____)
___ Other (specify_____)

Disease cause (this person only):
___ Anticoagulation (specify_____)
___ Drug induced (specify_____)
___ Hematologic malignancy (specify_____)
___ Hyperalimentation (specify_____)
___ Idiopathic _____)
___ Metastatic carcinoma to the penis (type_____)
___ Penile injection therapy : Diagnostic Challenge (specify_____)
___ Penile injection therapy : Injection Therapy (specify_____)
___ Sickle cell disease
___ Sickle cell trait
___ Trauma (specify_____)
___ Other (specify_____)

Type of priapism
___ Arterial, high flow
___ Ischemic, low flow
___ Recurrent “stuttering”
___ Other (specify_____)

Definition of Treatment sequence – use sequence 1 if only one treatment

Sequence	Hours since Onset	Definition
1		
2		
3		
4		
5		

PRIAPISM
TREATMENTS and OUTCOMES
Case Reports

Patient Number: _____
Treatment Sequence: _____

2. Treatments

Oral therapies:	**Dose**
(1)	
(2)	
(3)	

___ **Exchange transfusions**

___ **IV alkalization**

Local:
___ Ice
___ Cold water enemas

___ **Estrogen**

___ **LHRH Agonists**

___ **Aspiration**

Penile injections:	**Dose**
(1)	
(2)	
(3)	

___ **Embolization: _____**

Surgical:
___ Irrigation and drainage
___ Corporo-glandular shunt
___ Percutaneous (Winter)
___ Formal (El-Ghorab)
___ Ebbehoj
___ Corporo-spongiosal shunt
___ Corporo-saphenous shunt

___ **Observation**

Other:	**Dose**
(1)	
(2)	

3. Outcomes

Y/N
___ Resolution of priapism
___ Recurrence of priapism
Time to Recurrence:_____ (days)
___ Impotence
___ Penile necrosis
___ Cardiac: Arrhythmia
___ Tachycardia
___ Hypertension
___ Urethral stricture

Other Outcomes:
(1) _____
(2) _____
(3) _____
(4) _____
(5) _____
(6) _____
(7) _____

4. Comments:

American Urological Association, Inc. **Reference #_____**
ED Guidelines Panel

PRIAPISM
COVER Sheets
Case Series and RCT's

Citation:

Extractor A: _____ **Date**: _____

Extractor B: _____ **Date**: _____

Reconciliation Date: _____

_____ **ACCEPTED** and Extracted

_____ **REJECTED** and not Extracted
(If REJECTED, please complete sections 1, 4, 6, 7)

Article REJECTED due to (check all that apply):
___ No data
___ Not dealing with Priapism
___ Treatments not available or current
___ Doesn't deal with treatment:
___ Basic Science ___ Epidemiology ___ Other
___ Other reason for exclusion:
specify: _____

1. Study Design
_____ Case Series/Report
_____ Controlled trial
_____ Review/policy
_____ Case-control study
_____ Cohort Study
_____ Meta-analysis
_____ Data base or surveillance
_____ Letter: Ref._____
_____ Opinion or testimony
_____ Other: spec._____

Study Features (check all that apply)
___ Retrospective
___ Prospective
___ Randomized
___ Patient blinded
___ Provider blinded
___ Outcome evaluator blinded
___ Cross-over

2. Study: Total Patients enrolled**:** _____ **(N)**
Location:_____(City, State, Country)
___ Check if multi-center/location

3. Are there particular difficulties with this study that make it less useful for our purposes (include study flaws and items that cause the study interventions or population not to match our needs)?
___ Serious design flaws (specify_____)
___ Randomization failure
___ Confounders present
___ Selection bias
___ Patient population not relevant
___ Incomplete or biased statistics/data
___ Blinding failure or insufficient
___ Compliance problems (intensity)
___ Cross-over problems
___ Atypical intervention
Other: (describe)

PRIAPISM
COVER Sheets
Case Series and RCT's

4. Are there other data or points in this article that would be relevant that are not covered elsewhere?

5. Group Definitions:
(use Group Nos. >= 90 for Placebo or Control arms)

Group No.	Patients (N)	Definition

6. Comments:

7. Time to complete this extraction _____ (minutes)

PRIAPISM

Group Definition

Case Series and RCT's

Group Number: _____
(use >= 90 for Placebo or Control)

1. Group Characteristics

Number of Patients in this Group: _____ (N)

Age: Min _____ Max _____ Mean _____ Median _____

If this group has outcomes that are differentiated based upon an initial or intermediate condition or cause or type of the priapism, indicate the condition(s) below:
___ Age Range of ages: _____ to _____
___ Prior therapy (specify_____)
___ Other (specify_____)

Disease cause (this group only):
___ Anticoagulation (specify_____)
___ Drug induced (specify_____)
___ Hematologic malignancy (specify_____)
___ Hyperalimentation (specify_____)
___ Idiopathic _____)
___ Metastatic carcinoma to the penis (type_____)
___ Penile injection therapy : Diagnostic Challenge (specify_____)
___ Penile injection therapy : Injection Therapy (specify_____)
___ Sickle cell disease
___ Sickle cell trait
___ Trauma (specify_____)
___ Other (specify_____)

Type of priapism

___ Arterial, high flow
___ Ischemic, low flow
___ Recurrent "stuttering"
___ Other (specify_____)

Definition of Treatment sequence – use sequence 1 if only one treatment

Sequence	Patients (N)	Hours since Onset	Definition
1			
2			
3			
4			
5			

PRIAPISM

Group Definition

Case Series and RCT's

Group Number: _____
Treatment Sequence: _____

2. Treatments

Oral therapies:	**Dose**
(1)	
(2)	
(3)	

___ **Exchange transfusions**

___ **IV alkalization**

Local:
___ Ice
Cold water enemas

___ **Estrogen**

___ **LHRH Agonists**

___ **Aspiration**

Penile injections:	**Dose**
(1)	
(2)	
(3)	

___ **Embolization (specify: _____**

Surgical:
___ Irrigation and drainage
___ Corporo-glandular shunt
___ Percutaneous (Winter)
___ Formal (El-Ghorab)
___ Ebbehoj
___ Corporo-spongiosal shunt
___ Corporo-saphenous shunt

___ **Observation**

Other:	**Dose**
(1)	
(2)	

3. Outcomes

	%	**x**	**y**
Resolution of priapism			
Recurrence of priapism			

	Mean	**Var**	**SD**	**SE**
Time to Recurrence (days): _____				

	%	**x**	**y**
Impotence			
Penile necrosis			
Cardiac: Arrhythmia			
Tachycardia			
Hypertension			
Urethral stricture			

Other Outcomes:	**%**	**x**	**y**
(1)			
(2)			
(3)			
(4)			
(5)			
(6)			
(7)			

4. Comments:

American Urological Association, Inc.

ED Guidelines Panel

PRIAPISM Articles selected for Review - sorted by Authors

12985 Adeyokunnu, A. A. Lawani, J. O. Nkposong, E. O. Priapism complicating sickle cell disease in Nigerian children. Ann Trop Paediatr. 1981 Sep; 1: 143-7

12787 Adogu, A. A. Stuttering priapism in sickle cell disease. Br J Urol. 1991 Jan; 67: 105-6

12568 Aghaji, A. E. Priapism in adult Nigerians. BJU Int. 2000 Mar; 85: 493-5

12627 Ahmed, I. Shaikh, N. A. Treatment of intermittent idiopathic priapism with oral terbutaline. Br J Urol. 1997 Aug; 80: 341

13031 Aina, A. O. Review of 21 cases of priapism - management, results and the role of Hb genotype S in prognosis. Niger Med J. 1979 May-Jun; 9: 543-6 (Excluded)

12636 Albrecht, W. Stackl, W. Treatment of partial priapism with an intracavernous injection of etilefrine. JAMA. 1997 Feb 5; 277: 378

13015 Altebarmakian, V. K. Rabinowitz, R. Rana, S. R. Ettinger, L. J. Transglandular cavernosum-spongiosum shunt for leukemic priapism in childhood. J Urol. 1980 Feb; 123: 287-8

12718 Alvarez Gonzalez, E. Pamplona, M. Rodriguez, A. Garcia-Hidalgo, E. Nunez, V. Leiva, O. High flow priapism after blunt perineal trauma: resolution with bucrylate embolization. J Urol. 1994 Feb; 151: 426-8

12778 Appadu, B. Calder, I. Ketamine does not always work in treatment of priapism. Anaesthesia. 1991 May; 46: 426-7 (Excluded)

12583 Arango, O. Castro, R. Dominguez, J. Gelabert, A. Complete resolution of post-traumatic high-flow priapism with conservative treatment. Int J Impot Res. 1999 Apr; 11: 115-7

13162 Audu, I. S. Rao, M. S. Sickle cell priapism. J Trop Pediatr Afr Child Health. 1967 Mar; 13: 23-6

12819 Bardin, E. D. Krieger, J. N. Pharmacological priapism: comparison of trazodone- and papaverine- associated cases. Int Urol Nephrol. 1990; 22: 147-52

13042 Baron, M. Leiter, E. The management of priapism in sickle cell anemia. J Urol. 1978 May; 119: 610-1

13061 Barry, J. M. Priapism: treatment with corpus cavernosum to dorsal vein of penis shunts. J Urol. 1976 Dec; 116: 754-6

12713 Bastuba, M. D. Saenz de Tejada, I. Dinlenc, C. Z. Sarazen, A. Krane, R. J. Goldstein, I. Arterial priapism: diagnosis, treatment and long-term followup. J Urol. 1994 May; 151: 1231-7

12936 Becker, H. C. Pralle, H. Weidner, W. Therapy of priapism in high counting myeloid leukemia--a combined oncological-urological approach. Two case reports. Urol Int. 1985; 40: 284-6

13167 Becker, L. E. Mitchell, A. D. Prapism. Surg Clin North Am. 1965 Dec; 45: 1522-34

13151 Bell, W. R. Pitney, W. R. Priapism--a new approach to management. Proc R Soc Med. 1968 Nov; 61: 1109 (Excluded)

13146 Bell, W. R. Pitney, W. R. Management of priapism by therapeutic defibrination. N Engl J Med. 1969 Mar 20; 280: 649-50

12994 Bennett, A. H. Pilopn, R. N. Non-incisional therapy for priapism. J Urol. 1981 Feb; 125: 208-9

12964 Benzon, H. T. Leventhal, J. B. Ovassapian, A. Ketamine treatment of penile erection in the operating room. Anesth Analg. 1983 Apr; 62: 457-8 (Excluded)

12920 Bertram, R. A. Webster, G. D. Carson, C. C. = 3d Priapism: etiology, treatment, and results in series of 35 presentations. Urology. 1985 Sep; 26: 229-32

12798 Bondil, P. Re: Treatment of persistent erection and priapism using terbutaline. J Urol. 1990 Dec; 144: 1483-4 (Excluded)

13161 Borski, A. A. Painter, M. R. Priapism: favorable response of idiopathic cases. J Urol. 1967 Jul; 98: 105-7

12704 Bos, S. D. Buys, G. A. Treatment of priapism with ethyl chloride spray after failed intracavernous injection with adrenaline. Br J Urol. 1994 Nov; 74: 677-8

12808 Boyle, E. T. = JrOesterling, J. E. Priapism: simple method to prevent retumescence following initial decompression. J Urol. 1990 May; 143: 933-5

12945 Brindley, G. S. New treatment for priapism. Lancet. 1984 Jul 28; 2: 220-1

12730 Brock, G. Breza, J. Lue, T. F. Tanagho, E. A. High flow priapism: a spectrum of disease. J Urol. 1993 Sep; 150: 968-71

PRIAPISM Articles selected for Review - sorted by Authors

13152 Brown, R. S. Mazansky, H. Maxwell, H. M. Priapism. S Afr Med J. 1968 Sep 7; 42: 886-9

12823 Buckley, J. F. Chapple, C. R. McNicholas, T. Continuous infusion of phenylephrine in the treatment of papaverine- induced priapism. Br J Urol. 1989 Dec; 64: 654-5

13054 Buckspan, M. Klotz, P. Urethrocavernous fistula: a case report. J Urol. 1977 Apr; 117: 538

13002 Carmignani, G. Belgrano, E. Puppo, P. Cichero, A. Quattrini, S. Idiopathic priapism successfully treated by unilateral embolization of internal pudendal artery. J Urol. 1980 Oct; 124: 553-4

13073 Carter, R. G. Thomas, C. E. Tomskey, G. C. Cavernospongiosum shunts in treatment of priapism. Urology. 1976 Mar; 7: 292-5

12998 Chary, K. S. Rao, M. S. Kumar, S. Palaniswamy, R. Chandrasekar, D. Vaidyanathan, S. Jain, S. Creation of caverno-glandular shunt for treatment of priapism. Eur Urol. 1981; 7: 343-5

12960 Chin, J. L. Sharpe, J. R. Priapism and anesthesia: new considerations. J Urol. 1983 Aug; 130: 371

12587 Chiou, R. K. Henslee, D. L. Anderson, J. C. Wobig, R. K. Colour doppler ultrasonography assessment and a saphenous vein-graft penile venocorporeal shunt for priapism. BJU Int. 1999 Jan; 83: 138-9

12669 Cohen, G. S. Braunstein, L. Ball, D. S. Roberto, P. J. Reich, J. Hanno, P. Selective arterial embolization of idiopathic priapism. Cardiovasc Intervent Radiol. 1996 Jan-Feb; 19: 47-9

12582 Colombo, F. Lovaria, A. Saccheri, S. Pozzoni, F. Montanaris, E. Arterial embolization in the treatment of post-traumatic priapism. Ann Urol (Paris). 1999; 33: 210-8

12723 Corke, P. J. Watters, G. R. Treatment of priapism with epidural anaesthesia. Anaesth Intensive Care. 1993 Dec; 21: 882-4

12600 Costabile, R. A. Successful treatment of stutter priapism with an antiandrogen. Tech Urol. 1998 Sep; 4: 167-8

13027 Crummy, A. B. Ishizuka, J. Madsen, P. O. Posttraumatic priapism: successful treatment with autologous clot embolization. AJR Am J Roentgenol. 1979 Aug; 133: 329-30

13090 Dahl, D. S. Middleton, R. G. Comparison between cavernosaphenous and cavernospongiosum shunting in the treatment of idiopathic priapism: a report of 5 operations. J Urol. 1974 Nov; 112: 614-5

13093 Darwish, M. E. Atassi, B. Clark, S. S. Priapism: evaluation of treatment regimens. J Urol. 1974 Jul; 112: 92-4

12897 Datta, N. S. A new technique for creation of a cavernoglandular shunt in the treatment of priapism. J Urol. 1986 Sep; 136: 602-3

105182 Dawam, D. Kalayi, G. Nmadu, P. N. Cavernosal spongiosium shunt in the management of priapism in Zaria, Nigeria. Trop Doct. 2000 Jan; 30: 31-2

12741 De Stefani, S. Capone, M. Carmignani, G. Treatment of post-traumatic priapism by means of autologous clot embolization. A case report. Eur Urol. 1993; 23: 506-8

12612 deHoll, J. D. Shin, P. A. Angle, J. F. Steers, W. D. Alternative approaches to the management of priapism. Int J Impot Res. 1998 Mar; 10: 11-4 (Excluded)

12719 Dewan, P. A. Lorenz, C. Davies, R. P. Posttraumatic priapism in a 7-year-old boy. Eur Urol. 1994; 25: 85-7

12826 Dewan, P. A. Tan, H. L. Auldist, A. W. Moss, D. I. Priapism in childhood. Br J Urol. 1989 Nov; 64: 541-5

13025 Dimopoulos, C. Benakis, V. Chomatas, J. Vlahos, L. Cranidis, A. Becopoulos, T. Katzavelos, D. Priapism: successful treatment and post-operative cavernosogram. Br J Radiol. 1979 Sep; 52: 750-1

12773 Dittrich, A. Albrecht, K. Bar-Moshe, O. Vandendris, M. Treatment of pharmacological priapism with phenylephrine. J Urol. 1991 Aug; 146: 323-4

13072 Drummond, J. M. Proceedings: Surgical management of priapism. Br J Urol. 1976 Apr; 48: 152

13033 Duron, J. J. Benhamou, G. Priapism and pudendal arteriovenous fistula. Int Surg. 1979 Mar; 64: 75-7

13135 Eadie, D. G. Brock, T. P. Corpus saphenous by-pass in the treatment of priapism. Br J Surg. 1970 Mar; 57: 172-4

12993 Ercole, C. J. Pontes, J. E. Pierce, J. M. = Jr Changing surgical concepts in the treatment of priapism. J Urol. 1981 Feb; 125: 210-1 (Excluded)

PRIAPISM Articles selected for Review - sorted by Authors

13038 Eriksson, A. Berlin, T. Collste, L. von Garrelts, B. Priapism: surgical or medical treatment?. Scand J Urol Nephrol. 1979; 13: 1-3

13123 Falk, D. Loos, D. C. Spongiocavernosum shunt in the surgical treatment of idiopathic persistent priapism. J Urol. 1972 Jul; 108: 101-3

12986 Forsberg, L. Mattiasson, A. Olsson, A. M. Priapism--conservative treatment versus surgical procedures. Br J Urol. 1981 Aug; 53: 374-7

12843 Forsberg, L. Olsson, A. M. Another approach to the treatment of priapism. Br J Urol. 1989 Jan; 63: 105

13116 Fortuno, R. F. Carrillo, R. Gangrene of the penis following cavernospongiosum shunt in a case of priapism. J Urol. 1972 Nov; 108: 752-3

13009 Fuselier, H. A. = JrOchsner, M. G. Ross, R. J. Priapism: review of simple surgical procedure. J Urol. 1980 May; 123: 778

12679 Futral, A. A. Witt, M. A. A closed system for corporeal irrigation in the treatment of refractory priapism. Urology. 1995 Sep; 46: 403-4

13166 Garrett, R. A. Rhamy, D. E. Priapism: management with corpus-saphenous shunt. J Urol. 1966 Jan; 95: 65-7

13012 Gates, C. L. = JrMiddleton, R. G. Extracorporeal corpus-venous shunting for priapism. J Urol. 1980 Apr; 123: 595-6

12670 Goktas, S. Tahmaz, L. Atac, K. Erduran, D. Ogur, E. High-flow priapism due to bilateral arteriosinusoidal fistulae. Br J Urol. 1996 Jan; 77: 165-6

12664 Goktas, S. Tahmaz, L. Atac, K. Erduran, D. Peker, A. F. Harmankaya, C. Embolization therapy in two subtypes of priapism. Int Urol Nephrol. 1996; 28: 723-7

105227 Golash, A. Gray, R. Ruttley, M. S. Jenkins, B. J. Traumatic priapism: an unusual cycling injury. Br J Sports Med. 2000 Aug; 34: 310-1

12589 Goto, T. Yagi, S. Matsushita, S. Uchida, Y. Kawahara, M. Ohi, Y. Diagnosis and treatment of priapism: experience with 5 cases. Urology. 1999 May; 53: 1019-23

13019 Goulding, F. J. Modification of cavernoglandibular shunt for priapism. Urology. 1980 Jan; 15: 64

12715 Govier, F. E. Jonsson, E. Kramer-Levien, D. Oral terbutaline for the treatment of priapism. J Urol. 1994 Apr; 151: 878-9 (Excluded)

8154 Govier, F.E., Jonsson, E., and Kramer-Levien, D. Oral terbutaline for the treatment of priapism. J Urol. 1994; 151: 878-879

13156 Grace, D. A. Winter, C. C. Priapism: an appraisal of management of twenty-three patients. J Urol. 1968 Mar; 99: 301-10

800009 Grayhack, J.T., MaCullough, W., O'Conor, V.J. and Trippel, O. Venous Bypass to Control Priapism. Investative Urology. 1964; 1: 509-13

12850 Greenberg, W. M. Lee, K. K. Beta blockers for treatment of priapism associated with use of neuroleptics. Am J Psychiatry. 1988 Nov; 145: 1480 (Excluded)

13104 Griffiths, D. A. Webb, A. J. Proceedings: Surgical treatment of initial priapism and recurrent priapism. Proc R Soc Med. 1973 Oct; 66: 1051-2

13112 Gruber, H. The treatment of priapism: use of the inferior epigastric artery: a case report. J Urol. 1972 Dec; 108: 882-6

12662 Hakim, L. S. Kulaksizoglu, H. Mulligan, R. Greenfield, A. Goldstein, I. Evolving concepts in the diagnosis and treatment of arterial high flow priapism. J Urol. 1996 Feb; 155: 541-8 (Excluded)

12724 Harding, J. R. Hollander, J. B. Bendick, P. J. Chronic priapism secondary to a traumatic arteriovenous fistula of the corpus cavernosum. J Urol. 1993 Nov; 150: 1504-6

13065 Harewood, L. McOmish, D. The treatment of priapism by cavernosospongiosal shunt: results of operation in five patients. Aust N Z J Surg. 1976 Aug; 46: 237-40

13149 Harrow, B. R. Simple technique for treating priapism. J Urol. 1969 Jan; 101: 71-3

12790 Hashmat, A. I. Abrahams, J. Fani, K. Nostrand, I. A lethal complication of papaverine-induced priapism. J Urol. 1991 Jan; 145: 146-7

PRIAPISM Articles selected for Review - sorted by Authors

12759 Hebuterne, X. Frere, A. M. Bayle, J. Rampal, P. Priapism in a patient treated with total parenteral nutrition. JPEN J Parenter Enteral Nutr. 1992 Mar-Apr; 16: 171-4

13144 Howe, G. E. Prentiss, R. J. Cole, J. W. Masters, R. H. Priapism: a surgical emergency. J Urol. 1969 Apr; 101: 576-9

12678 Ilkay, A. K. Levine, L. A. Conservative management of high-flow priapism. Urology. 1995 Sep; 46: 419-24

13140 Jaffe, N. Kim, B. S. Priapism in acute granulocytic leukemia. Am J Dis Child. 1969 Oct; 118: 619-20

12656 Jameson, J. S. Terry, T. R. Bolia, A. Johnstone, J. M. An unusual case of priapism in a child: diagnosis and treatment. Br J Urol. 1996 Mar; 77: 462-3

12742 Janetschek, G. Promegger, R. Weimann, S. Local fibrinolysis and perfusion in the treatment of priapism of the corpora cavernosa and corpus spongiosum. Scand J Urol Nephrol. 1993; 27: 545-7

12595 Jara, J. Moncada, I. Bueno, G. Hernandez, C. Intracavernous methoxamine in the treatment of priapism. Int J Impot Res. 1998 Dec; 10: 257-9

12709 Ji, M. X. He, N. S. Wang, P. Chen, G. Use of selective embolization of the bilateral cavernous arteries for posttraumatic arterial priapism. J Urol. 1994 Jun; 151: 1641-2

13136 Johansson, H. Lindquist, B. Corpus-saphenous shunt as treatment in priapism. Scand J Urol Nephrol. 1970; 4: 264-6

12905 Kaisary, A. V. Smith, P. J. Prazosin, priapism and management. Br J Urol. 1986 Apr; 58: 227-8

12896 Kaisary, A. V. Smith, P. J. Aetiological factors and management of priapism in Bristol 1978-1983. Ann R Coll Surg Engl. 1986 Sep; 68: 252-4

13157 Kandel, G. L. Bender, L. I. Grove, J. S. Pulmonary embolism: a complication of corpus-saphenous shunt for priapism. J Urol. 1968 Feb; 99: 196-7

12597 Kang, B. C. Lee, D. Y. Byun, J. Y. Baek, S. Y. Lee, S. W. Kim, K. W. Post-traumatic arterial priapism: colour Doppler examination and superselective arterial embolization. Clin Radiol. 1998 Nov; 53: 830-4

13118 Karayalcin, G. Imran, M. Rosner, F. Priapism in sickle cell disease: report of five cases. Am J Med Sci. 1972 Oct; 264: 289-93

12702 Kawachi, Y. Watanabe, R. Noto, K. Murata, M. Sumi, Y. A case of arterial priapism treated by embolization. Int J Urol. 1994 Dec; 1: 357-8

12622 Kerlan, R. K. = JrGordon, R. L. LaBerge, J. M. Ring, E. J. Superselective microcoil embolization in the management of high-flow priapism. J Vasc Interv Radiol. 1998 Jan-Feb; 9: 85-9

13004 Khoriaty, N. Schick, E. Penile gangrene: an unusual complication of priapism. How to avoid it?. Urology. 1980 Sep; 16: 280-3

13018 Kihl, B. Bratt, C. G. Knutsson, U. Seeman, T. Priapsim: evaluation of treatment with special reference to saphenocavernous shunting in 26 patients. Scand J Urol Nephrol. 1980; 14: 1-5 (Excluded)

12740 Kilinc, M. A modified Winter's procedure for priapism treatment with a new trocar. Eur Urol. 1993; 24: 118-9

12658 Kim, S. C. Park, S. H. Yang, S. H. Treatment of posttraumatic chronic high-flow priapisms by superselective embolization of cavernous artery with autologous clot. J Trauma. 1996 Mar; 40: 462-5

13082 Kinney, T. R. Harris, M. B. Russell, M. O. Duckett, J. Schwartz, E. Priapism in association with sickle hemoglobinopathies in children. J Pediatr. 1975 Feb; 86: 241-2

13122 Klein, L. A. Hall, R. L. Smith, R. B. Surgical treatment of priapism: with a note on heparin-induced priapism. J Urol. 1972 Jul; 108: 104-6

13115 Klugo, R. C. Olsson, C. A. Urethrocavernous fistula: complication of cavernospongiosal shunt. J Urol. 1972 Nov; 108: 750-1

12797 Koga, S. Shiraishi, K. Saito, Y. Post-traumatic priapism treated with metaraminol bitartrate: case report. J Trauma. 1990 Dec; 30: 1591-3

12667 Kolbenstvedt, A. Egge, T. Schultz, A. Arterial high flow priapism role of radiology in diagnosis and treatment. Scand J Urol Nephrol Suppl. 1996; 179: 143-6

12722 Kulmala, R. Treatment of priapism: primary results and complications in 207 patients. Ann Chir Gynaecol. 1994; 83: 309-14

PRIAPISM Articles selected for Review - sorted by Authors

10869 Kulmala, R. V. Lehtonen, T. A. Lindholm, T. S. Tammela, T. L. Permanent open shunt as a reason for impotence or reduced potency after surgical treatment of priapism in 26 patients. Int J Impot Res. 1995 Sep; 7: 175-80 (Excluded)

10918 Kulmala, R. V. Tamella, T. L. Effects of priapism lasting 24 hours or longer caused by intracavernosal injection of vasoactive drugs. Int J Impot Res. 1995 Jun; 7: 131-6

13086 Larocque, M. A. Cosgrove, M. D. Priapism: a review of 46 cases. J Urol. 1974 Dec; 112: 770-3 (Excluded)

12647 Lazinger, M. Beckmann, C. F. Cossi, A. Roth, R. A. Selective embolization of bilateral arterial cavernous fistulas for posttraumatic penile arterial priapism. Cardiovasc Intervent Radiol. 1996 Jul-Aug; 19: 281-4

13111 Lehtonen, T. Tenhunen, A. Treatment of idiopathic priapism by Grayhack's caverno-saphenous shunt. Scand J Urol Nephrol. 1973; 7: 233-5

12781 Levine, J. F. Saenz de Tejada, I. Payton, T. R. Goldstein, I. Recurrent prolonged erections and priapism as a sequela of priapism: pathophysiology and management. J Urol. 1991 Apr; 145: 764-7

12731 Levine, L. A. Guss, S. P. Gonadotropin-releasing hormone analogues in the treatment of sickle cell anemia-associated priapism. J Urol. 1993 Aug; 150: 475-7

12955 Lichtor, J. L. Priapism--a therapeutic challenge. Anesth Analg. 1983 Dec; 62: 1136-7

12938 Lindoro, J. Castro, J. C. Cruz, F. Marques, R. Treatment of priapism. Lancet. 1984 Dec 8; 2: 1348

105217 Logarakis, N. F. Simons, M. E. Hassouna, M. Selective arterial embolization for post-traumatic high flow priapism. Can J Urol. 2000 Jun; 7: 1051-1054

12732 Lowe, F. C. Jarow, J. P. Placebo-controlled study of oral terbutaline and pseudoephedrine in management of prostaglandin E1-induced prolonged erections. Urology. 1993 Jul; 42: 51-3; discussion 53-4 (Excluded)

8692 Lowe, F.C., Jarow, J.P. Placebo-controlled study of oral terbutaline and pseudoephedrine in management of prostaglandin E1-induced prolonged erections. Urology. 1993; 42: 51-53 (Excluded)

12902 Lue, T. F. Hellstrom, W. J. McAninch, J. W. Tanagho, E. A. Priapism: a refined approach to diagnosis and treatment. J Urol. 1986 Jul; 136: 104-8

13020 Lund, K. Ebbehoj, J. Results of glando-cavernous anastomosis in 18 cases of priapism. Scand J Plast Reconstr Surg. 1980; 14: 269-72

12593 Mabjeesh, N. J. Shemesh, D. Abramowitz, H. B. Posttraumatic high flow priapism: successful management using duplex guided compression. J Urol. 1999 Jan; 161: 215-6

12919 Macaluso, J. N. = JrSullivan, J. W. Priapism: review of 34 cases. Urology. 1985 Sep; 26: 233-6

12970 MacErlean, D. P. McDermott, E. Kelly, D. G. Priapism: successful management by arterial embolisation. Br J Radiol. 1982 Dec; 55: 924-6

12575 Mantadakis, E. Ewalt, D. H. Cavender, J. D. Rogers, Z. R. Buchanan, G. R. Outpatient penile aspiration and epinephrine irrigation for young patients with sickle cell anemia and prolonged priapism. Blood. 2000 Jan 1; 95: 78-82

13141 Martin, D. C. Schapiro, A. Burkholder, G. V. Corpus cavernosum-saphenous vein anastomosis for priapism. J Urol. 1969 Aug; 102: 221-3

300250 Martinez Portillo, F. Hoang-Boehm, J. Weiss, J. Alken, P. Junemann, K. Methylene blue as a successful treatment alternative for pharmacologically induced priapism. Eur Urol. 2001 Jan; 39: 20-3

13148 Martinez, M. Sharma, T. C. MacDonald, G. Smyth, N. P. Operative management of priapism secondary to sickle cell trait. Arch Surg. 1969 Jan; 98: 81-2

105230 McCarthy, L. J. Vattuone, J. Weidner, J. Skipworth, E. Fernandez, C. Jackson, L. Rothenberger, S. Waxman, D. Miraglia, C. Porcu, P. Danielson, C. F. Do automated red cell exchanges relieve priapism in patients with sickle cell anemia?. Ther Apher. 2000 Jun; 4: 256-8

12981 McLeod, R. E. Clayden, G. R. Bonnell, G. Post-traumatic priapism - successful treatment by percutaneous catheter embolization. J Can Assoc Radiol. 1981 Dec; 32: 238-9

13103 Medeiros, A. = deSCarvalho, R. M. = de Bilateral caverno-saphenous shunt for priapism: 4 case reports. Br J Urol. 1973 Oct; 45: 545-7

PRIAPISM Articles selected for Review - sorted by Authors

12734 Mejean, A. Marc, B. Rigot, J. M. Mazeman, E. Re: Use of methylene blue and selective embolization of the pudendal artery for high flow priapism refractory to medical and surgical treatments. J Urol. 1993 May; 149: 1149

12835 Merlob, P. Livne, P. M. Incidence, possible causes and followup of idiopathic prolonged penile erection in the newborn. J Urol. 1989 Jun; 141: 1410-2 (Excluded)

12686 Miller, S. F. Chait, P. G. Burrows, P. E. Steckler, R. E. Khoury, A. E. McLorie, G. A. Connolly, B. L. Pereira, J. K. Posttraumatic arterial priapism in children: management with embolization. Radiology. 1995 Jul; 196: 59-62

12683 Miller, S. T. Rao, S. P. Dunn, E. K. Glassberg, K. I. Priapism in children with sickle cell disease. J Urol. 1995 Aug; 154: 844-7

12630 Millward, S. F. Aquino, J. = JrCollins, J. P. High-flow priapism--recurrence after initially successful selective coil embolization: case report. Can Assoc Radiol J. 1997 Apr; 48: 105-7

12844 Mireku-Boateng, A. Jackson, A. G. Penile prosthesis in the management of priapism. Urol Int. 1989; 44: 247-8

12910 Mizutani, M. Nakano, H. Sagami, K. Nihira, H. Treatment of post-traumatic priapism by intracavernous injection of alpha-stimulant. Urol Int. 1986; 41: 312-4

12836 Molina, L. Bejany, D. Lynne, C. M. Politano, V. A. Diluted epinephrine solution for the treatment of priapism. J Urol. 1989 May; 141: 1127-8

13077 Moloney, P. J. Elliott, G. B. Johnson, H. W. Experiences with priapism. J Urol. 1975 Jul; 114: 72-6

13114 Moloney, P. J. Sullivan, L. D. Management of priapism. Am Surg. 1972 Dec; 38: 671-5

12668 Monga, M. Broderick, G. A. Hellstrom, W. J. Priapism in sickle cell disease: the case for early implantation of the penile prosthesis. Eur Urol. 1996; 30: 54-9 (Excluded)

105216 Morano, S. G. Latagliata, R. Carmosino, I. Girmenia, C. Dal Forno, S. Alimena, G. Treatment of long-lasting priapism in chronic myeloid leukemia at onset.[In Process Citation]. Ann Hematol. 2000 Nov; 79: 644-5

105240 Moscovici, J. Barret, E. Galinier, P. Liard, A. Juricic, M. Mitrofanoff, P. Juskiewenski, S. Post-traumatic arterial priapism in the child: a study of four cases. Eur J Pediatr Surg. 2000 Feb; 10: 72-6

105232 Mourikis, D. Chatziioannou, A. N. Konstantinidis, P. Panourgias, E. Antoniou, A. Vlachos, L. Superselective microcoil embolization of a traumatic pseudoaneurysm of the cavernosal artery. Urol Int. 2000; 64: 220-2

12671 Muruve, N. Hosking, D. H. Intracorporeal phenylephrine in the treatment of priapism. J Urol. 1996 Jan; 155: 141-3

13062 Nair, V. R. Venous shunt in priapism: a report of 4 cases. J R Coll Surg Edinb. 1976 Nov; 21: 366-7

13055 Nelson, J. H. = 3dWinter, C. C. Priapism: evolution of management in 48 patients in a 22-year series. J Urol. 1977 Apr; 117: 455-8 (Excluded)

12617 Neubauer, S. Derakhshani, P. Krug, B. Lackner, K. Heidenreich, A. Engelmann, U. Posttraumatic high-flow priapism in a 10-year-old boy: superselective embolization of the arteriovenous fistula. Eur Urol. 1998; 33: 337-9

13121 Nieder, R. M. Ketamine treatment of priapism. JAMA. 1972 Jul 10; 221: 195

12982 Noe, H. N. Wilimas, J. Jerkins, G. R. Surgical management of priapism in children with sickle cell anemia. J Urol. 1981 Dec; 126: 770-1

12648 Numan, F. Cakirer, S. Islak, C. Ogut, G. Kadioglu, A. Cayan, S. Tellaloglu, S. Posttraumatic high-flow priapism treated by N-butyl-cyanoacrylate embolization. Cardiovasc Intervent Radiol. 1996 Jul-Aug; 19: 278-80

12863 Odelowo, E. O. A new caverno-spongiosum shunt with saphenous vein patch graft for established priapism. Int Surg. 1988 Apr-Jun; 73: 130-2

13060 Oppenheimer, R. Priapism in an 8-year-old boy treated by spongiocavernosum shunt. J Urol. 1976 Dec; 116: 818

12895 Padma-Nathan, H. Goldstein, I. Krane, R. J. Treatment of prolonged or priapistic erections following intracavernosal papaverine therapy. Semin Urol. 1986 Nov; 4: 236-8

12942 Pantaleo-Gandais, M. Chalbaud, R. Chacon, O. Plaza, N. Priapism: evaluation and treatment. Urology. 1984 Oct; 24: 345-6

12965 Parrillo, S. J. Manfrey, S. Idiopathic priapism treated with inhalation of amyl nitrite. Ann Emerg Med. 1983 Apr; 12: 226-7

PRIAPISM Articles selected for Review - sorted by Authors

12906 Pohl, J. Pott, B. Kleinhans, G. Priapism: a three-phase concept of management according to aetiology and prognosis. Br J Urol. 1986 Apr; 58: 113-8 (Excluded)

12972 Pryor, J. P. Hehir, M. The management of priapism. Br J Urol. 1982 Dec; 54: 751-4

12934 Puppo, P. Belgrano, E. Germinale, F. Bottino, P. Giuliani, L. Angiographic treatment of high-flow priapism. Eur Urol. 1985; 11: 397-400

12968 Puppo, P. Belgrano, E. Quattrini, S. Fabbro, V. Repetto, U. Giuliani, L. Treatment of priapism by transcatheter embolization of internal pudendal arteries. Urol Radiol. 1983; 5: 261-5

12692 Ramos, C. E. Park, J. S. Ritchey, M. L. Benson, G. S. High flow priapism associated with sickle cell disease. J Urol. 1995 May; 153: 1619-21

13006 Reddy, M. J. Bhat, V. N. Rao, K. M. Vaidyanathan, S. Rao, M. S. Gupta, C. L. Bapna, B. C. Urethro-caverno-cutaneous fistula with distal urethral stricture and aberrant voiding into corpora cavernosa. Urology. 1980 Jun; 15: 593-5

13127 Reid, E. C. Homsy, Y. Treatment of priapism by caverno-saphenous by-pass. Case report. Br J Urol. 1972 Feb; 44: 86-90

13080 Resnick, M. I. Holland, J. M. King, L. R. Grayhack, J. T. Priapism in boys. Management with cavernosaphenous shunt. Urology. 1975 Apr; 5: 492-5

12739 Ricciardi, R. = JrBhatt, G. M. Cynamon, J. Bakal, C. W. Melman, A. Delayed high flow priapism: pathophysiology and management. J Urol. 1993 Jan; 149: 119-21

13037 Richard, F. Fourcade, R. Le Guillou, M. Jardin, A. Kuss, R. Etiological aspects and interest of early surgical management of priapism. Eur Urol. 1979; 5: 179-81

13022 Rifkind, S. Waisman, J. Thompson, R. Goldfinger, D. RBC exchange pheresis for priapism in sickle cell disease. JAMA. 1979 Nov 23; 242: 2317-8

13041 Rosenbaum, E. H. Thompson, H. E. Glassberg, A. B. Priapism and multiple myeloma. Successful treatment with plasmapheresis. Urology. 1978 Aug; 12: 201-2

13131 Rothfeld, S. H. Mazor, D. Priapism in children: a complication of sickle cell disease. J Urol. 1971 Feb; 105: 307-8

13124 Sacher, E. C. Sayegh, E. Frensilli, F. Crum, P. Akers, R. Cavernospongiosum shunt in the treatment of priapism. J Urol. 1972 Jul; 108: 97-100

300030 Sancak, T. Conkbayir, I. Post-traumatic high-flow priapism: management by superselective transcatheter autologous clot embolization and duplex sonography-guided compression. J Clin Ultrasound. 2001 Jul-Aug; 29: 349-53

12644 Sandock, D. S. Seftel, A. D. Herbener, T. E. Goldstein, I. Greenfield, A. J. Perineal abscess after embolization for high-flow priapism. Urology. 1996 Aug; 48: 308-11

12852 Sayer, J. Parsons, C. L. Successful treatment of priapism with intracorporeal epinephrine. J Urol. 1988 Oct; 140: 827

13095 Schreibman, S. M. Gee, T. S. Grabstald, H. Management of priapism in patients with chronic granulocytic leukemia. J Urol. 1974 Jun; 111: 786-8

13129 Seeler, R. A. Priapism in children with sickle cell anemia. Clin Pediatr (Phila). 1971 Jul; 10: 418-9

13106 Seeler, R. A. Intensive transfusion therapy for priapism in boys with sickle cell anemia. J Urol. 1973 Sep; 110: 360-3

12913 Serjeant, G. R. de Ceulaer, K. Maude, G. H. Stilboestrol and stuttering priapism in homozygous sickle-cell disease. Lancet. 1985 Dec 7; 2: 1274-6

12765 Serrate, R. G. Prats, J. Regue, R. Rius, G. The usefulness of ethylephrine (Efortil-R) in the treatment of priapism and intraoperative penile erections. Int Urol Nephrol. 1992; 24: 389-92

105226 Shankar, K. R. Babar, S. Rowlands, P. Jones, M. O. Posttraumatic high-flow priapism: treatment with selective embolisation. Pediatr Surg Int. 2000; 16: 454-6

12834 Shantha, T. R. Finnerty, D. P. Rodriquez, A. P. Treatment of persistent penile erection and priapism using terbutaline. J Urol. 1989 Jun; 141: 1427-9

262 Shantha, T.R., Finnerty, D.P., and Rodriquez, A.P. Treatment of persistent penile erection and priapism using terbutaline. J Urol. 1989; 141: 1427-1429 (Excluded)

PRIAPISM Articles selected for Review - sorted by Authors

12633 Shapiro, R. H. Berger, R. E. Post-traumatic priapism treated with selective cavernosal artery ligation. Urology. 1997 Apr; 49: 638-43

13029 Shapiro, S. R. Idiopathic priapism in the newborn. J Urol. 1979 Jun; 121: 838

12637 Siegel, J. F. Reda, E. Intracorporeal phenylephrine reduces thioridazine (Mellaril) induced priapism in a child. J Urol. 1997 Feb; 157: 648

11038 Soni, B. M. Vaidyanathan, S. Krishnan, K. R. Management of pharmacologically induced prolonged penile erection with oral terbutaline in traumatic paraplegics. Paraplegia. 1994 Oct; 32: 670-4

12941 Stanners, A. Colin-Jones, D. Metaraminol for priapism. Lancet. 1984 Oct 27; 2: 978

12766 Steers, W. D. Selby, J. B. = Jr Use of methylene blue and selective embolization of the pudendal artery for high flow priapism refractory to medical and surgical treatments. J Urol. 1991 Nov; 146: 1361-3

12700 Steinberg, J. Eyre, R. C. Management of recurrent priapism with epinephrine self-injection and gonadotropin-releasing hormone analogue. J Urol. 1995 Jan; 153: 152-3

12663 Stock, K. W. Jacob, A. L. Kummer, M. Zimmermann, U. Steinbrich, W. High-flow priapism in a child: treatment with superselective embolization. AJR Am J Roentgenol. 1996 Feb; 166: 290-2

105236 Sur, R. L. Kane, C. J. Sildenafil citrate-associated priapism. Urology (Online). 2000 Jun 1; 55: 950

13021 Suri, R. Goldman, J. M. Catovsky, D. Johnson, S. A. Wiltshaw, E. Galton, D. A. Priapism complicating chronic granulocytic leukemia. Am J Hematol. 1980; 9: 295-9

13066 Tarasuk, A. P. Schneider, I. M. Management of priapism by: cavernoglandular shunt. Urology. 1976 Aug; 8: 141-2

12573 Touge, H. Watanabe, T. Fujinaga, T. Kawabata, M. Post-traumatic high flow priapism: a case report. Int J Urol. 1999 Dec; 6: 623-6

12802 Tsai, S. K. Hong, C. Y. Intracavernosal metaraminol for treatment of intraoperative penile erection. Postgrad Med J. 1990 Oct; 66: 831-3 (Excluded)

12657 Ulman, I. Avanoglu, A. Herek, O. Kavakli, K. Gokdemir, A. A simple method of treating priapism in children. Br J Urol. 1996 Mar; 77: 460-1

12613 Upadhyay, J. Shekarriz, B. Dhabuwala, C. B. Penile implant for intractable priapism associated with sickle cell disease. Urology. 1998 Apr; 51: 638-9

13120 Vadakan, V. V. Ortega, J. Priapism in acute lymphoblastic leukemia. Cancer. 1972 Aug; 30: 373-5

12820 van Driel, M. F. Joosten, E. A. Mensink, H. J. Intracorporeal self-injection with epinephrine as treatment for idiopathic recurrent priapism. Eur Urol. 1990; 17: 95-6

12794 van Driel, M. F. Mooibroek, J. J. Mensink, H. J. Treatment of priapism by injection of adrenaline into the corpora cavernosa penis. Scand J Urol Nephrol. 1991; 25: 251-4

12916 Villalonga, A. Beltran, J. Gomar, C. Nalda, M. A. Ketamine for treatment of priapism. Anesth Analg. 1985 Oct; 64: 1033-4

12650 Virag, R. Bachir, D. Lee, K. Galacteros, F. Preventive treatment of priapism in sickle cell disease with oral and self-administered intracavernous injection of etilefrine. Urology. 1996 May; 47: 777-81; discussion 781 (Excluded)

12749 Visvanathan, K. Burrows, P. E. Schillinger, J. F. Khoury, A. E. Posttraumatic arterial priapism in a 7-year-old boy: successful management by percutaneous transcatheter embolization. J Urol. 1992 Aug; 148: 382-3

12957 Walker, E. M. = JrMitchum, E. N. Rous, S. N. Glassman, A. B. Cannon, A. McInnes, B. K. = 3d Automated erythrocytopheresis for relief of priapism in sickle cell hemoglobinopathies. J Urol. 1983 Nov; 130: 912-6

12623 Walsh, R. A. = 3rdDrose, J. A. Meacham, R. B. High flow priapism secondary to injury of the cavernosal artery. Urology. 1998 Jan; 51: 114-5

12995 Wasmer, J. M. Carrion, H. M. Mekras, G. Politano, V. A. Evaluation and treatment of priapism. J Urol. 1981 Feb; 125: 204-7

12854 Watters, G. R. Keogh, E. J. Carati, C. J. Earle, C. M. Wisniewski, Z. S. Tulloch, A. G. Lord, D. J. Prolonged erections following intracorporeal injection of medications to overcome impotence. Br J Urol. 1988 Aug; 62: 173-5

13056 Wear, J. B. = JrCrummy, A. B. Munson, B. O. A new approach to the treatment of priapism. J Urol. 1977 Feb; 117: 252-4

PRIAPISM Articles selected for Review - sorted by Authors

12616 Webber, R. J. Thirsk, I. Moffat, L. E. Hussey, J. Selective arterial embolization in the treatment of arterial priapism. J R Coll Surg Edinb. 1998 Feb; 43: 61

13117 Wellwood, J. M. Bultitude, M. I. Rickford, C. Thomas, M. L. The role of corpus-saphenous by-pass in the treatment of priapism. Br J Urol. 1972 Oct; 44: 607-11

12984 Wendel, E. F. Grayhack, J. T. Corpora cavernosa-glans penis shunt for priapism. Surg Gynecol Obstet. 1981 Oct; 153: 586-8

13064 Winter, C. C. Cure of idiopathic priapism: new procedure for creating fistula between glans penis and corpora cavernosa. Urology 1976 Oct; 8: 389-91

13057 Winter, C. C. Priapism cured by creation of fistulas between glans penis and corpora cavernosa. Trans Am Assoc Genitourin Surg. 1977; 69: 31-2

13044 Winter, C. C. Priapism cured by creation of fistulas between glans penis and corpora cavernosa. J Urol. 1978 Feb; 119: 227-8

13030 Winter, C. C. Priapism treated by modification of creation of fistulas between glans penis and corpora cavernosa. J Urol. 1979 Jun; 121: 743-4

12849 Winter, C. C. McDowell, G. Experience with 105 patients with priapism: update review of all aspects. J Urol. 1988 Nov; 140: 980-3

12800 Yang, Y. M. Donnell, C. A. Farrer, J. H. Mankad, V. N. Corporectomy for intractable sickle-associated priapism. Am J Med Sci. 1990 Oct; 300: 231-3

Total number of articles from all journals: 217

American Urological Association, Inc.

ED Guidelines Panel

PRIAPISM Articles selected for Review - by ProCite Reference Number

262 Shantha, T.R., Finnerty, D.P., and Rodriquez, A.P. Treatment of persistent penile erection and priapism using terbutaline. J Urol. 1989; 141: 1427-1429 (Excluded)

8154 Govier, F.E., Jonsson, E., and Kramer-Levien, D. Oral terbutaline for the treatment of priapism. J Urol. 1994; 151: 878-879

8692 Lowe, F.C., Jarow, J.P. Placebo-controlled study of oral terbutaline and pseudoephedrine in management of prostaglandin E1-induced prolonged erections. Urology. 1993; 42: 51-53 (Excluded)

10869 Kulmala, R. V. Lehtonen, T. A. Lindholm, T. S. Tammela, T. L. Permanent open shunt as a reason for impotence or reduced potency after surgical treatment of priapism in 26 patients. Int J Impot Res. 1995 Sep; 7: 175-80 (Excluded)

10918 Kulmala, R. V. Tamella, T. L. Effects of priapism lasting 24 hours or longer caused by intracavernosal injection of vasoactive drugs. Int J Impot Res. 1995 Jun; 7: 131-6

11038 Soni, B. M. Vaidyanathan, S. Krishnan, K. R. Management of pharmacologically induced prolonged penile erection with oral terbutaline in traumatic paraplegics. Paraplegia. 1994 Oct; 32: 670-4

12568 Aghaji, A. E. Priapism in adult Nigerians. BJU Int. 2000 Mar; 85: 493-5

12573 Touge, H. Watanabe, T. Fujinaga, T. Kawabata, M. Post-traumatic high flow priapism: a case report. Int J Urol. 1999 Dec; 6: 623-6

12575 Mantadakis, E. Ewalt, D. H. Cavender, J. D. Rogers, Z. R. Buchanan, G. R. Outpatient penile aspiration and epinephrine irrigation for young patients with sickle cell anemia and prolonged priapism. Blood. 2000 Jan 1; 95: 78-82

12582 Colombo, F. Lovaria, A. Saccheri, S. Pozzoni, F. Montanaris, E. Arterial embolization in the treatment of post-traumatic priapism. Ann Urol (Paris). 1999; 33: 210-8

12583 Arango, O. Castro, R. Dominguez, J. Gelabert, A. Complete resolution of post-traumatic high-flow priapism with conservative treatment. Int J Impot Res. 1999 Apr; 11: 115-7

12587 Chiou, R. K. Henslee, D. L. Anderson, J. C. Wobig, R. K. Colour doppler ultrasonography assessment and a saphenous vein-graft penile venocorporeal shunt for priapism. BJU Int. 1999 Jan; 83: 138-9

12589 Goto, T. Yagi, S. Matsushita, S. Uchida, Y. Kawahara, M. Ohi, Y. Diagnosis and treatment of priapism: experience with 5 cases. Urology. 1999 May; 53: 1019-23

12593 Mabjeesh, N. J. Shemesh, D. Abramowitz, H. B. Posttraumatic high flow priapism: successful management using duplex guided compression. J Urol. 1999 Jan; 161: 215-6

12595 Jara, J. Moncada, I. Bueno, G. Hernandez, C. Intracavernous methoxamine in the treatment of priapism. Int J Impot Res. 1998 Dec; 10: 257-9

12597 Kang, B. C. Lee, D. Y. Byun, J. Y. Baek, S. Y. Lee, S. W. Kim, K. W. Post-traumatic arterial priapism: colour Doppler examination and superselective arterial embolization. Clin Radiol. 1998 Nov; 53: 830-4

12600 Costabile, R. A. Successful treatment of stutter priapism with an antiandrogen. Tech Urol. 1998 Sep; 4: 167-8

12612 deHoll, J. D. Shin, P. A. Angle, J. F. Steers, W. D. Alternative approaches to the management of priapism. Int J Impot Res. 1998 Mar; 10: 11-4 (Excluded)

12613 Upadhyay, J. Shekarriz, B. Dhabuwala, C. B. Penile implant for intractable priapism associated with sickle cell disease. Urology. 1998 Apr; 51: 638-9

12616 Webber, R. J. Thirsk, I. Moffat, L. E. Hussey, J. Selective arterial embolization in the treatment of arterial priapism. J R Coll Surg Edinb. 1998 Feb; 43: 61

12617 Neubauer, S. Derakhshani, P. Krug, B. Lackner, K. Heidenreich, A. Engelmann, U. Posttraumatic high-flow priapism in a 10-year-old boy: superselective embolization of the arteriovenous fistula. Eur Urol. 1998; 33: 337-9

12622 Kerlan, R. K. = JrGordon, R. L. LaBerge, J. M. Ring, E. J. Superselective microcoil embolization in the management of high-flow priapism. J Vasc Interv Radiol. 1998 Jan-Feb; 9: 85-9

12623 Walsh, R. A. = 3rdDrose, J. A. Meacham, R. B. High flow priapism secondary to injury of the cavernosal artery. Urology. 1998 Jan; 51: 114-5

12627 Ahmed, I. Shaikh, N. A. Treatment of intermittent idiopathic priapism with oral terbutaline. Br J Urol. 1997 Aug; 80: 341

12630 Millward, S. F. Aquino, J. = JrCollins, J. P. High-flow priapism--recurrence after initially successful selective coil embolization: case report. Can Assoc Radiol J. 1997 Apr; 48: 105-7

12633 Shapiro, R. H. Berger, R. E. Post-traumatic priapism treated with selective cavernosal artery ligation. Urology. 1997 Apr; 49: 638-43

12636 Albrecht, W. Stackl, W. Treatment of partial priapism with an intracavernous injection of etilefrine. JAMA. 1997 Feb 5; 277: 378

12637 Siegel, J. F. Reda, E. Intracorporeal phenylephrine reduces thioridazine (Mellaril) induced priapism in a child. J Urol. 1997 Feb; 157: 648

PRIAPISM Articles selected for Review - by ProCite Reference Number

12644 Sandock, D. S. Seftel, A. D. Herbener, T. E. Goldstein, I. Greenfield, A. J. Perineal abscess after embolization for high-flow priapism. Urology. 1996 Aug; 48: 308-11

12647 Lazinger, M. Beckmann, C. F. Cossi, A. Roth, R. A. Selective embolization of bilateral arterial cavernous fistulas for posttraumatic penile arterial priapism. Cardiovasc Intervent Radiol. 1996 Jul-Aug; 19: 281-4

12648 Numan, F. Cakirer, S. Islak, C. Ogut, G. Kadioglu, A. Cayan, S. Tellaloglu, S. Posttraumatic high-flow priapism treated by N-butyl-cyanoacrylate embolization. Cardiovasc Intervent Radiol. 1996 Jul-Aug; 19: 278-80

12650 Virag, R. Bachir, D. Lee, K. Galacteros, F. Preventive treatment of priapism in sickle cell disease with oral and self-administered intracavernous injection of etilefrine. Urology. 1996 May; 47: 777-81; discussion 781 (Excluded)

12656 Jameson, J. S. Terry, T. R. Bolia, A. Johnstone, J. M. An unusual case of priapism in a child: diagnosis and treatment. Br J Urol. 1996 Mar; 77: 462-3

12657 Ulman, I. Avanoglu, A. Herek, O. Kavakli, K. Gokdemir, A. A simple method of treating priapism in children. Br J Urol. 1996 Mar; 77: 460-1

12658 Kim, S. C. Park, S. H. Yang, S. H. Treatment of posttraumatic chronic high-flow priapisms by superselective embolization of cavernous artery with autologous clot. J Trauma. 1996 Mar; 40: 462-5

12662 Hakim, L. S. Kulaksizoglu, H. Mulligan, R. Greenfield, A. Goldstein, I. Evolving concepts in the diagnosis and treatment of arterial high flow priapism. J Urol. 1996 Feb; 155: 541-8 (Excluded)

12663 Stock, K. W. Jacob, A. L. Kummer, M. Zimmermann, U. Steinbrich, W. High-flow priapism in a child: treatment with superselective embolization. AJR Am J Roentgenol. 1996 Feb; 166: 290-2

12664 Goktas, S. Tahmaz, L. Atac, K. Erduran, D. Peker, A. F. Harmankaya, C. Embolization therapy in two subtypes of priapism. Int Urol Nephrol. 1996; 28: 723-7

12667 Kolbenstvedt, A. Egge, T. Schultz, A. Arterial high flow priapism role of radiology in diagnosis and treatment. Scand J Urol Nephrol Suppl. 1996; 179: 143-6

12668 Monga, M. Broderick, G. A. Hellstrom, W. J. Priapism in sickle cell disease: the case for early implantation of the penile prosthesis. Eur Urol. 1996; 30: 54-9 (Excluded)

12669 Cohen, G. S. Braunstein, L. Ball, D. S. Roberto, P. J. Reich, J. Hanno, P. Selective arterial embolization of idiopathic priapism. Cardiovasc Intervent Radiol. 1996 Jan-Feb; 19: 47-9

12670 Goktas, S. Tahmaz, L. Atac, K. Erduran, D. Ogur, E. High-flow priapism due to bilateral arteriosinusoidal fistulae. Br J Urol. 1996 Jan; 77: 165-6

12671 Muruve, N. Hosking, D. H. Intracorporeal phenylephrine in the treatment of priapism. J Urol. 1996 Jan; 155: 141-3

12678 Ilkay, A. K. Levine, L. A. Conservative management of high-flow priapism. Urology. 1995 Sep; 46: 419-24

12679 Futral, A. A. Witt, M. A. A closed system for corporeal irrigation in the treatment of refractory priapism. Urology. 1995 Sep; 46: 403-4

12683 Miller, S. T. Rao, S. P. Dunn, E. K. Glassberg, K. I. Priapism in children with sickle cell disease. J Urol. 1995 Aug; 154: 844-7

12686 Miller, S. F. Chait, P. G. Burrows, P. E. Steckler, R. E. Khoury, A. E. McLorie, G. A. Connolly, B. L. Pereira, J. K. Posttraumatic arterial priapism in children: management with embolization. Radiology. 1995 Jul; 196: 59-62

12692 Ramos, C. E. Park, J. S. Ritchey, M. L. Benson, G. S. High flow priapism associated with sickle cell disease. J Urol. 1995 May; 153: 1619-21

12700 Steinberg, J. Eyre, R. C. Management of recurrent priapism with epinephrine self-injection and gonadotropin-releasing hormone analogue. J Urol. 1995 Jan; 153: 152-3

12702 Kawachi, Y. Watanabe, R. Noto, K. Murata, M. Sumi, Y. A case of arterial priapism treated by embolization. Int J Urol. 1994 Dec; 1: 357-8

12704 Bos, S. D. Buys, G. A. Treatment of priapism with ethyl chloride spray after failed intracavernous injection with adrenaline. Br J Urol. 1994 Nov; 74: 677-8

12709 Ji, M. X. He, N. S. Wang, P. Chen, G. Use of selective embolization of the bilateral cavernous arteries for posttraumatic arterial priapism. J Urol. 1994 Jun; 151: 1641-2

12713 Bastuba, M. D. Saenz de Tejada, I. Dinlenc, C. Z. Sarazen, A. Krane, R. J. Goldstein, I. Arterial priapism: diagnosis, treatment and long-term followup. J Urol. 1994 May; 151: 1231-7

12715 Govier, F. E. Jonsson, E. Kramer-Levien, D. Oral terbutaline for the treatment of priapism. J Urol. 1994 Apr; 151: 878-9 (Excluded)

12718 Alvarez Gonzalez, E. Pamplona, M. Rodriguez, A. Garcia-Hidalgo, E. Nunez, V. Leiva, O. High flow priapism after blunt perineal trauma: resolution with bucrylate embolization. J Urol. 1994 Feb; 151: 426-8

12719 Dewan, P. A. Lorenz, C. Davies, R. P. Posttraumatic priapism in a 7-year-old boy. Eur Urol. 1994; 25: 85-7

PRIAPISM Articles selected for Review - by ProCite Reference Number

12722 Kulmala, R. Treatment of priapism: primary results and complications in 207 patients. Ann Chir Gynaecol. 1994; 83: 309-14

12723 Corke, P. J. Watters, G. R. Treatment of priapism with epidural anaesthesia. Anaesth Intensive Care. 1993 Dec; 21: 882-4

12724 Harding, J. R. Hollander, J. B. Bendick, P. J. Chronic priapism secondary to a traumatic arteriovenous fistula of the corpus cavernosum. J Urol. 1993 Nov; 150: 1504-6

12730 Brock, G. Breza, J. Lue, T. F. Tanagho, E. A. High flow priapism: a spectrum of disease. J Urol. 1993 Sep; 150: 968-71

12731 Levine, L. A. Guss, S. P. Gonadotropin-releasing hormone analogues in the treatment of sickle cell anemia-associated priapism. J Urol. 1993 Aug; 150: 475-7

12732 Lowe, F. C. Jarow, J. P. Placebo-controlled study of oral terbutaline and pseudoephedrine in management of prostaglandin E1-induced prolonged erections. Urology. 1993 Jul; 42: 51-3; discussion 53-4 (Excluded)

12734 Mejean, A. Marc, B. Rigot, J. M. Mazeman, E. Re: Use of methylene blue and selective embolization of the pudendal artery for high flow priapism refractory to medical and surgical treatments. J Urol. 1993 May; 149: 1149

12739 Ricciardi, R. = JrBhatt, G. M. Cynamon, J. Bakal, C. W. Melman, A. Delayed high flow priapism: pathophysiology and management. J Urol. 1993 Jan; 149: 119-21

12740 Kilinc, M. A modified Winter's procedure for priapism treatment with a new trocar. Eur Urol. 1993; 24: 118-9

12741 De Stefani, S. Capone, M. Carmignani, G. Treatment of post-traumatic priapism by means of autologous clot embolization. A case report. Eur Urol. 1993; 23: 506-8

12742 Janetschek, G. Promegger, R. Weimann, S. Local fibrinolysis and perfusion in the treatment of priapism of the corpora cavernosa and corpus spongiosum. Scand J Urol Nephrol. 1993; 27: 545-7

12749 Visvanathan, K. Burrows, P. E. Schillinger, J. F. Khoury, A. E. Posttraumatic arterial priapism in a 7-year-old boy: successful management by percutaneous transcatheter embolization. J Urol. 1992 Aug; 148: 382-3

12759 Hebuterne, X. Frere, A. M. Bayle, J. Rampal, P. Priapism in a patient treated with total parenteral nutrition. JPEN J Parenter Enteral Nutr. 1992 Mar-Apr; 16: 171-4

12765 Serrate, R. G. Prats, J. Regue, R. Rius, G. The usefulness of ethylephrine (Efortil-R) in the treatment of priapism and intraoperative penile erections. Int Urol Nephrol. 1992; 24: 389-92

12766 Steers, W. D. Selby, J. B. = Jr Use of methylene blue and selective embolization of the pudendal artery for high flow priapism refractory to medical and surgical treatments. J Urol. 1991 Nov; 146: 1361-3

12773 Dittrich, A. Albrecht, K. Bar-Moshe, O. Vandendris, M. Treatment of pharmacological priapism with phenylephrine. J Urol. 1991 Aug; 146: 323-4

12778 Appadu, B. Calder, I. Ketamine does not always work in treatment of priapism. Anaesthesia. 1991 May; 46: 426-7 (Excluded)

12781 Levine, J. F. Saenz de Tejada, I. Payton, T. R. Goldstein, I. Recurrent prolonged erections and priapism as a sequela of priapism: pathophysiology and management. J Urol. 1991 Apr; 145: 764-7

12787 Adogu, A. A. Stuttering priapism in sickle cell disease. Br J Urol. 1991 Jan; 67: 105-6

12790 Hashmat, A. I. Abrahams, J. Fani, K. Nostrand, I. A lethal complication of papaverine-induced priapism. J Urol. 1991 Jan; 145: 146-7

12794 van Driel, M. F. Mooibroek, J. J. Mensink, H. J. Treatment of priapism by injection of adrenaline into the corpora cavernosa penis. Scand J Urol Nephrol. 1991; 25: 251-4

12797 Koga, S. Shiraishi, K. Saito, Y. Post-traumatic priapism treated with metaraminol bitartrate: case report. J Trauma. 1990 Dec; 30: 1591-3

12798 Bondil, P. Re: Treatment of persistent erection and priapism using terbutaline. J Urol. 1990 Dec; 144: 1483-4 (Excluded)

12800 Yang, Y. M. Donnell, C. A. Farrer, J. H. Mankad, V. N. Corporectomy for intractable sickle-associated priapism. Am J Med Sci. 1990 Oct; 300: 231-3

12802 Tsai, S. K. Hong, C. Y. Intracavernosal metaraminol for treatment of intraoperative penile erection. Postgrad Med J. 1990 Oct; 66: 831-3 (Excluded)

12808 Boyle, E. T. = JrOesterling, J. E. Priapism: simple method to prevent retumescence following initial decompression. J Urol. 1990 May; 143: 933-5

12819 Bardin, E. D. Krieger, J. N. Pharmacological priapism: comparison of trazodone- and papaverine- associated cases. Int Urol Nephrol. 1990; 22: 147-52

12820 van Driel, M. F. Joosten, E. A. Mensink, H. J. Intracorporeal self-injection with epinephrine as treatment for idiopathic recurrent priapism. Eur Urol. 1990; 17: 95-6

12823 Buckley, J. F. Chapple, C. R. McNicholas, T. Continuous infusion of phenylephrine in the treatment of papaverine- induced priapism. Br J Urol. 1989 Dec; 64: 654-5

PRIAPISM Articles selected for Review - by ProCite Reference Number

12826 Dewan, P. A. Tan, H. L. Auldist, A. W. Moss, D. I. Priapism in childhood. Br J Urol. 1989 Nov; 64: 541-5

12834 Shantha, T. R. Finnerty, D. P. Rodriquez, A. P. Treatment of persistent penile erection and priapism using terbutaline. J Urol. 1989 Jun; 141: 1427-9

12835 Merlob, P. Livne, P. M. Incidence, possible causes and followup of idiopathic prolonged penile erection in the newborn. J Urol. 1989 Jun; 141: 1410-2 (Excluded)

12836 Molina, L. Bejany, D. Lynne, C. M. Politano, V. A. Diluted epinephrine solution for the treatment of priapism. J Urol. 1989 May; 141: 1127-8

12843 Forsberg, L. Olsson, A. M. Another approach to the treatment of priapism. Br J Urol. 1989 Jan; 63: 105

12844 Mireku-Boateng, A. Jackson, A. G. Penile prosthesis in the management of priapism. Urol Int. 1989; 44: 247-8

12849 Winter, C. C. McDowell, G. Experience with 105 patients with priapism: update review of all aspects. J Urol. 1988 Nov; 140: 980-3

12850 Greenberg, W. M. Lee, K. K. Beta blockers for treatment of priapism associated with use of neuroleptics. Am J Psychiatry. 1988 Nov; 145: 1480 (Excluded)

12852 Sayer, J. Parsons, C. L. Successful treatment of priapism with intracorporeal epinephrine. J Urol. 1988 Oct; 140: 827

12854 Watters, G. R. Keogh, E. J. Carati, C. J. Earle, C. M. Wisniewski, Z. S. Tulloch, A. G. Lord, D. J. Prolonged erections following intracorporeal injection of medications to overcome impotence. Br J Urol. 1988 Aug; 62: 173-5

12863 Odelowo, E. O. A new caverno-spongiosum shunt with saphenous vein patch graft for established priapism. Int Surg. 1988 Apr-Jun; 73: 130-2

12895 Padma-Nathan, H. Goldstein, I. Krane, R. J. Treatment of prolonged or priapistic erections following intracavernosal papaverine therapy. Semin Urol. 1986 Nov; 4: 236-8

12896 Kaisary, A. V. Smith, P. J. Aetiological factors and management of priapism in Bristol 1978-1983. Ann R Coll Surg Engl. 1986 Sep; 68: 252-4

12897 Datta, N. S. A new technique for creation of a cavernoglandular shunt in the treatment of priapism. J Urol. 1986 Sep; 136: 602-3

12902 Lue, T. F. Hellstrom, W. J. McAninch, J. W. Tanagho, E. A. Priapism: a refined approach to diagnosis and treatment. J Urol. 1986 Jul; 136: 104-8

12905 Kaisary, A. V. Smith, P. J. Prazosin, priapism and management. Br J Urol. 1986 Apr; 58: 227-8

12906 Pohl, J. Pott, B. Kleinhans, G. Priapism: a three-phase concept of management according to aetiology and prognosis. Br J Urol. 1986 Apr; 58: 113-8 (Excluded)

12910 Mizutani, M. Nakano, H. Sagami, K. Nihira, H. Treatment of post-traumatic priapism by intracavernous injection of alpha-stimulant. Urol Int. 1986; 41: 312-4

12913 Serjeant, G. R. de Ceulaer, K. Maude, G. H. Stilboestrol and stuttering priapism in homozygous sickle-cell disease. Lancet. 1985 Dec 7; 2: 1274-6

12916 Villalonga, A. Beltran, J. Gomar, C. Nalda, M. A. Ketamine for treatment of priapism. Anesth Analg. 1985 Oct; 64: 1033-4

12919 Macaluso, J. N. = JrSullivan, J. W. Priapism: review of 34 cases. Urology. 1985 Sep; 26: 233-6

12920 Bertram, R. A. Webster, G. D. Carson, C. C. = 3d Priapism: etiology, treatment, and results in series of 35 presentations. Urology. 1985 Sep; 26: 229-32

12934 Puppo, P. Belgrano, E. Germinale, F. Bottino, P. Giuliani, L. Angiographic treatment of high-flow priapism. Eur Urol. 1985; 11: 397-400

12936 Becker, H. C. Pralle, H. Weidner, W. Therapy of priapism in high counting myeloid leukemia--a combined oncological-urological approach. Two case reports. Urol Int. 1985; 40: 284-6

12938 Lindoro, J. Castro, J. C. Cruz, F. Marques, R. Treatment of priapism. Lancet. 1984 Dec 8; 2: 1348

12941 Stanners, A. Colin-Jones, D. Metaraminol for priapism. Lancet. 1984 Oct 27; 2: 978

12942 Pantaleo-Gandais, M. Chalbaud, R. Chacon, O. Plaza, N. Priapism: evaluation and treatment. Urology. 1984 Oct; 24: 345-6

12945 Brindley, G. S. New treatment for priapism. Lancet. 1984 Jul 28; 2: 220-1

12955 Lichtor, J. L. Priapism--a therapeutic challenge. Anesth Analg. 1983 Dec; 62: 1136-7

12957 Walker, E. M. = JrMitchum, E. N. Rous, S. N. Glassman, A. B. Cannon, A. McInnes, B. K. = 3d Automated erythrocytopheresis for relief of priapism in sickle cell hemoglobinopathies. J Urol. 1983 Nov; 130: 912-6

12960 Chin, J. L. Sharpe, J. R. Priapism and anesthesia: new considerations. J Urol. 1983 Aug; 130: 371

PRIAPISM Articles selected for Review - by ProCite Reference Number

12964 Benzon, H. T. Leventhal, J. B. Ovassapian, A. Ketamine treatment of penile erection in the operating room. Anesth Analg. 1983 Apr; 62: 457-8 (Excluded)

12965 Parrillo, S. J. Manfrey, S. Idiopathic priapism treated with inhalation of amyl nitrite. Ann Emerg Med. 1983 Apr; 12: 226-7

12968 Puppo, P. Belgrano, E. Quattrini, S. Fabbro, V. Repetto, U. Giuliani, L. Treatment of priapism by transcatheter embolization of internal pudendal arteries. Urol Radiol. 1983; 5: 261-5

12970 MacErlean, D. P. McDermott, E. Kelly, D. G. Priapism: successful management by arterial embolisation. Br J Radiol. 1982 Dec; 55: 924-6

12972 Pryor, J. P. Hehir, M. The management of priapism. Br J Urol. 1982 Dec; 54: 751-4

12981 McLeod, R. E. Clayden, G. R. Bonnell, G. Post-traumatic priapism - successful treatment by percutaneous catheter embolization. J Can Assoc Radiol. 1981 Dec; 32: 238-9

12982 Noe, H. N. Wilimas, J. Jerkins, G. R. Surgical management of priapism in children with sickle cell anemia. J Urol. 1981 Dec; 126: 770-1

12984 Wendel, E. F. Grayhack, J. T. Corpora cavernosa-glans penis shunt for priapism. Surg Gynecol Obstet. 1981 Oct; 153: 586-8

12985 Adeyokunnu, A. A. Lawani, J. O. Nkposong, E. O. Priapism complicating sickle cell disease in Nigerian children. Ann Trop Paediatr. 1981 Sep; 1: 143-7

12986 Forsberg, L. Mattiasson, A. Olsson, A. M. Priapism--conservative treatment versus surgical procedures. Br J Urol. 1981 Aug; 53: 374-7

12993 Ercole, C. J. Pontes, J. E. Pierce, J. M. = Jr Changing surgical concepts in the treatment of priapism. J Urol. 1981 Feb; 125: 210-1 (Excluded)

12994 Bennett, A. H. Pilopn, R. N. Non-incisional therapy for priapism. J Urol. 1981 Feb; 125: 208-9

12995 Wasmer, J. M. Carrion, H. M. Mekras, G. Politano, V. A. Evaluation and treatment of priapism. J Urol. 1981 Feb; 125: 204-7

12998 Chary, K. S. Rao, M. S. Kumar, S. Palaniswamy, R. Chandrasekar, D. Vaidyanathan, S. Jain, S. Creation of caverno-glandular shunt for treatment of priapism. Eur Urol. 1981; 7: 343-5

13002 Carmignani, G. Belgrano, E. Puppo, P. Cichero, A. Quattrini, S. Idiopathic priapism successfully treated by unilateral embolization of internal pudendal artery. J Urol. 1980 Oct; 124: 553-4

13004 Khoriaty, N. Schick, E. Penile gangrene: an unusual complication of priapism. How to avoid it?. Urology. 1980 Sep; 16: 280-3

13006 Reddy, M. J. Bhat, V. N. Rao, K. M. Vaidyanathan, S. Rao, M. S. Gupta, C. L. Bapna, B. C. Urethro-caverno-cutaneous fistula with distal urethral stricture and aberrant voiding into corpora cavernosa. Urology. 1980 Jun; 15: 593-5

13009 Fuselier, H. A. = JrOchsner, M. G. Ross, R. J. Priapism: review of simple surgical procedure. J Urol. 1980 May; 123: 778

13012 Gates, C. L. = JrMiddleton, R. G. Extracorporeal corpus-venous shunting for priapism. J Urol. 1980 Apr; 123: 595-6

13015 Altebarmakian, V. K. Rabinowitz, R. Rana, S. R. Ettinger, L. J. Transglandular cavernosum-spongiosum shunt for leukemic priapism in childhood. J Urol. 1980 Feb; 123: 287-8

13018 Kihl, B. Bratt, C. G. Knutsson, U. Seeman, T. Priapsim: evaluation of treatment with special reference to saphenocavernous shunting in 26 patients. Scand J Urol Nephrol. 1980; 14: 1-5 (Excluded)

13019 Goulding, F. J. Modification of cavernoglandibular shunt for priapism. Urology. 1980 Jan; 15: 64

13020 Lund, K. Ebbehoj, J. Results of glando-cavernous anastomosis in 18 cases of priapism. Scand J Plast Reconstr Surg. 1980; 14: 269-72

13021 Suri, R. Goldman, J. M. Catovsky, D. Johnson, S. A. Wiltshaw, E. Galton, D. A. Priapism complicating chronic granulocytic leukemia. Am J Hematol. 1980; 9: 295-9

13022 Rifkind, S. Waisman, J. Thompson, R. Goldfinger, D. RBC exchange pheresis for priapism in sickle cell disease. JAMA. 1979 Nov 23; 242: 2317-8

13025 Dimopoulos, C. Benakis, V. Chomatas, J. Vlahos, L. Cranidis, A. Becopoulos, T. Katzavelos, D. Priapism: successful treatment and post-operative cavernosogram. Br J Radiol. 1979 Sep; 52: 750-1

13027 Crummy, A. B. Ishizuka, J. Madsen, P. O. Posttraumatic priapism: successful treatment with autologous clot embolization. AJR Am J Roentgenol. 1979 Aug; 133: 329-30

13029 Shapiro, S. R. Idiopathic priapism in the newborn. J Urol. 1979 Jun; 121: 838

13030 Winter, C. C. Priapism treated by modification of creation of fistulas between glans penis and corpora cavernosa. J Urol. 1979 Jun; 121: 743-4

13031 Aina, A. O. Review of 21 cases of priapism - management, results and the role of Hb genotype S in prognosis. Niger Med J. 1979 May-Jun; 9: 543-6 (Excluded)

PRIAPISM Articles selected for Review - by ProCite Reference Number

13033 Duron, J. J. Benhamou, G. Priapism and pudendal arteriovenous fistula. Int Surg. 1979 Mar; 64: 75-7

13037 Richard, F. Fourcade, R. Le Guillou, M. Jardin, A. Kuss, R. Etiological aspects and interest of early surgical management of priapism. Eur Urol. 1979; 5: 179-81

13038 Eriksson, A. Berlin, T. Collste, L. von Garrelts, B. Priapism: surgical or medical treatment?. Scand J Urol Nephrol. 1979; 13: 1-3

13041 Rosenbaum, E. H. Thompson, H. E. Glassberg, A. B. Priapism and multiple myeloma. Successful treatment with plasmapheresis. Urology. 1978 Aug; 12: 201-2

13042 Baron, M. Leiter, E. The management of priapism in sickle cell anemia. J Urol. 1978 May; 119: 610-1

13044 Winter, C. C. Priapism cured by creation of fistulas between glans penis and corpora cavernosa. J Urol. 1978 Feb; 119: 227-8

13054 Buckspan, M. Klotz, P. Urethrocavernous fistula: a case report. J Urol. 1977 Apr; 117: 538

13055 Nelson, J. H. = 3dWinter, C. C. Priapism: evolution of management in 48 patients in a 22-year series. J Urol. 1977 Apr; 117: 455-8 (Excluded)

13056 Wear, J. B. = JrCrummy, A. B. Munson, B. O. A new approach to the treatment of priapism. J Urol. 1977 Feb; 117: 252-4

13057 Winter, C. C. Priapism cured by creation of fistulas between glans penis and corpora cavernosa. Trans Am Assoc Genitourin Surg. 1977; 69: 31-2

13060 Oppenheimer, R. Priapism in an 8-year-old boy treated by spongiocavernosum shunt. J Urol. 1976 Dec; 116: 818

13061 Barry, J. M. Priapism: treatment with corpus cavernosum to dorsal vein of penis shunts. J Urol. 1976 Dec; 116: 754-6

13062 Nair, V. R. Venous shunt in priapism: a report of 4 cases. J R Coll Surg Edinb. 1976 Nov; 21: 366-7

13064 Winter, C. C. Cure of idiopathic priapism: new procedure for creating fistula between glans penis and corpora cavernosa. Urology 1976 Oct; 8: 389-91

13065 Harewood, L. McOmish, D. The treatment of priapism by cavernosospongiosal shunt: results of operation in five patients. Aust N Z J Surg. 1976 Aug; 46: 237-40

13066 Tarasuk, A. P. Schneider, I. M. Management of priapism by: cavernoglandular shunt. Urology. 1976 Aug; 8: 141-2

13072 Drummond, J. M. Proceedings: Surgical management of priapism. Br J Urol. 1976 Apr; 48: 152

13073 Carter, R. G. Thomas, C. E. Tomskey, G. C. Cavernospongiosum shunts in treatment of priapism. Urology. 1976 Mar; 7: 292-5

13077 Moloney, P. J. Elliott, G. B. Johnson, H. W. Experiences with priapism. J Urol. 1975 Jul; 114: 72-6

13080 Resnick, M. I. Holland, J. M. King, L. R. Grayhack, J. T. Priapism in boys. Management with cavernosaphenous shunt. Urology. 1975 Apr; 5: 492-5

13082 Kinney, T. R. Harris, M. B. Russell, M. O. Duckett, J. Schwartz, E. Priapism in association with sickle hemoglobinopathies in children. J Pediatr. 1975 Feb; 86: 241-2

13086 Larocque, M. A. Cosgrove, M. D. Priapism: a review of 46 cases. J Urol. 1974 Dec; 112: 770-3 (Excluded)

13090 Dahl, D. S. Middleton, R. G. Comparison between cavernosaphenous and cavernospongiosum shunting in the treatment of idiopathic priapism: a report of 5 operations. J Urol. 1974 Nov; 112: 614-5

13093 Darwish, M. E. Atassi, B. Clark, S. S. Priapism: evaluation of treatment regimens. J Urol. 1974 Jul; 112: 92-4

13095 Schreibman, S. M. Gee, T. S. Grabstald, H. Management of priapism in patients with chronic granulocytic leukemia. J Urol. 1974 Jun; 111: 786-8

13103 Medeiros, A. = deSCarvalho, R. M. = de Bilateral caverno-saphenous shunt for priapism: 4 case reports. Br J Urol. 1973 Oct; 45: 545-7

13104 Griffiths, D. A. Webb, A. J. Proceedings: Surgical treatment of initial priapism and recurrent priapism. Proc R Soc Med. 1973 Oct; 66: 1051-2

13106 Seeler, R. A. Intensive transfusion therapy for priapism in boys with sickle cell anemia. J Urol. 1973 Sep; 110: 360-3

13111 Lehtonen, T. Tenhunen, A. Treatment of idiopathic priapism by Grayhack's caverno-saphenous shunt. Scand J Urol Nephrol. 1973; 7: 233-5

13112 Gruber, H. The treatment of priapism: use of the inferior epigastric artery: a case report. J Urol. 1972 Dec; 108: 882-6

13114 Moloney, P. J. Sullivan, L. D. Management of priapism. Am Surg. 1972 Dec; 38: 671-5

13115 Klugo, R. C. Olsson, C. A. Urethrocavernous fistula: complication of cavernospongiosal shunt. J Urol. 1972 Nov; 108: 750-1

13116 Fortuno, R. F. Carrillo, R. Gangrene of the penis following cavernospongiosum shunt in a case of priapism. J Urol. 1972 Nov; 108: 752-3

PRIAPISM Articles selected for Review - by ProCite Reference Number

13117 Wellwood, J. M. Bultitude, M. I. Rickford, C. Thomas, M. L. The role of corpus-saphenous by-pass in the treatment of priapism. Br J Urol. 1972 Oct; 44: 607-11

13118 Karayalcin, G. Imran, M. Rosner, F. Priapism in sickle cell disease: report of five cases. Am J Med Sci. 1972 Oct; 264: 289-93

13120 Vadakan, V. V. Ortega, J. Priapism in acute lymphoblastic leukemia. Cancer. 1972 Aug; 30: 373-5

13121 Nieder, R. M. Ketamine treatment of priapism. JAMA. 1972 Jul 10; 221: 195

13122 Klein, L. A. Hall, R. L. Smith, R. B. Surgical treatment of priapism: with a note on heparin-induced priapism. J Urol. 1972 Jul; 108: 104-6

13123 Falk, D. Loos, D. C. Spongiocavernosum shunt in the surgical treatment of idiopathic persistent priapism. J Urol. 1972 Jul; 108: 101-3

13124 Sacher, E. C. Sayegh, E. Frensilli, F. Crum, P. Akers, R. Cavernospongiosum shunt in the treatment of priapism. J Urol. 1972 Jul; 108: 97-100

13127 Reid, E. C. Homsy, Y. Treatment of priapism by caverno-saphenous by-pass. Case report. Br J Urol. 1972 Feb; 44: 86-90

13129 Seeler, R. A. Priapism in children with sickle cell anemia. Clin Pediatr (Phila). 1971 Jul; 10: 418-9

13131 Rothfeld, S. H. Mazor, D. Priapism in children: a complication of sickle cell disease. J Urol. 1971 Feb; 105: 307-8

13135 Eadie, D. G. Brock, T. P. Corpus saphenous by-pass in the treatment of priapism. Br J Surg. 1970 Mar; 57: 172-4

13136 Johansson, H. Lindquist, B. Corpus-saphenous shunt as treatment in priapism. Scand J Urol Nephrol. 1970; 4: 264-6

13140 Jaffe, N. Kim, B. S. Priapism in acute granulocytic leukemia. Am J Dis Child. 1969 Oct; 118: 619-20

13141 Martin, D. C. Schapiro, A. Burkholder, G. V. Corpus cavernosum-saphenous vein anastomosis for priapism. J Urol. 1969 Aug; 102: 221-3

13144 Howe, G. E. Prentiss, R. J. Cole, J. W. Masters, R. H. Priapism: a surgical emergency. J Urol. 1969 Apr; 101: 576-9

13146 Bell, W. R. Pitney, W. R. Management of priapism by therapeutic defibrination. N Engl J Med. 1969 Mar 20; 280: 649-50

13148 Martinez, M. Sharma, T. C. MacDonald, G. Smyth, N. P. Operative management of priapism secondary to sickle cell trait. Arch Surg. 1969 Jan; 98: 81-2

13149 Harrow, B. R. Simple technique for treating priapism. J Urol. 1969 Jan; 101: 71-3

13151 Bell, W. R. Pitney, W. R. Priapism--a new approach to management. Proc R Soc Med. 1968 Nov; 61: 1109 (Excluded)

13152 Brown, R. S. Mazansky, H. Maxwell, H. M. Priapism. S Afr Med J. 1968 Sep 7; 42: 886-9

13156 Grace, D. A. Winter, C. C. Priapism: an appraisal of management of twenty-three patients. J Urol. 1968 Mar; 99: 301-10

13157 Kandel, G. L. Bender, L. I. Grove, J. S. Pulmonary embolism: a complication of corpus-saphenous shunt for priapism. J Urol. 1968 Feb; 99: 196-7

13161 Borski, A. A. Painter, M. R. Priapism: favorable response of idiopathic cases. J Urol. 1967 Jul; 98: 105-7

13162 Audu, I. S. Rao, M. S. Sickle cell priapism. J Trop Pediatr Afr Child Health. 1967 Mar; 13: 23-6

13166 Garrett, R. A. Rhamy, D. E. Priapism: management with corpus-saphenous shunt. J Urol. 1966 Jan; 95: 65-7

13167 Becker, L. E. Mitchell, A. D. Prapism. Surg Clin North Am. 1965 Dec; 45: 1522-34

105182 Dawam, D. Kalayi, G. Nmadu, P. N. Cavernosal spongiosium shunt in the management of priapism in Zaria, Nigeria. Trop Doct. 2000 Jan; 30: 31-2

105216 Morano, S. G. Latagliata, R. Carmosino, I. Girmenia, C. Dal Forno, S. Alimena, G. Treatment of long-lasting priapism in chronic myeloid leukemia at onset.[In Process Citation]. Ann Hematol. 2000 Nov; 79: 644-5

105217 Logarakis, N. F. Simons, M. E. Hassouna, M. Selective arterial embolization for post-traumatic high flow priapism. Can J Urol. 2000 Jun; 7: 1051-1054

105226 Shankar, K. R. Babar, S. Rowlands, P. Jones, M. O. Posttraumatic high-flow priapism: treatment with selective embolisation. Pediatr Surg Int. 2000; 16: 454-6

105227 Golash, A. Gray, R. Ruttley, M. S. Jenkins, B. J. Traumatic priapism: an unusual cycling injury. Br J Sports Med. 2000 Aug; 34: 310-1

105230 McCarthy, L. J. Vattuone, J. Weidner, J. Skipworth, E. Fernandez, C. Jackson, L. Rothenberger, S. Waxman, D. Miraglia, C. Porcu, P. Danielson, C. F. Do automated red cell exchanges relieve priapism in patients with sickle cell anemia?. Ther Apher. 2000 Jun; 4: 256-8

105232 Mourikis, D. Chatziioannou, A. N. Konstantinidis, P. Panourgias, E. Antoniou, A. Vlachos, L. Superselective microcoil embolization of a traumatic pseudoaneurysm of the cavernosal artery. Urol Int. 2000; 64: 220-2

PRIAPISM Articles selected for Review - by ProCite Reference Number

105236 Sur, R. L. Kane, C. J. Sildenafil citrate-associated priapism. Urology (Online). 2000 Jun 1; 55: 950

105240 Moscovici, J. Barret, E. Galinier, P. Liard, A. Juricic, M. Mitrofanoff, P. Juskiewenski, S. Post-traumatic arterial priapism in the child: a study of four cases. Eur J Pediatr Surg. 2000 Feb; 10: 72-6

300030 Sancak, T. Conkbayir, I. Post-traumatic high-flow priapism: management by superselective transcatheter autologous clot embolization and duplex sonography-guided compression. J Clin Ultrasound. 2001 Jul-Aug; 29: 349-53

300250 Martinez Portillo, F. Hoang-Boehm, J. Weiss, J. Alken, P. Junemann, K. Methylene blue as a successful treatment alternative for pharmacologically induced priapism. Eur Urol. 2001 Jan; 39: 20-3

800009 Grayhack, J.T., MaCullough, W., O'Conor, V.J. and Trippel, O. Venous Bypass to Control Priapism. Investative Urology. 1964; 1: 509-13

Total number of articles from all journals: 217

Appendix 4 A: Priapism Post Analysis Questions and Corresponding Evidence Tables

Question 1: How effective in terms of relieving ischemic priapism are the treatments directed at the underlying disorder such as sickle cell disease?

Hematologic Malignancy Patients – Chemical Cancer Therapy

Hematologic Malignancy Patients – Pheresis Procedures

Sickle Cell Patients – Exchange Transfusions

Sickle Cell Patients – Hydration

Sickle Cell Patients – IV Alkalinization

Sickle Cell Patients – Oxygen

Sickle Cell Patients – Transfusions

Question 2: How effective is aspiration alone?

All Nonischemic (Arterial) Patients – Aspiration Only

All Nonischemic Patients – Irrigation and Drainage Only

All Ischemic Patients – Aspiration Only

All Ischemic Patients – Irrigation and Drainage Only

Drug Induced Patients – Aspiration Only

Drug Induced Patients – Irrigation and Drainage Only

Hematologic Malignancy Patients – Aspiration Only

Hematologic Malignancy Patients – Irrigation and Drainage Only

Idiopathic Only Patients – Aspiration Only

Idiopathic Only Patients – Irrigation and Drainage Only

Patients with Priapism– Due to Penile Injection – Aspiration Only

Patients with Priapism– Due to Penile Injection – Irrigation and Drainage Only

Sickle Cell Patients – Aspiration Only

Sickle Cell Patients – Irrigation and Drainage Only

Question 3: Should aspiration be performed before sympathomimetic drug injection?

All Ischemic Patients – Penile Injection with Sympathomimetics (no aspiration) – epinephrine

All Ischemic Patients – Penile Injection with Sympathomimetics (no aspiration) – metaraminol

All Ischemic Patients – Penile Injection with Sympathomimetics (no aspiration) – norepinephrine

All Ischemic Patients – Penile Injection with Sympathomimetics (no aspiration) – phenylephrine

All Ischemic Patients – Penile Injection with Sympathomimetics (with aspiration) – epinephrine

All Ischemic Patients – Penile Injection with Sympathomimetics (with aspiration) – metaraminol

All Ischemic Patients – Penile Injection with Sympathomimetics (with aspiration) – norepinephrine

All Ischemic Patients – Penile Injection with Sympathomimetics (with aspiration) – phenylephrine

All Ischemic Patients – Penile Injection with Sympathomimetics (with aspiration) – uspecified sympathomimetics

Question 4: What is the most effective sympathomimetic drug and how should it be injected (dose, dilution)?

All Ischemic Patients – Penile Injection with Sympathomimetics – epinephrine

All Ischemic Patients – Penile Injection with Sympathomimetics – metaraminol

All Ischemic Patients – Penile Injection with Sympathomimetics – norepinephrine

All Ischemic Patients – Penile Injection with Sympathomimetics – phenylephrine

All Ischemic Patients – Penile Injection with Sympathomimetics – unspecified sympathomimetic

Only Idiopathic Patients – Penile Injection with Sympathomimetics – epinephrine

Only Idiopathic Patients – Penile Injection with Sympathomimetics – norepinephrine

Only Idiopathic Patients – Penile Injection with Sympathomimetics – phenylephrine

Only Idiopathic Patients – Penile Injection with Sympathomimetics – unspecified sympathomimetic

Drug Induced Patients – Penile Injection with Sympathomimetics – epinephrine

Drug Induced Patients – Penile Injection with Sympathomimetics – norepinephrine

Drug Induced Patients – Penile Injection with Sympathomimetics – phenylephrine

Hematologic Malignancy Patients – Penile Injection with Sympathomimetics – epinephrine

Hematologic Malignancy Patients – Penile Injection with Sympathomimetics – metaraminol

Patients with Priapism due to Penile Injection – Penile Injection with Sympathomimetics – epinephrine

Patients with Priapism due to Penile Injection – Penile Injection with Sympathomimetics – metaraminol

Patients with Priapism due to Penile Injection – Penile Injection with Sympathomimetics – norepinephrine

Patients with Priapism due to Penile Injection – Penile Injection with Sympathomimetics – phenylephrine

Sickle Cell Patients – Penile Injection with Sympathomimetics – epinephrine

Sickle Cell Patients – Penile Injection with Sympathomimetics – norepinephrine

Sickle Cell Patients – Penile Injection with Sympathomimetics – phenylephrine

Sickle Cell Patients – Penile Injection with Sympathomimetics – unspecified sympathomimetic

All Ischemic Patients – Penile Injection with anti-coagulants – heparin

All Ischemic Patients – Penile Injection with non-specific agents – normal saline

Question 5: What is the safest sympathomimetic drug in terms of systemic cardiovascular AE's?

Cardiovascular Side Effects – Penile Injection with Sympathomimetics – epinephrine

Cardiovascular Side Effects – Penile Injection with Sympathomimetics – metaraminol

Cardiovascular Side Effects – Penile Injection with Sympathomimetics – norepinephrine

Cardiovascular Side Effects – Penile Injection with Sympathomimetics – phenylephrine

All Side Effects – Penile Injection with Sympathomimetics – epinephrine

All Side Effects – Penile Injection with Sympathomimetics – metaraminol

All Side Effects – Penile Injection with Sympathomimetics – norepinephrine

All Side Effects – Penile Injection with Sympathomimetics – phenylephrine

Question 6: What is the most effective surgical shunting procedure?

All Nonischemic (Arterial) Patients – Al-Ghorab Shunt

All Nonischemic (Arterial) Patients – Cavernosaphenous Shunt

All Nonischemic (Arterial) Patients – Cavernospongious Shunt

All Nonischemic (Arterial) Patients – Winter Shunt

All Ischemic Patients – Al-Ghorab Shunt

All Ischemic Patients – Cavernosaphenous Shunt

All Ischemic Patients – Cavernospongious Shunt

All Ischemic Patients – Ebbehøj Shunt

All Ischemic Patients – Winter Shunt

Idiopathic Only Patients – Al-Ghorab Shunt

Idiopathic Only Patients – Cavernosaphenous Shunt

Idiopathic Only Patients –Cavernospongious Shunt

Idiopathic Only Patients – Ebbehøj Shunt

Idiopathic Only Patients – Winter Shunt

Drug Induced Patients – Al-Ghorab Shunt

Drug Induced Patients – Cavernosaphenous Shunt

Drug Induced Patients – Cavernospongious Shunt

Drug Induced Patients – Winter Shunt

Hematologic Malignancy Patients – Cavernosaphenous Shunt

Hematologic Malignancy Patients – Cavernospongious Shunt

Hematologic Malignancy Patients – Winter Shunt

Sickle Cell Patients – Cavernosaphenous Shunt

Sickle Cell Patients – Cavernospongious Shunt

Sickle Cell Patients – Ebbehøj Shunt

Sickle Cell Patients – Winter Shunt

Question 7: What are the AE's associated with each surgical shunting procedure?

Al-Ghorab Shunt – Side Effects

Cavernosaphenous Shunt – Side Effects

Cavernospongious Shunt – Side Effects

Ebbehøj Shunt – Side Effects

Winter Shunt – Side Effects

Question 8: What is the incidence of ED associated with each non–surgical treatment?

All Ischemic Patients – Anti–Coagulation

All Ischemic Patients – Penile Injection with anti–coagulants – heparin

All Ischemic Patients – Penile Injection with non–specific agents – normal saline

All Ischemic Patients – Penile Injection with Sympathomimetics – Epinephrine

All Ischemic Patients – Penile Injection with Sympathomimetics – Metaraminol

All Ischemic Patients – Penile Injection with Sympathomimetics – Norepinephrine

All Ischemic Patients – Penile Injection with Sympathomimetics – Phenylephrine

All Ischemic Patients – Penile Injection with Sympathomimetics – Unspecified Sympathomimetics

All Ischemic Patients – Pseudoephedrine

All Ischemic Patients – Terbutaline

Only Idiopathic Patients – Penile Injection with Sympathomimetics – Epinephrine

Only Idiopathic Patients – Penile Injection with Sympathomimetics – Norepinephrine

Only Idiopathic Patients – Penile Injection with Sympathomimetics – Phenylephrine

Only Idiopathic Patients – Penile Injection with Sympathomimetics – Unspecified Sympathomimetic

Only Idiopathic Patients – Terbutaline

Drug Induced Patients – Penile Injection with Sympathomimetics – Epinephrine

Drug Induced Patients – Penile Injection with Sympathomimetics – Norepinephrine

Drug Induced Patients – Penile Injection with Sympathomimetics – Phenylephrine

Drug Induced Patients – Terbutaline

Hematologic Malignancy Patients – Chemical Cancer Therapy

Hematologic Malignancy Patients – Hydroxyurea

Hematologic Malignancy Patients – Penile Injection with Sympathomimetics – Epinephrine

Hematologic Malignancy Patients – Penile Injection with Sympathomimetics – Metaraminol

Hematologic Malignancy Patients – Pheresis Procedures

Patients with Priapism due to Penile Injection – Penile Injection with Sympathomimetics– Epinephrine

Patients with Priapism due to Penile Injection – Penile Injection with Sympathomimetics– Metaraminol

Patients with Priapism due to Penile Injection – Penile Injection with Sympathomimetics– Norepinephrine

Patients with Priapism due to Penile Injection – Penile Injection with Sympathomimetics– Phenylephrine

Patients with Priapism due to Penile Injection – Terbutaline

Sickle Cell Patients – Exchange Transfusions

Sickle Cell Patients – Hydration

Sickle Cell Patients – IV Alkalinization

Sickle Cell Patients – Oxygen

Sickle Cell Patients – Penile Injection with Sympathomimetics – Epinephrine

Sickle Cell Patients – Penile Injection with Sympathomimetics – Norepinephrine

Sickle Cell Patients – Penile Injection with Sympathomimetics – Phenylephrine

Sickle Cell Patients – Penile Injection with Sympathomimetics – Unspecified Sympathomimetic

Sickle Cell Patients – Transfusions

Sickle Cell Patients – Urea

Question 9: How effective are embolization procedures in the treatment of nonischemic priapism? Is there a difference in efficacy between absorbable and non–absorbable embolizations?

All Nonischemic Patients – Permanent Embolization

All Nonischemic Patients – Temporary Embolization

Question 10: What is the outcome in nonischemic priapism if it is not treated?

All Nonischemic Patients – Observation

Question 11: How effective is surgical arterial ligation in the treatment of nonischemic priapism?

All Nonischemic Patients – arterial Ligation

Appendix 5-a: Reading the Evidence Tables

The evidence tables are presented in two basic formats. One format details the primary outcomes: resolution, recurrence, and erectile dysfunction (impotence). The other format is used for other side effects or complications of treatment. Each row in a table corresponds to a patient or group of patients. Patients were generally reported individually, but some articles reported on a series of patients as a group. Each table has summary information at the bottom, totaling all outcome results in the table.

Each row of the primary tables contains ten column entries, while the side effects tables contain 9. The first six column entries are the same in both types of table:

Column 1: Reference number of the study from which the data were taken.
The full citation corresponding to this number can be found in Attachment 3. The number after the slash represents the patient group or number as extracted. If an article reported on more than one patient or group of patients each such patient or group was given a number. The number 0 refers to data applying to all patients in the article. Occasionally numbers such as 1.1 are used when data are given for subgroups of patients. These numbers are primarily for internal use and can be ignored by most readers.

Column 2: Number of patients in the group.
For case reports this number will be 1.

Column 3: Order within treatment sequence that the current treatment occurred.
Priapism patients frequently receive multiple treatments until success is achieved. For example if a patient received a total of 4 treatments, and the current treatment was the third treatment attempted, the entry would be 3/4.

Column 4: Duration of the priapism prior to the current treatment.
Unfortunately, whether this time is reported and how the time is reported varies greatly between research articles. The time sequence column has entries with numbers for each treatment up to and including the current treatment. The times shown represent hours from the onset of the priapism. In some cases, this cannot be computed from the article. If a time appears after a null entry (e.g. 12,,2), then the time is the time after the last intervening treatment. In the example (12,,2), the first treatment was given 12 hours after the onset of erection, the time of the second treatment is unknown, and the third treatment was given 2 hours after the second. In some cases, slashes will explicitly indicate the treatment used as a base. For example, 12,,,24/3 indicates that the fourth treatment occurred 24 hours after the third treatment, while 12,,,24/1 indicates that the fourth treatment occurred 24 hours after the first treatment. A number such as 36/0 means 36 hours after onset of erection.

Column 5: Cause of the priapism.
Some patients have multiple conditions that could lead to priapism and all are listed. If the group contains multiple patients, then all causes for all patients in the group are listed.

Column 6: All treatments received by the patient at this time.

In some cases, patients receive multiple treatments with no outcomes reported independently. All treatments received since the previous outcome report are listed.

Primary Outcomes Tables

Columns 7-9: Resolution of the priapism, Recurrence, and Impotence.
These columns have the same format—two numbers separated by a slash. The first number is the number of patients receiving the outcome, while the second number is the number of patients in the group for whom the data on the outcome were reported. This second number is usually, but not always, the same as the number of patients in the group (column 2). For example, if the entry 0/1 occurs under resolution, then the one patient did not resolve. 1/3 under recurrence means the priapism recurred in only 1 of 3 patients. Similarly, 0/1 under impotence means the one patient was not impotent. Entries with only a slash indicate no data.

Column10: Comments about this patient or group of patients.
Comments about changes based on panel decisions (e.g. reclassification of treatment) are also included.

Side Effects Tables

Side effects/complications tables may differ from the primary outcomes tables both in format and in the multiple rows for a single patient or group of patients within the same treatment. This can occur if the treatment resulted in multiple side effects. The final three entries in the side effects/complications tables are:

Column 7: Comments about the patient group.

Column 8: Name or description of the side effect being counted.

Column 9: x/y = the number of patients who had the side effect (x) followed the number of patients for whom data are available (y).
As with the primary outcomes, the second number is usually the number of patients in the group. Frequently the number of patients experiencing the outcome is zero. This occurs when the author reports something such has “no patients experienced edema with this procedure.”

Appendix 5-b: Nonischemic (Arterial) Priapism Detailed Reports

All Nonischemic Patients — Observation

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12622/1	1	1 / 2		trauma[skateboard straddle injury]	oral (yohimbine), observation	0 / 1	/	/	
12622/2	1	1 / 3		trauma[straddle injury]	ice, observation	0 / 1	/	/	8 weeks of observation
12678/1	1	3 / 3	<2,,	trauma[struck in perineum by steering wheel]	observation	1 / 1	0 / 1	0 / 1	detumescence occurred over 18 hours
12678/2	1	1 / 1	504	trauma[straddle injury]	observation	1 / 1	/	1 / 1	resolution was due to spontaneous throbotic occlusion of the fistula 9 months later. Pt. underwent penile vein ligation and revascularization to correct impotence
12730/2	1	1 / 2		trauma[straddle injury while skateboarding yielding impotence]	oral (yohimbine), observation	0 / 1	/	1 / 1	Initial treatment for 13 months
12730/4	1	1 / 3	24	trauma[perineal trauma falling on a ladder rung]	observation, bed rest[1 day]	0 / 1	/	1 / 1	He went three years with 70% erection (priapism) and impotence.
12739/1	1	3 / 3	,,	trauma[bicycle handlebar]	observation	1 / 1	/	0 / 1	observation treatment added per panel meeting 4/02 due to long time to resolution
12739/2	1	2 / 2	72,	trauma[straddle injury from fence]	observation	1 / 1	0 / 1	0 / 1	Observation arm added by panel decision due to long time to resolution after aspiration 4/02.
105240/1	1	1 / 1		trauma[straddle injury]	observation	1 / 1	0 / 1	0 / 1	diagnostic aspiration performed. Pt improved at 2 weeks, resolved at 3 weeks.
105240/2	1	1 / 1		trauma[straddle injury]	observation	1 / 1	0 / 1	0 / 1	resolved over 2 weeks.
105240/3	1	1 / 1		trauma[straddle injury]	observation	1 / 1	0 / 1	0 / 1	improved 3-5 days, resolved after 3 weeks.

All Nonischemic Patients — Observation

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
105240/4	1	1 / 4		trauma[straddle injury over bicycle]	observation	0 / 1	/	/	
105240/4	1	4 / 4	,72/1,24/2,24/3	trauma[straddle injury over bicycle]	observation	1 / 1	/	/	resolved over 1 month
Total Groups:	13	Total patients:	13	Outcome totals:		8 / 13 62%	0 / 5 0%	3 / 9 33%	

All Nonischemic Patients — Aspiration Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12739/2	1	1 / 2	72	trauma[straddle injury from fence]	aspiration	0 / 1	0 / 1	0 / 1	spontaneous resolution 2.5 weeks after aspiration of 50cc blood. Resolution changed to n by panel decision 4/02.
12741/1	1	1 / 4	12	trauma[perineal trauma while sliding down a wooden bar]	aspiration	0 / 1	/	/	
12766/1	1	1 / 8	>12	sickle cell trait	aspiration	0 / 1	/	/	
12766/1	1	4 / 8	>12,,,1440/3	sickle cell trait	IV alkalinization, aspiration, hydration IV	0 / 1	/	/	
13056/1	1	2 / 4	,72	trauma[perineal trauma--fell on silo rung]	aspiration, compression dressing	0 / 1	/	/	
13156/8	1	3 / 5	168,264/0,	trauma[struck in pubic area by crank]	aspiration, spinal anesthesia, compression dressing, catheterization	0 / 1	/	/	
105217/1	1	1 / 2	96	trauma[straddle injury - fall in hot tub]	aspiration	0 / 1	/	/	
Total Groups:	7	Total patients:	7	Outcome totals:		0 / 7 0%	0 / 1 0%	0 / 1 0%	

All Nonischemic Patients — Irrigation and Drainage Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12589/1	1	2 / 4	,	trauma[blunt perineal injury]	penile injection (normal saline), irrigation and drainage	0 / 1	/	/	
12636/1	1	1 / 2		idiopathic	aspiration, irrigation and drainage	0 / 1	/	/	article states repeated aspirations and irrigation with nomal saline
12719/1	1	3 / 8	120,,	trauma[fall on perineum]	penile injection (saline), irrigation and drainage	0 / 1	/	/	
12934/1	1	1 / 2			irrigation and drainage	0 / 1	/	/	
12934/2	1	1 / 4			irrigation and drainage	0 / 1	/	/	
12934/3	1	1 / 4			irrigation and drainage	0 / 1	/	/	
12934/4	1	1 / 2			irrigation and drainage	0 / 1	/	/	
12934/5	1	1 / 2			irrigation and drainage	0 / 1	/	/	
13060/1	1	1 / 2	216	trauma[straddle injury]	penile injection (normal saline), irrigation and drainage	0 / 1	/	/	
Total Groups:	9	Total patients:	9	Outcome totals:		0 / 9 0%	/	/	

All Nonischemic Patients — Temporary Embolization

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12573/1	1	1 / 2	144	trauma[straddle fall]	embolization[gelatin sponge -left fistula]	0 / 1	/	/	
12589/1	1	4 / 4	,,,	trauma[blunt perineal injury]	embolization[int. pud. art with gelfoam]	1 / 1	/	0 / 1	article says "preservation of erectile dysfunction" in one place and "incomplete restoration of erectile function" in another. Impotence changed to n per panel decision 4/02.
12589/4	1	1 / 2		trauma[perineum struck corner of a ditch]	embolization[int. pud. artery using gelfoam]	0 / 1	/	/	incomplete detumescence
12589/4	1	2 / 2	,48/1	trauma[perineum struck corner of a ditch]	embolization[temporary]	1 / 1	/	0 / 1	no details of procedure. Erectile function returned to preinjury state. Temporary designation per panel decision 4/02.
12597/1	5	1 / 1		trauma[blunt perineal trauma]	aspiration, embolization[gelfoam]	5 / 5	/	0 / 5	
12616/1	1	1 / 1	456	trauma[bicycle injury to perineum]	embolization[gelfoam]	1 / 1	0 / 1	0 / 1	
12623/2	1	1 / 1	168	trauma[straddle injury]	embolization[autologous clot]	1 / 1	/	/	
12644/1	1	1 / 2		trauma[perineal trauma from basketball game]	embolization[autologous clot]	0 / 1	/	/	
12644/1	1	2 / 2	,96/1	trauma[perineal trauma from basketball game]	embolization[gelfoam]	1 / 1	/	1 / 1	pt. received NSAIDs and amoxycillin/clav. for pain and fever. Abscess was operatively incised and drained. partially rigid erections at 8 months.
12647/1	1	3 / 4	,240,	trauma[straddle, injury from fall while hiking]	embolization[right side only-autologous clot]	0 / 1	/	/	

All Nonischemic Patients — Temporary Embolization

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12647/1	1	4 / 4	,240,,480	trauma[straddle, injury from fall while hiking]	embolization[autologous clot -left side]	1 / 1	0 / 1	0 / 1	
12656/1	1	1 / 1	72	trauma[straddle injury]	embolization[l. int puden. spong. branch with autologous clot]	1 / 1	0 / 1	0 / 1	
12658/1	1	1 / 1	960	trauma[blunt perineal trauma]	embolization[autologous clot left side]	1 / 1	0 / 1	0 / 1	80% restoration of premorbid erectile function sufficient for intercourse
12658/2	1	2 / 3	,504/0	trauma[blunt perineal trauma]	embolization[right side with gelatin sponge]	0 / 1	/	/	
12658/2	1	3 / 3	,504/0,840/0	trauma[blunt perineal trauma]	embolization[left side with autologous clot]	1 / 1	0 / 1	0 / 1	
12663/1	1	4 / 5	72,,,	idiopathic	embolization[gelatin sponge of right common penile artery]	0 / 1	/	/	attempt at embolizing right accessory pudendal artery failed due to spasm and inability to thread cather. Results were decreased turgidity, but erection remained.
12663/1	1	5 / 5	72,,,,216/4	idiopathic	embolization[gelatin sponge of right acc. pudendal artery]	1 / 1	0 / 1	0 / 1	four months follow-up
12669/1	1	5 / 8	10,,,,	idiopathic	embolization[left penile artery with gelfoam]	0 / 1	/	/	moderate detumescence
12678/3	1	2 / 3	720,	idiopathic	embolization[autologous clot]	0 / 1	/	/	embolization attempt was not completed due to technical difficulties
12686/1	5	1 / 1	0-192	trauma[blunt trauma to perineum]	embolization[autologous thrombus or gelatin sponge/slurry]	5 / 5	0 / 5	0 / 5	diagnostic aspiration in the first three patients. Detumescence immediately in 2 patients and within 24 hours in the rest.
12702/1	1	1 / 1	120	trauma[perineum hit by skate board]	embolization[common penile artery with autologous clot]	1 / 1	/	0 / 1	
12709/1	1	3 / 4	1080,1104,	trauma[straddle injury falling across a piece of ironware]	embolization[select. left cavernous artery, 1mm gelatin sponge]	0 / 1	/	/	

All Nonischemic Patients — Temporary Embolization

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12713/1	3	2 / 5	,	trauma[fallen corner of sink, edge of board, bicycle frame]	embolization[cavernous artery with 3ml autologous clot]	1 / 3	/	0 / 1	80% return of erectile function. Impotence changed to 0 per panel decision 4/02.
12713/1	2	3 / 5	,,	trauma[fallen corner of sink, edge of board, bicycle frame]	embolization[3ml autologous clot]	1 / 2	/	0 / 1	
12713/1	1	4 / 5	,,,	trauma[fallen corner of sink, edge of board, bicycle frame]	embolization[3ml autologous clot]	0 / 1	/	/	
12713/1	1	5 / 5	,,,,	trauma[fallen corner of sink, edge of board, bicycle frame]	embolization[absorbable sponge]	1 / 1	/	1 / 1	60% return of erectile functioning
12713/2	2	2 / 2	,	penile injection therapy, trauma[straddle injury by seat top]	embolization[3ml autologous clot]	2 / 2	/	0 / 1	One pt. was impotent prior to priapism, but had no change in injection dose after priapism
12713/3	1	2 / 2	,	trauma[perineum kick]	embolization[3ml autologous clot]	1 / 1	/	0 / 1	
12713/4	1	1 / 1		trauma[straddle injury at bicycle frame]	embolization[3ml autologous clot]	1 / 1	/	0 / 1	
12718/1	1	2 / 3	1440,	trauma[football injury-kick to perineum]	embolization[autologous clot]	0 / 1	/	/	"partial detumescence"
12718/2	1	3 / 4	720,,	trauma[perineal injury - fall]	embolization[autologous clot]	0 / 1	/	/	
12719/1	1	6 / 8	120,,,,,24/5	trauma[fall on perineum]	embolization[autologous clot and gelfoam]	0 / 1	/	/	patient had complete resolution while arterial catheter was in place, but recurred despite embolization after removal.
12741/1	1	3 / 4	12,,720	trauma[perineal trauma while sliding down a wooden bar]	aspiration, embolization[superselect. right pudendal artery 8ml autologous]	1 / 1	1 / 1	/	

All Nonischemic Patients — Temporary Embolization

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12741/1	1	4 / 4	12,,720,888	trauma[perineal trauma while sliding down a wooden bar]	embolization[obliterative emboliz. r pud. art. with spongostan]	1 / 1	0 / 1	0 / 1	
12749/1	1	2 / 2	120-168,168	trauma[perineal straddle injury]	embolization[left pudendal and common pen. with autologous clot]	1 / 1	0 / 1	0 / 1	normal size after five weeks.
12934/1	1	2 / 2	,		embolization[unilateral with autologous clot]	1 / 1	/	/	
12934/2	1	4 / 4	,,,		embolization[bilateral with autologous clot]	1 / 1	/	0 / 1	
12934/3	1	4 / 4	,,,		embolization[bilateral with autologous clot]	1 / 1	/	0 / 1	
12934/4	1	2 / 2	,		embolization[bilateral with autologous clot]	1 / 1	/	0 / 1	
12934/5	1	2 / 2	,		embolization[unilateral with autologous clot]	1 / 1	/	/	
12970/1	1	2 / 2	10,	idiopathic	embolization[left int. pudendal artery with oxydized cellulose]	1 / 1	0 / 1	0 / 1	
12981/1	1	2 / 2	72,	trauma[motorcycle accident]	embolization[autologous clot and gelfoam mix]	1 / 1	/	0 / 1	
13027/1	1	3 / 3	<96,120,216	trauma[gunshot wound to scrotum]	embolization[autologous clot]	1 / 1	0 / 1	0 / 1	
13056/1	1	4 / 4	,72,192,228	trauma[perineal trauma--fell on silo rung]	embolization[autologous clot]	1 / 1	0 / 1	0 / 1	
105217/1	1	2 / 2	96,	trauma[straddle injury - fall in hot tub]	embolization[gelfoam pledgets]	1 / 1	0 / 1	0 / 1	detumescence over a two day period
105226/1	1	2 / 2	,48/0	trauma[perineal injury from bicycle handlebar]	embolization[gelfoam of arteriocavernous fistula, bilateral]	1 / 1	0 / 1	0 / 1	

All Nonischemic Patients — Temporary Embolization

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
105227/1	1	1 / 1	240	trauma[bicycle handlebar to perineum]	embolization[gelfoam sponge]	1 / 1	0 / 1	0 / 1	prior to presentation, ejaculation failed to resolve priapism; resolution gradual over 36 hours
105240/4	1	2 / 4	,72/1	trauma[straddle injury over bicycle]	embolization[gelatin sponge]	1 / 1	1 / 1	/	
300030/1	1	2 / 3	,	trauma[blunt perineal trauma]	embolization[autologous clot 8 ml.]	1 / 1	1 / 1	/	
Total Groups:	49	Total patients:	61	Outcome totals:		45 / 61 74%	3 / 22 14%	2 / 38 5%	

All Nonischemic Patients — Permanent Embolization

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12573/1	1	2 / 2	144,	trauma[straddle fall]	embolization[left fistula with microcoils and gelatin sponge]	1 / 1	0 / 1	0 / 1	
12582/1	1	1 / 1	72	trauma[bicycle perineal trauma]	embolization[tungston microcoils]	1 / 1	/	1 / 1	two coils inserted. 75% rigidity at two months post-op
12597/2		1 / 1			embolization[gelfoam and coil]	1 / 1	/	0 / 1	
12617/1	1	1 / 1	192	trauma[blunt perineal trauma]	embolization[super selective left pudendal, ethibloc]	1 / 1	/	/	no comment on patient's impotence status post rx.
12622/1	1	2 / 2	,9480	trauma[skateboard straddle injury]	embolization[platinum microcoils]	1 / 1	0 / 1	0 / 1	
12622/2	1	3 / 3	,1344,	trauma[straddle injury]	embolization[platinum microcoils]	1 / 1	0 / 1	1 / 1	Pt achieves 3/4 erection post procedure while fully potent before.
12622/3	1	3 / 3	168,,432	trauma[skateboard straddle injury]	embolization[platinum microcoils]	1 / 1	0 / 1	0 / 1	
12630/1	1	1 / 2	504	trauma[blunt perineal trauma/fell on beer bottle]	embolization[platinum coils]	0 / 1	/	/	Pt. had diagnostic aspiration only. Patient had temporary resolution/less than 24 hours and declined further treatment for three weeks.
12630/1	1	2 / 2	504,1008	trauma[blunt perineal trauma/fell on beer bottle]	embolization[Gianturco coils]	1 / 1	0 / 1	0 / 1	Erections are "just suboptimal in quality", but satisfactory for patient and spouse. Resolution took place over 48 hours
12648/1	1	1 / 1	120	trauma[straddle injury]	embolization[n-butyl-cyanoacrylate]	1 / 1	/	0 / 1	
12664/1	1	1 / 2	168	trauma[fall into pit and compression of penis by iron lid]	embolization[polyvinyl alcohol of left arteriosinusoidal fist.]	0 / 1	/	/	
12664/1	1	2 / 2	168,	trauma[fall into pit and compression of penis by iron lid]	embolization[PVA of left fistula]	1 / 1	/	0 / 1	double amount of PVA used compared to first.

All Nonischemic Patients — Permanent Embolization

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12667/1	4	1 / 1	504-87600	trauma[most/perhaps all had perineal trauma]	embolization[fibered coils and/or polyvinyl alcohol]	2 / 4	/	2 / 3	one patient had unspecified surgery before embolizaiton and had a return of erections after veno-ablative surgery after the embolizations.
12670/1	1	2 / 3	,168/0	trauma[accidental perineal trauma]	embolization[left side 350-500 mg PVA]	0 / 1	/	/	
12670/1	1	3 / 3	,168/0,	trauma[accidental perineal trauma]	embolization[left side 750-1000 microm. PVA]	1 / 1	0 / 1	1 / 1	
12678/3	1	3 / 3	720,,	idiopathic	embolization[gianturco coils and a mixed slurry]	1 / 1	0 / 1	1 / 1	block of fistula was done with slurry of gel foam, cefoxitin, contrast medium, and two Gianturco coils. Pt had 50% erections capable of intromission and refused further treatment. Changed from transcutaneous blockage of fistula to permanent embolization by panel decision 4/02.
12718/1	1	3 / 3	1440,,	trauma[football injury-kick to perineum]	embolization[bucrylate .6ml]	1 / 1	/	0 / 1	
12718/2	1	4 / 4	720,,,	trauma[perineal injury - fall]	embolization[bucrylate .8mg]	1 / 1	/	0 / 1	
12730/2	1	2 / 2	,9480/0	trauma[straddle injury while skateboarding yielding impotence]	embolization[platinum coils]	1 / 1	0 / 1	1 / 1	
105232/1	1	1 / 1		trauma[straddle injury - fall from a ladder]	embolization[platinum microcoils]	1 / 1	/	0 / 1	resolution over 24 hours
Total Groups:	20	Total patients:	22	Outcome totals:		18 / 23 78%	0 / 8 0%	7 / 18 39%	

All Nonischemic Patients — Arterial Ligation

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12622/2	1	2 / 3	,1344	trauma[straddle injury]	ligation of fistula	0 / 1	/	/	
12633/1	1	1 / 1	528	trauma[dropping a 14 ft. sailboat on penis]	surgical ligation of cavernosal artery	1 / 1	0 / 1	0 / 1	hyperesthesia resolved in 4-5 months. Unable to attempt emoblization due to tortuous arteries.
12633/2	1	2 / 3	2880,2928	trauma[hit on right side of penis by snowboard]	surgical ligation of right cavernosal artery	0 / 1	0 / 1	/	Resolution and recurrence changed from y to n per panel decision 4/02.
12633/2	1	3 / 3	2880,2928,2976	trauma[hit on right side of penis by snowboard]	surgical ligation of intracorporal vessel distally feeding fistula from left cavernosal artery, cauterization of vascular pseudocapsule	1 / 1	0 / 1	1 / 1	hypoesthesia totally resolved in 3 months. Only 75%-80% of previous erectile function achieved.
12724/1	1	3 / 3	5112,5114,	trauma[straddle injury to left perineum sliding into a pole]	exploration and ligation of arterial bleeder	1 / 1	0 / 1	0 / 1	Potency recovered after 2-6 months.
12730/1	1	4 / 4	,,360/0,384/0	trauma[straddle injury after falling while working]	surgical removal of vascular pseudocapsule with ligation of ruptured cavernous artery	1 / 1	0 / 1	1 / 1	Patient was only able to get a 50% erection post treatment.
12730/4	1	3 / 3	24,26280,	trauma[perineal trauma falling on a ladder rung]	surgical excision of veins and ligation of one artery	1 / 1	0 / 1	1 / 1	Patient's priapism resolved, but was treated later for impotence. Arterialization of the deep dorsal vein worked for 3 months. Patient currently responds to PGE1 injections.
12739/1	1	2 / 3	,	trauma[bicycle handlebar]	left cavernous artery ligation	0 / 1	0 / 1	0 / 1	Significant time lapse (weeks) between treatments. Resolution over 4 weeks with resolution of impotence over 9 months
Total Groups:	8	Total patients:	8	Outcome totals:		5 / 8 63%	0 / 7 0%	3 / 6 50%	

All Nonischemic Patients — Al-Ghorab Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12589/1	1	3 / 4	,,	trauma[blunt perineal injury]	Al-Ghorab shunt	0 / 1	/	/	
12669/1	1	3 / 8	10,,	idiopathic	Al-Ghorab shunt	0 / 1	/	/	
12766/1	1	3 / 8	>12,,	sickle cell trait	Al-Ghorab shunt	1 / 1	1 / 1	/	recurrence was "several days later"
Total Groups:	3	Total patients:	3	Outcome totals:		1 / 3 33%	1 / 1 100%	/	

All Nonischemic Patients — Winter Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12663/1	1	2 / 5	72,	idiopathic	Winter shunt	0 / 1	/	/	
12678/1	1	2 / 3	<2,	trauma[struck in perineum by steering wheel]	Winter shunt	0 / 1	/	/	
12718/1	1	1 / 3	1440	trauma[football injury-kick to perineum]	Cavernoglanular shunt (undef.), Winter shunt	0 / 1	/	/	
12718/2	1	2 / 4	720,	trauma[perineal injury - fall]	Cavernoglanular shunt (undef.), Winter shunt	0 / 1	/	/	article says "small spongiosal-cavernous" shunt but had previously used that term to refer to a Winter's shunt
12719/1	1	5 / 8	120,,,,	trauma[fall on perineum]	Winter shunt	0 / 1	/	/	
12730/1	1	2 / 4	,	trauma[straddle injury after falling while working]	Winter shunt	0 / 1	/	/	Shunt tried 3 times.
12739/1	1	1 / 3		trauma[bicycle handlebar]	irrigation and drainage, Winter shunt	0 / 1	/	/	
12741/1	1	2 / 4	12,	trauma[perineal trauma while sliding down a wooden bar]	Winter shunt	1 / 1	1 / 1	/	resolved two days after onset
12766/1	1	2 / 8	>12,	sickle cell trait	Winter shunt	0 / 1	/	/	shunt was repeated
12934/2	1	2 / 4	,		Winter shunt	0 / 1	/	/	
12934/3	1	2 / 4	,		Winter shunt	0 / 1	/	/	
Total Groups:	11	Total patients:	11	Outcome totals:		1 / 11 9%	1 / 1 100%	/	

All Nonischemic Patients — Cavernospongious Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12766/1	1	7 / 8	>12,,,1440/3,,, 336/6	sickle cell trait	penile injection (methylene blue), cavernospongious shunt	0 / 1	/	/	bilateral shunts
13027/1	1	2 / 3	<96,120	trauma[gunshot wound to scrotum]	cavernospongious shunt	0 / 1	/	/	right side shunt only
13060/1	1	2 / 2	216,	trauma[straddle injury]	cavernospongious shunt	1 / 1	/	0 / 1	Sacher shunt
300030/1	1	1 / 3		trauma[blunt perineal trauma]	aspiration, cavernospongious shunt	0 / 1	/	/	
Total Groups:	4	Total patients:	4	Outcome totals:		1 / 4 25%	/	0 / 1 0%	

All Nonischemic Patients — Cavernosaphenous Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12719/1	1	8 / 8	120,,,,,24/5,8,	trauma[fall on perineum]	cavernosaphenous shunt	1 / 1	1 / 1	0 / 1	Priapism resolved to stuttering priapism over 2 days then total resolution after 2 weeks.
12934/2	1	3 / 4	,,		cavernosaphenous shunt	0 / 1	/	/	
12934/3	1	3 / 4	,,		cavernosaphenous shunt	0 / 1	/	/	
13033/1	1	2 / 3	2,14	idiopathic	cavernosaphenous shunt	1 / 1	1 / 1	0 / 1	right side shunt only. Patient given heparin post-op
13033/1	1	3 / 3	2,14,21900	idiopathic	cavernosaphenous shunt	1 / 1	/	/	left side shunt
13061/1	1	3 / 3	,132,133	trauma[auto transmission falling on perineum]	cavernosaphenous shunt	1 / 1	/	1 / 1	side effects at 6 months. Fibrotic mass was then excised. originally coded as shunt from corpora to deep dorsal penile vein.
13080/2	1	3 / 3	48,360,	trauma[straddle injury--fell from step ladder onto chair]	cavernosaphenous shunt	1 / 1	0 / 1	1 / 1	bilateral shunt
Total Groups:	7	Total patients:	7	Outcome totals:		5 / 7 71%	2 / 3 67%	2 / 4 50%	

Appendix 5-c: Ischemic Priapism Detailed Reports

All Ischemic Patients — Aspiration Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
10918/1	1	1 / 1	24		aspiration	1 / 1	/	/	
10918/2	1	1 / 1	24		aspiration	1 / 1	/	/	
10918/10	1	1 / 2	25		aspiration	0 / 1	/	/	
10918/11	1	1 / 3	26		aspiration	0 / 1	/	/	
10918/16	1	2 / 3	40,		aspiration	0 / 1	/	/	
12671/1	1	2 / 2	,	penile injection therapy[papaverine (2), trimix (5)]	aspiration	1 / 1	/	/	30cc. of blood aspirated
12734/1	1	1 / 4	72	idiopathic	aspiration	0 / 1	/	/	
12781/2	1	1 / 1		drug induced [chlorpromazine]	aspiration	1 / 1	1 / 1	0 / 1	
12790/3	1	4 / 5	48,,,	penile injection therapy[papaverine and phentolamine - double dose]	aspiration	0 / 1	/	/	aspiration done twice in 12 hours. semiflaccid penis achieved.
12819/2	6	1 / 1	6-28	penile injection therapy[papverin 15-30mg.]	aspiration, compression dressing[10X15 min.]	6 / 6	/	/	All impotent pre-treatment, but continued to respond to papaverine, post treatment.
12819/3	1	1 / 2	6-28	penile injection therapy[papaverine 15-30mg.]	aspiration, compression dressing[10x15 min]	0 / 1	/	/	
12826/2	1	1 / 1	168	possible viral coxsackie B infection	aspiration	1 / 1	0 / 1	0 / 1	
12826/4	1	1 / 7	12	Fabry's disease-alpha galactosidase deficeincy	aspiration	0 / 1	/	/	Aspiration attempt in ER was unsuccessful.

All Ischemic Patients — Aspiration Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12826/4	1	3 / 7	12,24,40	Fabry's disease-alpha galactosidase deficeincy	aspiration, catheterization	0 / 1	/	/	
12826/4	1	4 / 7	12,24,40,48	Fabry's disease-alpha galactosidase deficeincy	aspiration	0 / 1	/	/	
12896/15	1	1 / 2	24-48		aspiration	0 / 1	/	/	
12902/2	1	1 / 2	23	penile injection therapy[papaverine, 60mg.]	aspiration	0 / 1	/	/	60 ml aspirated
12902/2	1	2 / 2	23,	penile injection therapy[papaverine, 60mg.]	aspiration	1 / 1	/	0 / 1	further aspiration to a total of 95ml
12902/6	1	1 / 3	10	drug induced [anti-psychotic drugs (lithium, thorazine), disulfuram for alcoholism]	aspiration	0 / 1	/	/	may have been irrigation and drainage--article not clear
12936/1	1	2 / 3	,	hematologic malignancy[chronic granulocytic leukemia]	aspiration	0 / 1	/	/	described as punctures at the roots of corpora.
13021/3	1	1 / 1		hematologic malignancy[chronic granulocytic leukemia]	aspiration, rubber band	0 / 1	/	/	
13021/4	1	1 / 1		hematologic malignancy[chronic granulocytic leukemia]	aspiration, busulfan[6mg/day]	0 / 1	/	1 / 1	
13025/1	1	1 / 2	24	idiopathic, trauma[scrotal trauma]	cold water enemas, aspiration, anticoagulation, tranquilizers, extradural anesthesia	0 / 1	/	/	
13041/1	1	1 / 2		hematologic malignancy[multiple myeloma]	aspiration	0 / 1	/	/	

All Ischemic Patients — Aspiration Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13061/2	1	1 / 2	36	idiopathic	aspiration, spinal anesthesia	0 / 1	/	/	
13095/1	1	3 / 3	48,480,624	hematologic malignancy[chronic granulocytic leukemia]	aspiration	0 / 1	0 / 1	1 / 1	10 cc aspirated from each corpus with some improvement noted. Complete resolution three weeks later. Resolution changed to n per panel decision 4/02.
13095/2	1	5 / 5	48,96,120,168 ,192	hematologic malignancy[chronic granulocytic leukemia]	aspiration	1 / 1	0 / 1	/	
13095/3	1	3 / 6	,48,292	hematologic malignancy[chronic granulocytic leukemia]	aspiration	0 / 1	/	/	
13103/3	1	1 / 2	24	idiopathic	aspiration, spinal anesthesia	0 / 1	/	/	One year ago, patient had a previous case of priapism that resolved after 2 days spontaneously
13117/1	1	2 / 3	24,	following rectal exam	aspiration	0 / 1	/	/	
13118/2	1	2 / 2	5,53	sickle cell disease, SC disease	aspiration	0 / 1	/	/	"partial improvement", patient lost to follow-up
13136/2	1	1 / 2	96	idiopathic, alcoholism	ice, aspiration, epidural anesthesia	0 / 1	/	/	
13149/1	5	1 / 1		idiopathic	aspiration, T-binder with foley catheter	5 / 5	/	0 / 5	Aspiration through needles through perineum to base of corpora and massage of blood down to needles. Patients all resolved within 9 days. Patients all had return to intercourse but didn't have erections as firm as before.
13149/2	2	1 / 1		sickle cell disease	aspiration, T-binder with Foley catheter	2 / 2	/	2 / 2	
13149/3	1	1 / 1		sickle cell trait	aspiration, T-binder with Foley catheter	1 / 1	/	0 / 1	

All Ischemic Patients — Aspiration Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13156/2	1	5 / 6	,,,168/0,	sickle cell disease	aspiration, caudal anesthesia	0 / 1	/	/	
13156/3	1	4 / 5	,,48/0,	sickle cell disease	aspiration, general anesthesia	0 / 1	/	/	30% reduction in erection
13156/4	1	2 / 4	,<24/0	sickle cell disease	aspiration, catheterization, caudal anesthesia	0 / 1	/	/	
13156/4	1	3 / 4	,<24/0,48	sickle cell disease	aspiration	0 / 1	/	/	
13156/12	1	2 / 2	24,72/0	hematologic malignancy[acute myeloid leukemia]	aspiration	0 / 1	/	/	pt. died
13156/21	1	3 / 4	24,48,60	idiopathic, psychiatric disorders - long history	aspiration	0 / 1	/	/	not clear if aspiration or irrigation and drainage
13156/21	1	4 / 4	24,48,60,96	idiopathic, psychiatric disorders - long history	aspiration, blood pressure cuff	0 / 1	/	0 / 1	full resolution 3 days later. Not clear if aspiration or irrigation. "Satisfactory erections". Resolution changed to n by panel decision 4/02.
13157/1	1	1 / 5	48	idiopathic	aspiration	0 / 1	/	/	
13157/1	1	2 / 5	48,96	idiopathic	aspiration	0 / 1	/	/	
13157/1	1	4 / 5	48,96,144,192	idiopathic	aspiration	0 / 1	/	/	
13167/4	1	1 / 2	24	trauma[iatrogenic from attempted catheterization], infection/perineal abscess	aspiration, catheterization, compression dressing	0 / 1	/	/	partial detumescence
13167/8	1	3 / 4	12,48,72	drug induced [aspirin/phenacetin (?)], idiopathic, history of painful erections resolving after voiding	aspiration, multiple corporotomies	0 / 1	/	/	detumescence with recurrence within 12 hours
105216/1	1	2 / 4	72,120	hematologic malignancy[chronic myeloid leukemia]	aspiration	0 / 1	/	/	slight reduction in priapism; bacterial infection 24 hours later

All Ischemic Patients — Aspiration Only

Ref. Num. / Group	# Pats.	Treat. # / Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
800009/1	1	5 / 6	84,108,,276,	idiopathic, pneumonia	aspiration	0 / 1	/	/	
Total Groups:	49	Total patients:	59	Outcome totals:		21 / 59 36%	1 / 4 25%	4 / 14 29%	

All Ischemic Patients — Irrigation and Drainage Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
10918/3	1	1 / 1	24		irrigation and drainage	1 / 1	/	/	
10918/13	1	1 / 1	36		irrigation and drainage	0 / 1	/	/	
12595/1	3	1 / 2		diagnostic penile injection[n=2 PGE1], penile injection therapy[n=1 PGE1]	irrigation and drainage	0 / 3	/	/	
12657/1	1	3 / 4	96,,	S-beta-thalassemia	irrigation and drainage	0 / 1	/	/	
12664/2	1	1 / 3	>24		irrigation and drainage	0 / 1	/	/	
12722/19	33	1 / 1			penile injection (saline), irrigation and drainage	12 / 33	/	/	
12740/1	2	1 / 4			irrigation and drainage	0 / 2	/	/	
12740/2	5	1 / 3			irrigation and drainage	0 / 5	/	/	
12808/2	4	1 / 1		idiopathic	irrigation and drainage, compression with indwelling catheter	4 / 4	0 / 4	0 / 4	
12820/1	1	1 / 2	8	idiopathic	irrigation and drainage	0 / 1	/	/	
12852/1	1	1 / 2		drug induced [chlorpromazine, possibly fluphenazine, phenobarbital, phenytoin or other]	irrigation and drainage	0 / 1	/	/	irrigation and drainage repeated
12902/3	1	1 / 3	72	sickle cell trait	irrigation and drainage	0 / 1	/	/	
12902/4	1	1 / 3	14	drug induced [anti-psychotic drug history]	penile injection (normal saline), irrigation and drainage	0 / 1	/	/	
12902/5	1	3 / 4	,96/0,	idiopathic	irrigation and drainage	0 / 1	/	/	

All Ischemic Patients — Irrigation and Drainage Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12902/6	1	2 / 3	10,	drug induced [anti-psychotic drugs (lithium, thorazine), disulfuram for alcoholism]	penile injection (normal saline), irrigation and drainage	0 / 1	/	/	
12957/1	1	1 / 2	192	sickle cell disease	irrigation and drainage	0 / 1	/	/	
12968/1	1	1 / 3	>48	idiopathic	irrigation and drainage, spinal anesthesia	0 / 1	/	/	
12968/1	1	3 / 3	>48,,	idiopathic	irrigation and drainage	1 / 1	0 / 1	0 / 1	
12968/2	1	1 / 6	>12	no discussion of cause in article	irrigation and drainage	0 / 1	/	/	
12968/2	1	2 / 6	>12,	no discussion of cause in article	irrigation and drainage, spinal anesthesia	0 / 1	/	/	
12968/2	1	5 / 6	>12,,,48,168	no discussion of cause in article	embolization[left int. pud. art. using autologous clot], irrigation and drainage	0 / 1	/	/	I&D followed embolization
12968/3	1	1 / 6	12		irrigation and drainage, spinal anesthesia	0 / 1	/	/	
12994/1	3	1 / 1			irrigation and drainage, hypotensive anesthesia[titrated]	3 / 3	0 / 3	/	
12995/4	1	2 / 2	504,	idiopathic	irrigation and drainage	0 / 1	/	/	partial detumescence
13002/1	1	1 / 3	48	idiopathic	irrigation and drainage, spinal anesthesia	0 / 1	/	/	
13002/1	1	3 / 3	48,,	idiopathic	irrigation and drainage	1 / 1	0 / 1	0 / 1	
13006/1	1	1 / 2	78	drug induced [chlorpromazine]	irrigation and drainage	0 / 1	/	/	
13012/1	1	2 / 3	21,	idiopathic	irrigation and drainage, epidural anesthesia, blood pressure cuff	0 / 1	/	/	
13064/1	1	1 / 3	72	idiopathic	irrigation and drainage, intermittent compression dressings	0 / 1	/	/	

All Ischemic Patients — Irrigation and Drainage Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13065/1	1	1 / 2	60	idiopathic, laryngeal papillomatosis	penile injection (rheomacrodex), irrigation and drainage, spinal anesthesia	0 / 1	/	/	
13065/2	1	1 / 2	36	hematologic malignancy[chronic myeloid leukemia]	penile injection (rheomacrodex), irrigation and drainage	0 / 1	/	/	
13065/3	1	1 / 2	24	idiopathic	oral (diazepam), penile injection (rheomacrodex), irrigation and drainage, morphine	0 / 1	/	/	
13065/4	1	1 / 2	44	idiopathic	oral (diazepam), penile injection (rheomacrodex), irrigation and drainage, morphine, spinal anesthesia	0 / 1	/	/	
13065/5	1	1 / 2	24	anticoagulation [heparin for chronic glomerulonephritis]	oral (analgesics), penile injection (rheomacrodex), irrigation and drainage, sedation, spinal anesthesia	0 / 1	/	/	
13073/3	1	1 / 1		UTI, malignant hypertension	irrigation and drainage, binder	1 / 1	/	0 / 1	binder not defined.
13077/1	3	1 / 1		idiopathic	ice, irrigation and drainage, anticoagulation, sedation, spinal anesthesia	3 / 3	/	3 / 3	1 patient had fair erections (satisfactory for intercourse but some flaccidity and/or induration). Treatments were alone or in combination, but no details given.
13090/3	1	1 / 3	28	idiopathic	irrigation and drainage, spinal anesthesia	0 / 1	/	/	
13114/1	3	2 / 2	12-168,	hematologic malignancy[leukemia 1 patient], idiopathic, trauma[perineal trauma - 2 patients]	irrigation and drainage	3 / 3	/	3 / 3	1 patient had "fair" erections, I.e. able to have intercourse but some residual induration or flaccidity

All Ischemic Patients — Irrigation and Drainage Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13114/2	8	1 / 2	1-144	idiopathic, 3 patients listed as "sexual excitation" and one possible trauma	ice, irrigation and drainage, sedation, spinal or pudendal anesthesia, heparin, streptokinase	0 / 8	/	/	patients received different treatments
13135/2	1	2 / 4	24,36	anticoagulation [warfarin, heparin]	irrigation and drainage	0 / 1	/	/	
13140/1	1	3 / 3	,,168	hematologic malignancy[acute granulocytic leukemia]	irrigation and drainage, general anesthesia	0 / 1	/	/	resolution three weeks after admission. Resolution changed to n per panel decision 4/02
13141/2	1	1 / 2	72	drug induced [heavy alcohol use], idiopathic	irrigation and drainage	0 / 1	/	/	initial attempt with 13 guage needle failed, so incision was made to promote drainage after clots were manually expressed
13144/1	1	1 / 1	144	sickle cell disease	irrigation and drainage	0 / 1	/	1 / 1	Priapism resolved two weeks later
13144/2	1	1 / 2	36	sickle cell trait	irrigation and drainage, hyperbaric oxygen[6 hours]	0 / 1	/	/	
13144/3	1	2 / 3	36,60	idiopathic	irrigation and drainage	0 / 1	/	/	
13161/1	1	4 / 6	24,48,72,96	idiopathic, chronic prostatitis	irrigation and drainage, spinalanesthesia	0 / 1	/	/	
105230/1	6	1 / 2	28-168	sickle cell disease	irrigation and drainage, sedation, hydration, adrenergic agonists or antagonists	0 / 6	/	/	
105230/2	1	1 / 2		sickle cell disease	irrigation and drainage, sedation, hydration, adrenergic agonists or antagonists	0 / 1	/	/	
105236/1	1	3 / 4	,,24/0	drug induced [sildenafil]	penile injection (saline), irrigation and drainage	0 / 1	/	/	
300250/1	10	1 / 2	3.5-9	penile injection therapy[PGE1 or papaverine/phentolamine]	irrigation and drainage	0 / 10	/	/	

All Ischemic Patients — Irrigation and Drainage Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
300250/2	1	1 / 4	>1680	idiopathic	irrigation and drainage	0 / 1	/	/	
300250/3	1	1 / 3	>14	hematologic malignancy[leukemia]	irrigation and drainage	0 / 1	/	/	
Total Groups:	52	Total patients:	121	Outcome totals:		29 / 121 24%	0 / 9 0%	7 / 14 50%	

All Ischemic Patients — Penile Injection with Sympathomimetics (with aspiration)—epinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
10918/6	1	1 / 1	24		penile injection (saline, epinephrine), irrigation and drainage	1 / 1	/	/	
10918/7	1	1 / 1	27		penile injection (saline, epinephrine), irrigation and drainage	1 / 1	/	/	
10918/12	1	1 / 2	24		aspiration, penile injection (epinephrine)	0 / 1	/	/	
10918/14	1	1 / 1	36		penile injection (saline, epinephrine), irrigation and drainage	1 / 1	/	/	
10918/17	1	1 / 2	48		penile injection (saline, epinephrine), irrigation and drainage	0 / 1	/	/	
10918/20	1	1 / 2	48		aspiration, penile injection (epinephrine)	0 / 1	/	/	
10918/22	1	1 / 2	72		aspiration, penile injection (epinephrine)	0 / 1	/	/	
12575/1	14	1 / 3	3-28	sickle cell disease	penile injection (epinephrine), irrigation and drainage	13 / 14	0 / 6	0 / 10	Some patients received multiple treatments-up to 15. 10 patients received only one treatment.
12575/2	1	1 / 2	28	sickle cell disease	penile injection (epinephrine), irrigation and drainage	0 / 1	/	/	
12683/8	1	1 / 4		sickle cell disease, chronic transfusions for CVA	penile injection (epinephrine), irrigation and drainage, tansfusions	0 / 1	/	/	Patient received multiple aspirations/injections and had partial detumescence
12704/1	1	1 / 2	12	penile injection therapy[papaverine/phentolamine]	penile injection (epinephrine in saline[.01mg x2]), irrigation and drainage	0 / 1	/	/	
12734/1	1	2 / 4	72,	idiopathic	penile injection (epinephrine)	0 / 1	/	/	
12790/1	1	1 / 1	2	diagnostic penile injection[papaverine and phentolamine]	penile injection (epinephrine[.5 cc of 1:20000]), irrigation and drainage	1 / 1	/	/	after testing patient was advised to use 1/2 dose.

All Ischemic Patients — Penile Injection with Sympathomimetics (with aspiration)—epinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12790/2	1	1 / 1	12	penile injection therapy[papaverine and phentolamine /double dose]	penile injection (epinephrine[.5cc of 1:20000]), irrigation and drainage	1 / 1	/	/	
12790/3	1	2 / 5	48,	penile injection therapy[papaverine and phentolamine - double dose]	penile injection (epinephrine), irrigation and drainage	0 / 1	/	/	some degree of detumescence
12794/0	8	1 / 1	6-48	hematologic malignancy[leukemia], idiopathic, penile injection therapy[papaverine]	penile injection (epinephrine in saline[.01mg]), irrigation and drainage	/	/	/	Group 0 created to record hematoma data.
12794/1	1	1 / 2	12	hematologic malignancy[myeloid leukemia]	penile injection (epinephrine in saline[.01mg]), irrigation and drainage	0 / 1	/	/	
12794/1	1	2 / 2	12,	hematologic malignancy[myeloid leukemia]	penile injection (epinephrine in saline[.01mg]), irrigation and drainage	1 / 1	0 / 1	0 / 1	This was a distinctly different episode from treatment sequence 1.
12794/2	2	1 / 1	6-12	idiopathic	penile injection (epinephrine in saline[.01mg.]), irrigation and drainage	1 / 2	1 / 2	0 / 1	
12794/3	5	1 / 1	6-48	penile injection therapy[papaverine]	penile injection (epinephrine in saline[.01mg.]), irrigation and drainage	4 / 5	/	/	All patients impotent prior to priapism.
12820/1	1	2 / 2	8,	idiopathic	penile injection (epinephrine in saline (10 ml)[.01mg])	1 / 1	1 / 1	0 / 1	Pt trained to use epinephrine injections to deal with recurrent priapism successfully. Pt. lives at a distance from medical facilities.
12836/1	15	1 / 1	0-36		penile injection (epinephrine in saline[1ml]), irrigation and drainage	15 / 15	/	0 / 15	all patients who were potent prior to treatment continued to be potent, but some unknown number were impotent prior to priapism.

All Ischemic Patients — Penile Injection with Sympathomimetics (with aspiration)—epinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12836/2	3	1 / 3	36-120		penile injection (epinephrine in saline[1ml]), irrigation and drainage	1 / 3	/	/	
12836/2	2	2 / 3	36-120,24/1		penile injection (epinephrine in saline[1ml]), irrigation and drainage	1 / 2	/	/	
12852/1	1	2 / 2	,	drug induced [chlorpromazine, possibly fluphenazine, phenobarbital, phenytoin or other]	penile injection (epinephrine - two injecton[55 mcgrm. Total])	1 / 1	0 / 1	/	
12895/1	9	1 / 1		penile injection therapy[papaverine +/- phentolamine]	penile injection (epinephrine in saline 20-30 ml[1mcg/ml]), irrigation and drainage	9 / 9	/	/	pts impotent prepriapism
12895/2	45	1 / 1		diagnostic penile injection[papaverine +/- phentolamine]	penile injection (epinephrine in saline 20-30 ml[1mcg/ml]), irrigation and drainage	45 / 45	/	/	pts. impotent prepriapism
300250/2	1	3 / 4	>1680,,	idiopathic	penile injection (methylene blue[50mg], epinephrine[<.05mg], phenylephrine[<1mg])	0 / 1	/	/	order and timing of injections not clear
300250/3	1	3 / 3	>14,,	hematologic malignancy[leukemia]	penile injection (epinephrine[<.05mg.])	1 / 1	/	1 / 1	
Total Groups:	29	Total patients:	123	Outcome totals:		98 / 115 85%	2 / 11 18%	1 / 29 3%	

All Ischemic Patients — Penile Injection with Sympathomimetics (with aspiration)—metaraminol

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
10918/15	1	1 / 1	40		penile injection (saline, metaraminol), irrigation and drainage	1 / 1	/	/	
10918/19	1	1 / 2	48		aspiration, penile injection (metaraminol)	0 / 1	/	/	
12723/1	1	3 / 5	,12/0,		penile injection (metaraminol), irrigation and drainage	0 / 1	/	/	marked detumescence
12742/1	1	1 / 2	8	anticoagulation [heparin and coumadin]	penile injection (metaraminol, heparin), irrigation and drainage	0 / 1	/	/	
12823/1	1	1 / 3	48	penile injection therapy[papaverint, 80 mg.]	penile injection (metaraminol), irrigation and drainage	0 / 1	/	/	partial response for short duration
12826/4	1	2 / 7	12,24	Fabry's disease-alpha galactosidase deficeincy	aspiration, penile injection (metaraminol), general anesthesia	0 / 1	/	/	metaraminol injection was not complete due to rapid filling of the penis
12854/1	18	1 / 2		penile injection therapy[papaverine +/- phentolamine +/- phenoxybenzamine]	aspiration, penile injection (metaraminol in 5ml saline[1mg])	17 / 18	/	/	all patients impotent prepriapism. 2 pts. improved after treatment, 1 worse, 3 unknown and the rest unchanged
12941/1	1	1 / 1	8	hematologic malignancy[CML blast crisis]	penile injection (metaraminol), irrigation and drainage	1 / 1	/	/	It took two injections for detumescence
12945/1	1	1 / 1	20	penile injection therapy[phenoxybenzamine, 2mg.]	penile injection (metaraminol[.8mg]), irrigation and drainage	0 / 1	/	/	Flaccidity 3.5 hours after treatment. Resolution changed to n by panel decision 4/02.
12945/2	1	1 / 3	13	penile injection therapy[phenoxybenzamine, 4mg]	penile injection (metaraminol[2mg]), irrigation and drainage	0 / 1	/	/	
12945/2	1	2 / 3	13,14	penile injection therapy[phenoxybenzamine, 4mg]	penile injection (metaraminol[2mg]), irrigation and drainage	0 / 1	/	/	

All Ischemic Patients — Penile Injection with Sympathomimetics (with aspiration)—metaraminol

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12945/2	1	3 / 3	13,14,15	penile injection therapy[phenoxybenzamine, 4mg]	penile injection (metaraminol[3mg.]), irrigation and drainage	1 / 1	/	/	Flaccidity 70 min. from last treatment
12945/3	1	1 / 3	12	penile injection therapy[phenoxybenzamine, 4mg]	penile injection (metaraminol[3mg.]), irrigation and drainage	0 / 1	/	/	
12945/3	1	2 / 3	12,13	penile injection therapy[phenoxybenzamine, 4mg]	penile injection (metaraminol[3mg.]), irrigation and drainage	0 / 1	/	/	
12945/3	1	3 / 3	12,13,15	penile injection therapy[phenoxybenzamine, 4mg]	penile injection (metaraminol[3mg.]), irrigation and drainage	1 / 1	/	/	flaccidity 50 min. after last treatment
12945/4	1	1 / 1	15	penile injection therapy[phenoxybenzamine, 4mg]	penile injection (metaraminol[1mg.]), irrigation and drainage	1 / 1	/	0 / 1	flaccidity after 20minutes. Erection impaired for < 1 week afterwards.
12945/5	1	1 / 1	23	penile injection therapy[phenoxybenzamine unknown dose]	penile injection (metaraminol[1.5mg.]), irrigation and drainage	1 / 1	/	/	flaccidity after 1-8 hours post treatment
12945/6	1	1 / 1	31	penile injection therapy[papaverint, 80 mg.]	penile injection (metaraminol[1.5mg.]), irrigation and drainage	1 / 1	/	/	flaccidity after 75 min. post treatment
12945/7	1	1 / 1	40	penile injection therapy[papaverine, 40 mg.]	penile injection (metaraminol[2mg.]), irrigation and drainage	1 / 1	/	/	flaccidity 16 min. post treatment
Total Groups:	19	Total patients:	36	Outcome totals:		25 / 36 69%	/	0 / 1 0%	

All Ischemic Patients — Penile Injection with Sympathomimetics (with aspiration)—norepinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
10918/8	1	1 / 1	30		aspiration, penile injection (norepinephrine)	1 / 1	/	/	
10918/9	1	1 / 2	30		aspiration, penile injection (norepinephrine)	0 / 1	/	/	
10918/18	1	1 / 2	48		aspiration, penile injection (norepinephrine)	0 / 1	/	/	
10918/21	1	1 / 1	72		aspiration, penile injection (norepinephrine)	1 / 1	/	/	
10918/24	1	1 / 2	96		penile injection (heparinized saline, norepinephrine), irrigation and drainage	0 / 1	/	/	
12819/3	1	2 / 2	6-28,	penile injection therapy[papaverine 15-30mg.]	penile injection (norepinephrine in saline[1mg/ml]), irrigation and drainage	1 / 1	/	/	impotent pre-treatment and continued to respond to papaverine post treatment
12902/3	1	2 / 3	72,	sickle cell trait	penile injection (norepinephrine in saline 10ml[10mcg]), irrigation and drainage	0 / 1	/	/	injection repeated four times
12902/4	1	2 / 3	14,	drug induced [anti-psychotic drug history]	penile injection (norepinephrine in 20ml saline[20mcg.]), irrigation and drainage	0 / 1	/	/	
12902/7	1	1 / 3	18	drug induced [alcohol], idiopathic	penile injection (norepinephrine in 20 ml saline[20mcg.]), irrigation and drainage	0 / 1	/	/	
12902/7	1	2 / 3	18,	drug induced [alcohol], idiopathic	penile injection (norepinephrine in 20 ml saline[20mcg.]), Winter shunt	0 / 1	/	/	Winter shunt on one side only
Total Groups:	10	Total patients:	10	Outcome totals:		3 / 10 30%	/	/	

All Ischemic Patients — Penile Injection with Sympathomimetics (with aspiration)—phenylephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
10918/4	1	2 / 2	24,		aspiration, penile injection (neosynephrine)	1 / 1	/	/	
10918/5	1	1 / 1	24		penile injection (saline, neosynephrine), irrigation and drainage	1 / 1	/	/	
10918/23	1	1 / 1	72		penile injection (heparinized saline, neosynephrine), irrigation and drainage	1 / 1	/	/	prosthesis later inserted
11038/4	1	3 / 3	>6,.25/1,.75/1	penile injection therapy[papaverine]	penile injection (phenylephrine[200mcg.]), irrigation and drainage	1 / 1	/	/	
12679/1	19	2 / 2	<4,<4	idiopathic, penile injection therapy, sickle cell disease	penile injection (phenylephrine[1-2mcg/l]), irrigation and drainage	18 / 19	/	/	one patient required an unspecified shunt. Phenylephrine dose very low.
12692/1	1	2 / 8	24,72	sickle cell disease	aspiration, penile injection (phenylephrine[100mg])	0 / 1	/	/	
12692/1	1	3 / 8	24,72,108	sickle cell disease	aspiration, penile injection (phenylephrine[100mg]), Winter shunt	1 / 1	1 / 1	/	
12692/1	1	5 / 8	24,72,108,828,	sickle cell disease	aspiration, penile injection (phenylephrine[100mg]), Winter shunt	1 / 1	1 / 1	/	
12692/1	1	7 / 8	24,72,108,828,,2184,	sickle cell disease	aspiration, penile injection (phenylephrine[100mg])	/	/	/	aspirations diagnostic
12692/2	1	3 / 5	24,72,96	sickle cell disease	aspiration, penile injection (phenylephrine[150mg])	0 / 1	/	/	
12692/2	1	4 / 5	24,72,96,97	sickle cell disease	penile injection (phenylephrine[100mg])	0 / 1	/	/	
12730/3	1	1 / 2	5	penile injection therapy[PGE1, 6 micrograms]	penile injection (phenylephrine), irrigation and drainage	1 / 1	1 / 1	/	Patient impotent prior to treatment. Impotence changed from y to blank per panel decision 4/02.

All Ischemic Patients — Penile Injection with Sympathomimetics (with aspiration)—phenylephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12781/1	1	2 / 3	,	idiopathic	penile injection (phenylephrine), irrigation and drainage	0 / 1	/	/	adrenergic agent probably phenylephrine given its use elsewhere in the paper, but it wasn't specified in this case. Panel changed record to indicate phenylephrine 4/02.
12781/3	1	1 / 1		drug induced [trazodone]	penile injection (phenylephrine), irrigation and drainage	1 / 1	1 / 1	0 / 1	agent probably phenylephrine. Panel changed record to indicate phenylephrine 4/02
12823/1	1	2 / 3	48,	penile injection therapy[papaverint, 80 mg.]	penile injection (phenylephrine[1mg])	0 / 1	/	/	multiple doses given - number unspecified
12823/1	1	3 / 3	48,,	penile injection therapy[papaverint, 80 mg.]	penile injection (phenylephrine continuous infusion[2mg/hr for 12 hours])	1 / 1	0 / 1	/	patient impotent at baseline
12849/1	1	6 / 7	,,,,,		aspiration, penile injection (phenylephrine)	1 / 1	/	/	
105236/1	1	4 / 4	,,24/0,	drug induced [sildenafil]	penile injection (phenylephrine[400mg.*4]), irrigation and drainage	0 / 1	/	/	Four irrigation were done with phenylephrine. Resolution over night. Pt was partially impotent prior to episode and returned to his baseline level of function after treatment Resolution changed to n by panel decision 4/02.
300250/2	1	3 / 4	>1680,,	idiopathic	penile injection (methylene blue[50mg], epinephrine[<.05mg], phenylephrine[<1mg])	0 / 1	/	/	order and timing of injections not clear
Total Groups:	19	Total patients:	37	Outcome totals:		28 / 36 78%	4 / 5 80%	0 / 1 0%	

All Ischemic Patients — Penile Injection with Sympathomimetics (with aspiration)—unspec. sympathomimetic

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12589/2	1	1 / 3	72	idiopathic, after sudden onset of a headache	penile injection (dilute adrenergic agent), irrigation and drainage	0 / 1	/	/	
12613/1	1	2 / 4	,	sickle cell disease	penile injection (alpha-adrenergic agents), irrigation and drainage	0 / 1	/	/	Agent/dose not specified. Unclear if no resolution or recurred.
Total Groups:	2	Total patients:	2	Outcome totals:		0 / 2 0%	/	/	

All Ischemic Patients — Penile Injection with Sympathomimetics (with aspiration)—unspec. sympathomimetic

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments

Overall Results— Penile Injection with Sympathomimetics (with aspiration)

Total Groups:	79	Total patients:	208	Outcome totals:		154 / 199 77%	6 / 16 38%	1 / 31 3%	

All Ischemic Patients — Penile Injection with Sympathomimetics (no aspiration)—epinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12722/23	17	1 / 1			penile injection (epinephrine)	9 / 17	/	/	
Total Groups:	1	Total patients:	17	Outcome totals:		9 / 17 53%	/	/	

All Ischemic Patients — Penile Injection with Sympathomimetics (no aspiration)—metaraminol

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12722/22	2	1 / 1			penile injection (metaraminol)	2 / 2	/	/	
12902/1	1	1 / 2	10	diagnostic penile injection[papaverine 60mg.]	penile injection (metaraminol dilute)	0 / 1	/	/	
12902/1	1	2 / 2	10,	diagnostic penile injection[papaverine 60mg.]	penile injection (metaraminol dilute)	1 / 1	/	/	resolution 3 hours after 2nd injection. Patient impotent before priapism. BP 200/140 after injection
Total Groups:	3	Total patients:	4	Outcome totals:		3 / 4 75%	/	/	

All Ischemic Patients — Penile Injection with Sympathomimetics (no aspiration)—norepinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12722/24	13	1 / 1			penile injection (norepinephrine)	7 / 13	/	/	
Total Groups:	1	Total patients:	13	Outcome totals:		7 / 13 54%	/	/	

All Ischemic Patients — Penile Injection with Sympathomimetics (no aspiration)—phenylephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
10918/4	1	1 / 2	24		penile injection (neosynephrine)	0 / 1	/	/	
10918/16	1	1 / 3	40		penile injection (neosynephrine)	0 / 1	/	/	
12637/1	1	1 / 1	30	drug induced [thioridizine (mellaril)]	penile injection (phenylephrine[1.25mg.])	1 / 1	0 / 1	0 / 1	multiple injections (unspecified number) required for resolution (total 1.25 mg.)
12671/1	7	1 / 2		penile injection therapy[papaverine (2), trimix (5)]	penile injection (phenylephrine in saline[.05mg])	6 / 7	/	/	All 6 responders required 3 or fewer injections. The non-responder was given 6 injections.
12671/2	1	1 / 1		drug induced [trazodone]	penile injection (phenylephrine in saline[.5mg])	1 / 1	/	/	Only one injection required.
12671/3	1	1 / 1		idiopathic	penile injection (phenylephrine in saline[.5mg])	1 / 1	/	/	Only one injection required.
12679/1	19	1 / 2	<4	idiopathic, penile injection therapy, sickle cell disease	penile injection (phenylephrine[100mcg])	0 / 19	/	/	implied selection bias since all failed.Resolution changed from 19 to 0 per panel decision 4/02.
12722/21	14	1 / 1			penile injection (neosynephrine)	9 / 14	/	/	
12773/1	20	1 / 1		diagnostic penile injection, penile injection therapy	penile injection (phenylephrine[.2-.5 mg.])	20 / 20	/	/	doses ranged from .2 to .5 mg. Age range was for group that included intra-operative erection patients. Tachycardia also may have been in intra-operative group and represents increase of 15 beats/min.
Total Groups:	9	Total patients:	65	Outcome totals:		38 / 65 58%	0 / 1 0%	0 / 1 0%	

All Ischemic Patients — Penile Injection with Sympathomimetics (no aspiration)—phenylephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments

Overall Results — Penile Injection with Sympathomimetics (no aspiration)

Total Groups:	14	Total patients:	99	Outcome totals:	57 / 99 58%	0 / 1 0%	0 / 1 0%	

All Ischemic Patients — Penile Injection with Sympathomimetics —epinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
10918/6	1	1 / 1	24		penile injection (saline, epinephrine), irrigation and drainage	1 / 1	/	/	
10918/7	1	1 / 1	27		penile injection (saline, epinephrine), irrigation and drainage	1 / 1	/	/	
10918/12	1	1 / 2	24		aspiration, penile injection (epinephrine)	0 / 1	/	/	
10918/14	1	1 / 1	36		penile injection (saline, epinephrine), irrigation and drainage	1 / 1	/	/	
10918/17	1	1 / 2	48		penile injection (saline, epinephrine), irrigation and drainage	0 / 1	/	/	
10918/20	1	1 / 2	48		aspiration, penile injection (epinephrine)	0 / 1	/	/	
10918/22	1	1 / 2	72		aspiration, penile injection (epinephrine)	0 / 1	/	/	
10918/22	1	2 / 2	72,		penile injection (epinephrine), Ebbehoj shunt	1 / 1	/	/	prosthesis later inserted
12575/1	14	1 / 3	3-28	sickle cell disease	penile injection (epinephrine), irrigation and drainage	13 / 14	0 / 6	0 / 10	Some patients received multiple treatments-up to 15. 10 patients received only one treatment.
12575/2	1	1 / 2	28	sickle cell disease	penile injection (epinephrine), irrigation and drainage	0 / 1	/	/	
12683/8	1	1 / 4		sickle cell disease, chronic transfusions for CVA	penile injection (epinephrine), irrigation and drainage, tansfusions	0 / 1	/	/	Patient received multiple aspirations/injections and had partial detumescence
12704/1	1	1 / 2	12	penile injection therapy[papaverine/phentolamine]	penile injection (epinephrine in saline[.01mg x2]), irrigation and drainage	0 / 1	/	/	
12722/23	17	1 / 1			penile injection (epinephrine)	9 / 17	/	/	
12734/1	1	2 / 4	72,	idiopathic	penile injection (epinephrine)	0 / 1	/	/	

All Ischemic Patients — Penile Injection with Sympathomimetics —epinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12790/1	1	1 / 1	2	diagnostic penile injection[papaverine and phentolamine]	penile injection (epinephrine[.5 cc of 1:20000]), irrigation and drainage	1 / 1	/	/	after testing patient was advised to use 1/2 dose.
12790/2	1	1 / 1	12	penile injection therapy[papaverine and phentolamine /double dose]	penile injection (epinephrine[.5cc of 1:20000]), irrigation and drainage	1 / 1	/	/	
12790/3	1	2 / 5	48,	penile injection therapy[papaverine and phentolamine - double dose]	penile injection (epinephrine), irrigation and drainage	0 / 1	/	/	some degree of detumescence
12794/0	8	1 / 1	6-48	hematologic malignancy[leukemia], idiopathic, penile injection therapy[papaverine]	penile injection (epinephrine in saline[.01mg]), irrigation and drainage	/	/	/	Group 0 created to record hematoma data.
12794/1	1	1 / 2	12	hematologic malignancy[myeloid leukemia]	penile injection (epinephrine in saline[.01mg]), irrigation and drainage	0 / 1	/	/	
12794/1	1	2 / 2	12,	hematologic malignancy[myeloid leukemia]	penile injection (epinephrine in saline[.01mg]), irrigation and drainage	1 / 1	0 / 1	0 / 1	This was a distinctly different episode from treatment sequence 1.
12794/2	2	1 / 1	6-12	idiopathic	penile injection (epinephrine in saline[.01mg.]), irrigation and drainage	1 / 2	1 / 2	0 / 1	
12794/3	5	1 / 1	6-48	penile injection therapy[papaverine]	penile injection (epinephrine in saline[.01mg.]), irrigation and drainage	4 / 5	/	/	All patients impotent prior to priapism.
12820/1	1	2 / 2	8,	idiopathic	penile injection (epinephrine in saline (10 ml)[.01mg])	1 / 1	1 / 1	0 / 1	Pt trained to use epinephrine injections to deal with recurrent priapism successfully. Pt. lives at a distance from medical facilities.

All Ischemic Patients — Penile Injection with Sympathomimetics —epinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12836/1	15	1 / 1	0-36		penile injection (epinephrine in saline[1ml]), irrigation and drainage	15 / 15	/	0 / 15	all patients who were potent prior to treatment continued to be potent, but some unknown number were impotent prior to priapism.
12836/2	3	1 / 3	36-120		penile injection (epinephrine in saline[1ml]), irrigation and drainage	1 / 3	/	/	
12836/2	2	2 / 3	36-120,24/1		penile injection (epinephrine in saline[1ml]), irrigation and drainage	1 / 2	/	/	
12852/1	1	2 / 2	,	drug induced [chlorpromazine, possibly fluphenazine, phenobarbital, phenytoin or other]	penile injection (epinephrine - two injecton[55 mcgrm. Total])	1 / 1	0 / 1	/	
12895/1	9	1 / 1		penile injection therapy[papaverine +/- phentolamine]	penile injection (epinephrine in saline 20-30 ml[1mcg/ml]), irrigation and drainage	9 / 9	/	/	pts impotent prepriapism
12895/2	45	1 / 1		diagnostic penile injection[papaverine +/- phentolamine]	penile injection (epinephrine in saline 20-30 ml[1mcg/ml]), irrigation and drainage	45 / 45	/	/	pts. impotent prepriapism
300250/2	1	3 / 4	>1680,,	idiopathic	penile injection (methylene blue[50mg], epinephrine[<.05mg], phenylephrine[<1mg])	0 / 1	/	/	order and timing of injections not clear
300250/3	1	3 / 3	>14,,	hematologic malignancy[leukemia]	penile injection (epinephrine[<.05mg.])	1 / 1	/	1 / 1	
Total Groups:	31	Total patients:	141	Outcome totals:		108 / 133	2 / 11	1 / 29	
						81%	18%	3%	

All Ischemic Patients — Penile Injection with Sympathomimetics —metaraminol

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
10918/15	1	1 / 1	40		penile injection (saline, metaraminol), irrigation and drainage	1 / 1	/	/	
10918/19	1	1 / 2	48		aspiration, penile injection (metaraminol)	0 / 1	/	/	
12722/22	2	1 / 1			penile injection (metaraminol)	2 / 2	/	/	
12723/1	1	3 / 5	,12/0,		penile injection (metaraminol), irrigation and drainage	0 / 1	/	/	marked detumescence
12742/1	1	1 / 2	8	anticoagulation [heparin and coumadin]	penile injection (metaraminol, heparin), irrigation and drainage	0 / 1	/	/	
12823/1	1	1 / 3	48	penile injection therapy[papaverint, 80 mg.]	penile injection (metaraminol), irrigation and drainage	0 / 1	/	/	partial response for short duration
12826/4	1	2 / 7	12,24	Fabry's disease-alpha galactosidase deficeincy	aspiration, penile injection (metaraminol), general anesthesia	0 / 1	/	/	metaraminol injection was not complete due to rapid filling of the penis
12854/1	18	1 / 2		penile injection therapy[papaverine +/- phentolamine +/- phenoxybenzamine]	aspiration, penile injection (metaraminol in 5ml saline[1mg])	17 / 18	/	/	all patients impotent prepriapism. 2 pts. improved after treatment, 1 worse, 3 unknown and the rest unchanged
12902/1	1	1 / 2	10	diagnostic penile injection[papaverine 60mg.]	penile injection (metaraminol dilute)	0 / 1	/	/	
12902/1	1	2 / 2	10,	diagnostic penile injection[papaverine 60mg.]	penile injection (metaraminol dilute)	1 / 1	/	/	resolution 3 hours after 2nd injection. Patient impotent before priapism. BP 200/140 after injection
12941/1	1	1 / 1	8	hematologic malignancy[CML blast crisis]	penile injection (metaraminol), irrigation and drainage	1 / 1	/	/	It took two injections for detumescence

All Ischemic Patients — Penile Injection with Sympathomimetics —metaraminol

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12945/1	1	1 / 1	20	penile injection therapy[phenoxybenzamine, 2mg.]	penile injection (metaraminol[.8mg]), irrigation and drainage	0 / 1	/	/	Flaccidity 3.5 hours after treatment. Resolution changed to n by panel decision 4/02.
12945/2	1	1 / 3	13	penile injection therapy[phenoxybenzamine, 4mg]	penile injection (metaraminol[2mg]), irrigation and drainage	0 / 1	/	/	
12945/2	1	2 / 3	13,14	penile injection therapy[phenoxybenzamine, 4mg]	penile injection (metaraminol[2mg]), irrigation and drainage	0 / 1	/	/	
12945/2	1	3 / 3	13,14,15	penile injection therapy[phenoxybenzamine, 4mg]	penile injection (metaraminol[3mg.]), irrigation and drainage	1 / 1	/	/	Flaccidity 70 min. from last treatment
12945/3	1	1 / 3	12	penile injection therapy[phenoxybenzamine, 4mg]	penile injection (metaraminol[3mg.]), irrigation and drainage	0 / 1	/	/	
12945/3	1	2 / 3	12,13	penile injection therapy[phenoxybenzamine, 4mg]	penile injection (metaraminol[3mg.]), irrigation and drainage	0 / 1	/	/	
12945/3	1	3 / 3	12,13,15	penile injection therapy[phenoxybenzamine, 4mg]	penile injection (metaraminol[3mg.]), irrigation and drainage	1 / 1	/	/	flaccidity 50 min. after last treatment
12945/4	1	1 / 1	15	penile injection therapy[phenoxybenzamine, 4mg]	penile injection (metaraminol[1mg.]), irrigation and drainage	1 / 1	/	0 / 1	flaccidity after 20minutes. Erection impaired for < 1 week afterwards.
12945/5	1	1 / 1	23	penile injection therapy[phenoxybenzamine unknown dose]	penile injection (metaraminol[1.5mg.]), irrigation and drainage	1 / 1	/	/	flaccidity after 1-8 hours post treatment
12945/6	1	1 / 1	31	penile injection therapy[papaverint, 80 mg.]	penile injection (metaraminol[1.5mg.]), irrigation and drainage	1 / 1	/	/	flaccidity after 75 min. post treatment
12945/7	1	1 / 1	40	penile injection therapy[papaverine, 40 mg.]	penile injection (metaraminol[2mg.]), irrigation and drainage	1 / 1	/	/	flaccidity 16 min. post treatment

All Ischemic Patients — Penile Injection with Sympathomimetics —metaraminol

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
Total Groups:	22	Total patients:	40	Outcome totals:		28 / 40 70%	/	0 / 1 0%	

All Ischemic Patients — Penile Injection with Sympathomimetics —norepinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
10918/8	1	1 / 1	30		aspiration, penile injection (norepinephrine)	1 / 1	/	/	
10918/9	1	1 / 2	30		aspiration, penile injection (norepinephrine)	0 / 1	/	/	
10918/18	1	1 / 2	48		aspiration, penile injection (norepinephrine)	0 / 1	/	/	
10918/21	1	1 / 1	72		aspiration, penile injection (norepinephrine)	1 / 1	/	/	
10918/24	1	1 / 2	96		penile injection (heparinized saline, norepinephrine), irrigation and drainage	0 / 1	/	/	
12722/24	13	1 / 1			penile injection (norepinephrine)	7 / 13	/	/	
12819/3	1	2 / 2	6-28,	penile injection therapy[papaverine 15-30mg.]	penile injection (norepinephrine in saline[1mg/ml]), irrigation and drainage	1 / 1	/	/	impotent pre-treatment and continued to respond to papaverine post treatment
12902/3	1	2 / 3	72,	sickle cell trait	penile injection (norepinephrine in saline 10ml[10mcg]), irrigation and drainage	0 / 1	/	/	injection repeated four times
12902/4	1	2 / 3	14,	drug induced [anti-psychotic drug history]	penile injection (norepinephrine in 20ml saline[20mcg.]), irrigation and drainage	0 / 1	/	/	
12902/7	1	1 / 3	18	drug induced [alcohol], idiopathic	penile injection (norepinephrine in 20 ml saline[20mcg.]), irrigation and drainage	0 / 1	/	/	
12902/7	1	2 / 3	18,	drug induced [alcohol], idiopathic	penile injection (norepinephrine in 20 ml saline[20mcg.]), Winter shunt	0 / 1	/	/	Winter shunt on one side only
Total Groups:	11	Total patients:	23	Outcome totals:		10 / 23 43%	/	/	

All Ischemic Patients — Penile Injection with Sympathomimetics —phenylephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
10918/4	1	1 / 2	24		penile injection (neosynephrine)	0 / 1	/	/	
10918/4	1	2 / 2	24,		aspiration, penile injection (neosynephrine)	1 / 1	/	/	
10918/5	1	1 / 1	24		penile injection (saline, neosynephrine), irrigation and drainage	1 / 1	/	/	
10918/16	1	1 / 3	40		penile injection (neosynephrine)	0 / 1	/	/	
10918/23	1	1 / 1	72		penile injection (heparinized saline, neosynephrine), irrigation and drainage	1 / 1	/	/	prosthesis later inserted
11038/4	1	3 / 3	>6,.25/1,.75/1	penile injection therapy[papaverine]	penile injection (phenylephrine[200mcg.]), irrigation and drainage	1 / 1	/	/	
12637/1	1	1 / 1	30	drug induced [thioridizine (mellaril)]	penile injection (phenylephrine[1.25mg.])	1 / 1	0 / 1	0 / 1	multiple injections (unspecified number) required for resolution (total 1.25 mg.)
12671/1	7	1 / 2		penile injection therapy[papaverine (2), trimix (5)]	penile injection (phenylephrine in saline[.05mg])	6 / 7	/	/	All 6 responders required 3 or fewer injections. The non-responder was given 6 injections.
12671/2	1	1 / 1		drug induced [trazodone]	penile injection (phenylephrine in saline[.5mg])	1 / 1	/	/	Only one injection required.
12671/3	1	1 / 1		idiopathic	penile injection (phenylephrine in saline[.5mg])	1 / 1	/	/	Only one injection required.
12679/1	19	1 / 2	<4	idiopathic, penile injection therapy, sickle cell disease	penile injection (phenylephrine[100mcg])	0 / 19	/	/	implied selection bias since all failed.Resolution changed from 19 to 0 per panel decision 4/02.
12679/1	19	2 / 2	<4,<4	idiopathic, penile injection therapy, sickle cell disease	penile injection (phenylephrine[1-2mcg/l]), irrigation and drainage	18 / 19	/	/	one patient required an unspecified shunt. Phenylephrine dose very low.
12692/1	1	2 / 8	24,72	sickle cell disease	aspiration, penile injection (phenylephrine[100mg])	0 / 1	/	/	

All Ischemic Patients — Penile Injection with Sympathomimetics —phenylephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12692/1	1	3 / 8	24,72,108	sickle cell disease	aspiration, penile injection (phenylephrine[100mg]), Winter shunt	1 / 1	1 / 1	/	
12692/1	1	5 / 8	24,72,108,828,	sickle cell disease	aspiration, penile injection (phenylephrine[100mg]), Winter shunt	1 / 1	1 / 1	/	
12692/1	1	7 / 8	24,72,108,828,,2184,	sickle cell disease	aspiration, penile injection (phenylephrine[100mg])	/	/	/	aspirations diagnostic
12692/2	1	3 / 5	24,72,96	sickle cell disease	aspiration, penile injection (phenylephrine[150mg])	0 / 1	/	/	
12692/2	1	4 / 5	24,72,96,97	sickle cell disease	penile injection (phenylephrine[100mg])	0 / 1	/	/	
12722/21	14	1 / 1			penile injection (neosynephrine)	9 / 14	/	/	
12730/3	1	1 / 2	5	penile injection therapy[PGE1, 6 micrograms]	penile injection (phenylephrine), irrigation and drainage	1 / 1	1 / 1	/	Patient impotent prior to treatment. Impotence changed from y to blank per panel decision 4/02.
12773/1	20	1 / 1		diagnostic penile injection, penile injection therapy	penile injection (phenylephrine[.2-.5 mg.])	20 / 20	/	/	doses ranged from .2 to .5 mg. Age range was for group that included intra-operative erection patients. Tachycardia also may have been in intra-operative group and represents increase of 15 beats/min.
12781/1	1	2 / 3	,	idiopathic	penile injection (phenylephrine), irrigation and drainage	0 / 1	/	/	adrenergic agent probably phenylephrine given its use elsewhere in the paper, but it wasn't specified in this case. Panel changed record to indicate phenylephrine 4/02.
12781/3	1	1 / 1		drug induced [trazodone]	penile injection (phenylephrine), irrigation and drainage	1 / 1	1 / 1	0 / 1	agent probably phenylephrine. Panel changed record to indicate phenylephrine 4/02

All Ischemic Patients — Penile Injection with Sympathomimetics —phenylephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12823/1	1	2 / 3	48,	penile injection therapy[papaverint, 80 mg.]	penile injection (phenylephrine[1mg])	0 / 1	/	/	multiple doses given - number unspecified
12823/1	1	3 / 3	48,,	penile injection therapy[papaverint, 80 mg.]	penile injection (phenylephrine continuous infusion[2mg/hr for 12 hours])	1 / 1	0 / 1	/	patient impotent at baseline
12849/1	1	6 / 7	,,,,,		aspiration, penile injection (phenylephrine)	1 / 1	/	/	
105236/1	1	4 / 4	,,24/0,	drug induced [sildenafil]	penile injection (phenylephrine[400mg.*4]), irrigation and drainage	0 / 1	/	/	Four irrigation were done with phenylephrine. Resolution over night. Pt was partially impotent prior to episode and returned to his baseline level of function after treatment Resolution changed to n by panel decision 4/02.
300250/2	1	3 / 4	>1680,,	idiopathic	penile injection (methylene blue[50mg], epinephrine[<.05mg], phenylephrine[<1mg])	0 / 1	/	/	order and timing of injections not clear
Total Groups:	28	Total patients:	102	Outcome totals:		66 / 101 65%	4 / 6 67%	0 / 2 0%	

Ischemic Patients — Penile Injection with Sympathomimetics —unspec. sympathomime

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12589/2	1	1 / 3	72	idiopathic, after sudden onset of a headache	penile injection (dilute adrenergic agent), irrigation and drainage	0 / 1	/	/	
12613/1	1	2 / 4	,	sickle cell disease	penile injection (alpha-adrenergic agents), irrigation and drainage	0 / 1	/	/	Agent/dose not specified. Unclear if no resolution or recurred.
Total Groups:	2	Total patients:	2	Outcome totals:		0 / 2 0%	/	/	

All Ischemic Patients — Penile Injection with anti-coagulants —heparin

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12722/20	13	1 / 1			penile injection (heparin), irrigation and drainage	4 / 13	/	/	
12819/1	3	1 / 3	13-36	drug induced [trazodone 200-300 mg.]	penile injection (heparinized saline), irrigation and drainage	0 / 3	/	/	All recurred rapidly, presumably within 24 hours. Mean duration of priapism prior to treatment was 24.3 hours.
12863/4	2	1 / 1		sickle cell disease, AA hemoglobin	penile injection (heparin in saline), irrigation and drainage	2 / 2	/	/	one adult with AA hemoglobin, one child with sickle cell disease
12920/2	7	2 / 2	,		penile injection (heparinized saline), irrigation and drainage	1 / 7	/	1 / 1	The six who did not detumesce at this point are lost in the other surgical groups (3-5).
12960/1	1	2 / 2	0,12	drug induced [possibly pre-anesthesia drug--Innovar]	penile injection (heparanized saline), irrigation and drainage	1 / 1	/	/	
13080/1	1	3 / 4	48,,	idiopathic	penile injection (dilute heparin), irrigation and drainage	0 / 1	/	/	
13093/1	18	2 / 5	,	idiopathic, sickle cell disease, sickle cell trait, acute prostatitis	penile injection (heparinized saline), irrigation and drainage	10 / 18	0 / 10	6 / 10	3 patients who resolved needed a second irrigation/aspiration
13122/1	2	1 / 2		anticoagulation [heparin (1 pt.)], idiopathic	penile injection (heparinized saline), irrigation and drainage	0 / 2	/	/	
13122/2	4	1 / 3		anticoagulation [heparin], hematologic malignancy[leukemia], idiopathic, trauma	penile injection (heparinized saline), irrigation and drainage	0 / 4	/	/	
13122/2	2	3 / 3	,24-45,	anticoagulation [heparin], hematologic malignancy[leukemia], idiopathic, trauma	penile injection (heparin)	0 / 2	/	2 / 2	
13122/3		1 / 2		idiopathic	penile injection (heparinized saline), irrigation and drainage	0 / 1	/	/	

All Ischemic Patients — Penile Injection with anti-coagulants —heparin

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13135/1	1	2 / 3	336,	drug induced [aldomet, navidrex for hypertension], idiopathic, prolonged intercourse,	penile injection (heparinized saline, procaine[.5%]), irrigation and drainage	0 / 1	/	/	transient improvement
13141/1	1	2 / 3	72,144	drug induced [large quantities of alcohol], idiopathic	penile injection (dilute heparin), irrigation and drainage	0 / 1	/	/	
13141/3	1	1 / 2	21	drug induced [heavy alcohol use], idiopathic	penile injection (dilute heparin), irrigation and drainage	0 / 1	/	/	
13148/1	1	3 / 5	,36/0,204/0	sickle cell trait	penile injection (heparinized saline), irrigation and drainage, epidural anesthesia	0 / 1	/	/	
13152/1	1	3 / 3	48,144,	idiopathic	penile injection (heparinized saline[1000IU]), irrigation and drainage	1 / 1	0 / 1	1 / 1	irrigation complicated by prepucinal hematoma requiring a dorsal slit. Coagulation parameters corrected before irrigation commenced.
13152/2	1	2 / 3	48,120	idiopathic	penile injection (heparinized saline[10000IU]), irrigation and drainage	1 / 1	1 / 1	/	compression dressing applied for hematoma. Coagulation parameters corrected before irrigation.
13152/2	1	3 / 3	48,120,192	idiopathic	penile injection (heparinized saline[10000 IU]), irrigation and drainage	1 / 1	0 / 1	1 / 1	
13156/21	1	2 / 4	24,48	idiopathic, psychiatric disorders - long history	penile injection (heparinized saline), irrigation and drainage, blood pressure cuff	0 / 1	/	/	
13156/23	1	1 / 3	48	sickle cell trait	oral (analgesics), penile injection (heparinized saline), irrigation and drainage	0 / 1	/	/	

All Ischemic Patients — Penile Injection with anti-coagulants —heparin

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13167/1	1	1 / 1	72	idiopathic	penile injection (heparin), irrigation and drainage, sedation, compression dressing, catheterization	1 / 1	0 / 1	1 / 1	only two week follow-up
13167/7	1	3 / 4	,48,	anticoagulation, pelvic thrombophlebitis	aspiration, penile injection (heparin)	0 / 1	/	/	
800009/1	1	2 / 6	84,108	idiopathic, pneumonia	penile injection (heparin), irrigation and drainage, spinal anesthesia, compression dressing	0 / 1	/	/	
Total Groups:	23	Total patients:	65	Outcome totals:		22 / 66 33%	1 / 14 7%	12 / 16 75%	

All Ischemic Patients — Penile Injection with non-specific agents —normal saline

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12722/19	33	1 / 1			penile injection (saline), irrigation and drainage	12 / 33	/	/	
12902/4	1	1 / 3	14	drug induced [anti-psychotic drug history]	penile injection (normal saline), irrigation and drainage	0 / 1	/	/	
12902/6	1	2 / 3	10,	drug induced [anti-psychotic drugs (lithium, thorazine), disulfuram for alcoholism]	penile injection (normal saline), irrigation and drainage	0 / 1	/	/	
105236/1	1	3 / 4	,,24/0	drug induced [sildenafil]	penile injection (saline), irrigation and drainage	0 / 1	/	/	
Total Groups:	4	Total patients:	36	Outcome totals:		12 / 36 33%	/	/	

All Ischemic Patients — Al-Ghorab Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
10918/12	1	2 / 2	24,		Al-Ghorab shunt	1 / 1	/	1 / 1	open shunt later closed surgically extracted as impotent.
12589/2	1	3 / 3	72,,	idiopathic, after sudden onset of a headache	Al-Ghorab shunt	1 / 1	/	1 / 1	resolution after 10 days. Maintained sexual intercourse with incomplete erection
12589/3	1	1 / 1	240	idiopathic	Al-Ghorab shunt	1 / 1	/	/	resolution after 1 day. Erectile function unknown
12589/5	1	2 / 2	10,	recurrent priapism over 20 years	Al-Ghorab shunt	1 / 1	/	0 / 1	resolution over 3 weeks
12722/17	10	1 / 1			Al-Ghorab shunt	7 / 10	/	/	
12734/1	1	3 / 4	72,,	idiopathic	Al-Ghorab shunt	0 / 1	/	/	
12819/1	1	3 / 3	13-36,,	drug induced [trazodone 200-300 mg.]	Al-Ghorab shunt	1 / 1	/	/	
12849/1	1	7 / 7	,,,,,,		Al-Ghorab shunt	0 / 1	/	/	
12849/2	1	3 / 3	,,		Al-Ghorab shunt	0 / 1	/	/	
12984/2	3	1 / 1			Al-Ghorab shunt	3 / 3	/	0 / 3	
13019/1	2	1 / 1			Al-Ghorab shunt	2 / 2	/	0 / 2	a slight modification to shunt by removing a corpus cavernosum wedge of tissue using a Kerrson rongeur. Changed to Al-Ghorab and ischemic priapism by panel decision 4/02.
Total Groups:	11	Total patients:	23	Outcome totals:		17 / 23 74%	/	2 / 8 25%	

All Ischemic Patients — Ebbehöj Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
10918/9	1	2 / 2	30,		Ebbehoj shunt	1 / 1	/	/	
10918/10	1	2 / 2	25,		Ebbehoj shunt	1 / 1	/	/	
10918/11	1	2 / 3	26,		Ebbehoj shunt	0 / 1	/	/	
10918/16	1	3 / 3	40,,		Ebbehoj shunt	1 / 1	/	/	
10918/18	1	2 / 2	48,		Ebbehoj shunt	1 / 1	/	/	
10918/20	1	2 / 2	48,		Ebbehoj shunt	1 / 1	/	/	
10918/22	1	2 / 2	72,		penile injection (epinephrine), Ebbehoj shunt	1 / 1	/	/	prosthesis later inserted
12722/15	34	1 / 1			Ebbehoj shunt	22 / 34	/	/	
12826/4	1	6 / 7	12,24,40,48,,72	Fabry's disease-alpha galactosidase deficeincy	Ebbehoj shunt	0 / 1	/	/	Ebbehoj shunt was unsuccessful and followed by right saphenous shunt while patient was still under anesthesia. No fibrosis 4 months later. Split into two treatments Ebbehoj followed by saphenous shunt per panel decision 4/02
12902/5	1	4 / 4	,96/0,,	idiopathic	Ebbehoj shunt	1 / 1	/	0 / 1	pt reported erection adequate for intercourse, but penis is shorter/thinner than before episode. Shunt just described as using #11 blade, but assumed to be corporo-glandular due to similar listing for next patient. Reclassified as Ebbehoj per panel decision 4/02.
12902/6	1	3 / 3	10,,	drug induced [anti-psychotic drugs (lithium, thorazine), disulfuram for alcoholism]	Ebbehoj shunt	1 / 1	/	0 / 1	shunt bilateral using #11 blade. Reclassified as Ebbehoj per panel decision 4/02.

All Ischemic Patients — Ebbehöj Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12982/1	5	3 / 3	,24,48	sickle cell disease	Ebbehoj shunt	5 / 5	/	0 / 3	
12986/3	1	2 / 2	,	drug induced [alcohol], hyperalimentation[crohns disease]	Ebbehoj shunt	/	/	1 / 1	CG shunt reclassified as Ebbehoj per panel decision 4/02
13066/1	1	2 / 2	10,	idiopathic	Ebbehoj shunt	1 / 1	/	0 / 1	Reclassified CG shunt to Ebbehoj per panel decision 4/02
13066/2	1	2 / 3	96,120	idiopathic	Ebbehoj shunt	1 / 1	1 / 1	/	CG shunt reclassified to Ebbehoj per panel decision 4/02.
Total Groups:	15	Total patients:	52	Outcome totals:		37 / 51 73%	1 / 1 100%	1 / 7 14%	

All Ischemic Patients — Winter Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
10918/11	1	3 / 3	26,,		Winter shunt	1 / 1	/	/	
10918/17	1	2 / 2	48,		Winter shunt	1 / 1	/	/	
10918/19	1	2 / 2	48,		Winter shunt	1 / 1	/	/	
10918/24	1	2 / 2	96,		Winter shunt	1 / 1	/	/	prosthesis later inserted
12589/2	1	2 / 3	72,	idiopathic, after sudden onset of a headache	Winter shunt	0 / 1	/	/	
12613/1	1	3 / 4	,,	sickle cell disease	Winter shunt	0 / 1	/	/	Unclear if recurred or unresolved.
12657/1	1	4 / 4	96,,,	S-beta-thalassemia	Winter shunt	1 / 1	0 / 1	0 / 1	shunt similar to winter shunt except using plastic catheters. Reclassified to Winter shunt per panel decision 4/02 and treated as sickle cell (as opposed to combined drug induced/sickle cell) by panel chair/hsb 6/02.
12664/2	1	2 / 3	>24,		aspiration, Winter shuntcompression dressing	0 / 1	/	/	
12683/7	1	2 / 2	,	sickle cell disease, SC disease	Winter shunt	1 / 1	/	/	Impotent at 2 weeks follow-up but no long term data reported.
12683/8	1	2 / 4	,	sickle cell disease, chronic transfusions for CVA	Winter shunt	0 / 1	/	/	
12683/8	1	3 / 4	,,	sickle cell disease, chronic transfusions for CVA	Winter shunt	0 / 1	/	/	
12692/1	1	3 / 8	24,72,108	sickle cell disease	aspiration, penile injection (phenylephrine[100mg]), Winter shunt	1 / 1	1 / 1	/	

All Ischemic Patients — Winter Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12692/1	1	5 / 8	24,72,108,828 ,	sickle cell disease	aspiration, penile injection (phenylephrine[100mg]), Winter shunt	1 / 1	1 / 1	/	
12722/16	40	1 / 1			Winter shunt	26 / 40	/	/	
12740/1	2	2 / 4	,		Winter shunt	0 / 2	/	/	
12781/1	1	3 / 3	,,	idiopathic	Winter shunt	1 / 1	1 / 1	0 / 1	
12800/1	1	3 / 7	72,,24	sickle cell disease	Winter shunt	0 / 1	/	/	Reclassified as Winter shunt only per panel decision 4/02.
12808/1	2	1 / 1		idiopathic	Winter shuntcompression with indwelling catheter	2 / 2	0 / 2	0 / 2	
12819/1	3	2 / 3	13-36,	drug induced [trazodone 200-300 mg.]	Winter shunt	2 / 3	/	2 / 3	Potent patient had shortest duration of priapism. Prior to this treatment several non-invasive measures were attempted in selected patients, incliuding sedation, saline enemas, local anesthesia, controlle hypotension, norepinephrine infusion and deep general anesthesia. These treatments were all unsuccessful.
12836/2	1	3 / 3	36-120,24/1,1/2		Winter shunt	1 / 1	/	/	
12849/1	17	1 / 7			Winter shunt	9 / 17	/	/	
12849/1	4	2 / 7	,		Winter shunt	1 / 4	/	/	
12849/2	8	1 / 3			Winter shunt	4 / 8	/	/	
12849/2	7	2 / 3	,		Winter shunt	5 / 7	/	/	
12849/3	11	1 / 3			Winter shunt	5 / 11	/	/	
12849/3	3	2 / 3	,		Winter shunt	3 / 3	/	/	

All Ischemic Patients — Winter Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12849/4	5	1 / 4			Winter shunt	2 / 5	/	/	
12849/4	2	2 / 4	,		Winter shunt	2 / 2	/	/	
12896/1	1	1 / 1	<12		Winter shunt	1 / 1	/	0 / 1	
12896/2	1	1 / 1	<12		Winter shunt	1 / 1	/	0 / 1	
12896/3	1	1 / 1	<12		Winter shunt	1 / 1	/	0 / 1	
12896/4	1	1 / 3	<12		Winter shunt	0 / 1	/	/	
12896/4	1	2 / 3	<12,		Winter shunt	0 / 1	/	/	
12897/1	4	1 / 1	8-18		irrigation and drainage, Winter shunt	4 / 4	0 / 4	0 / 4	All patients failed irrigation and drainage. Shunt created with a skin punch biopsy. Shunt reclassified as Winter shunt per panel decision 4/02.
12902/3	1	3 / 3	72,,	sickle cell trait	Winter shunt	1 / 1	/	0 / 1	resolution 8 hours after operation.
12902/4	1	3 / 3	14,,	drug induced [anti-psychotic drug history]	Winter shunt	1 / 1	/	0 / 1	
12902/5	1	1 / 4		idiopathic	Winter shunt	0 / 1	/	/	Pt known to be a diabetic under insulin injection.
12902/5	1	2 / 4	,96/0	idiopathic	Winter shunt	0 / 1	/	/	
12902/7	1	2 / 3	18,	drug induced [alcohol], idiopathic	penile injection (norepinephrine in 20 ml saline[20mcg.]), Winter shunt	0 / 1	/	/	Winter shunt on one side only
12902/7	1	3 / 3	18,,	drug induced [alcohol], idiopathic	Winter shunt	1 / 1	/	0 / 1	shunt on contralateral side
12919/0.1	17	1 / 1			Winter shunt	/	/	3 / 15	
12919/1.1	11	2 / 2	,		Winter shunt	11 / 11	/	/	
12919/1.2	5	1 / 1			Winter shunt	5 / 5	/	/	

All Ischemic Patients — Winter Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12919/2	1	2 / 2	,48/1		Winter shunt	1 / 1	/	/	results described only as "excellent"
12920/3	5	2 / 2	,		Winter shunt	3 / 5	/	1 / 2	
12938/1	3	1 / 1		idiopathic	Winter shunt	2 / 3	/	1 / 3	1 impotent patient-not clear if patient receiving second shunt.
12968/2	1	3 / 6	>12,,	no discussion of cause in article	Winter shuntcompression dressing, heparin calcium	0 / 1	/	/	bilateral shunt
12968/3	1	4 / 6	12,,,		Winter shunt	0 / 1	/	/	
12984/1	5	1 / 2			Winter shunt	4 / 5	/	1 / 5	
12984/1	1	2 / 2	,		Winter shunt	1 / 1	/	1 / 1	
12994/0	7	1 / 1	8-28	idiopathic, sickle cell trait, post dialysis, pelvic cellulitis	irrigation and drainage, Winter shunthypotensive anesthesia	/	/	0 / 5	2 patients were impotent before treatment. Pts received different treatments - see other groups. This group needed to capture impotence and age data.
12994/2	2	1 / 1			irrigation and drainage, Winter shunt	2 / 2	0 / 2	/	
12994/3	2	1 / 1			irrigation and drainage, Winter shunthypotensive anesthesia	2 / 2	0 / 2	/	sequence of treatments isn't clear although irrigation was probably first.
12995/9	1	2 / 2	14,	idiopathic	Winter shunt	1 / 1	/	/	
12995/10	1	2 / 2	36,	idiopathic	Winter shunt	1 / 1	/	1 / 1	
12995/16	1	2 / 3	96,	sickle cell disease	Winter shunt	0 / 1	/	/	
12995/19	1	1 / 2	24	sickle cell disease	Winter shunt	0 / 1	/	/	
12995/22	1	2 / 3	72,	drug induced [phenothiazine]	Winter shunt	0 / 1	/	/	
12995/27	1	1 / 2	5	idiopathic	Winter shunt	0 / 1	/	/	

All Ischemic Patients — Winter Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12998/1	4	1 / 1	48-528	drug induced [prochlorperzine - 1 pt.], idiopathic	irrigation and drainage, Winter shunt	4 / 4	0 / 4	2 / 3	
12998/2	3	2 / 2	96-504,	idiopathic	irrigation and drainage, Winter shunt	3 / 3	0 / 3	0 / 3	
12998/3	2	2 / 2	48,	idiopathic	irrigation and drainage, Winter shunt	1 / 1	0 / 1	0 / 1	
13004/1	1	4 / 6	24,32,34,38	idiopathic	Winter shunt	0 / 1	/	/	
13004/1	1	6 / 6	24,32,34,38,40,150	idiopathic	Winter shuntdrainage of hematoma	1 / 1	/	1 / 1	patient underwent penectomy for gangrene
13009/1	1	1 / 1	12	idiopathic	Winter shunt	1 / 1	/	0 / 1	
13009/2	1	1 / 2	6	drug induced [chlorpromazine]	Winter shunt	0 / 1	/	/	shunt initially successful but failed within 24 hours
13009/2	1	2 / 2	6,30	drug induced [chlorpromazine]	Winter shunt	1 / 1	/	0 / 1	
13009/3	1	1 / 1	8	drug induced [methaqualone, alcohol]	Winter shunt	1 / 1	/	0 / 1	
13009/4	1	1 / 2	30	idiopathic	Winter shunt	1 / 1	1 / 1	0 / 1	
13009/4	1	2 / 2	30,4330	idiopathic	Winter shunt	1 / 1	/	0 / 1	
13009/5	1	1 / 3	168	sickle cell disease	Winter shunt	0 / 1	/	/	successful only for a few hours
13009/5	1	2 / 3	168,	sickle cell disease	Winter shunt	0 / 1	/	/	procedure failed within a few hours
13015/1	1	5 / 5	48,120,144,168,	hematologic malignancy[acute lymphocytic leukemia]	Winter shunt	1 / 1	0 / 1	1 / 1	
13030/1	4	1 / 1	4-210	idiopathic	Winter shunt	/	/	1 / 3	1 additional patient was impotent preoperatively. Resolution (4/4) and recurrence (0/4) data deleted per panel decision as duplicative 4/02.

All Ischemic Patients — Winter Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13044/1	2	2 / 2	,72/0	drug induced [methaqualone & alcohol 1 pt., ismelin 1 pt.]	Winter shunt	/	/	2 / 2	1 patient impotent pre-op. Resolution data (2/2) deleted as duplicative by panel decision 4/02.
13057/1	4	1 / 1	4-210	idiopathic	Winter shunt	/	/	1 / 3	One additional patient was impotent prior to priapism. Resolution (4/4) and recurrence (0/4) data deleted as duplicative by panel decision 4/02.
13064/1	1	2 / 3	72,90	idiopathic	oral (penicillin), irrigation and drainage, Winter shuntblood pressure cuff, catheterization	0 / 1	/	/	partial resollution
13064/1	1	3 / 3	72,90,114	idiopathic	Winter shunt	1 / 1	/	/	
13064/2	1	1 / 1		idiopathic	Winter shunt	1 / 1	/	/	
Total Groups:	79	Total patients:	235	Outcome totals:		131 / 200 66%	4 / 24 17%	18 / 71 25%	

All Ischemic Patients — Cavernospongious Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12683/8	1	4 / 4	,,,	sickle cell disease, chronic transfusions for CVA	cavernospongious shunt	1 / 1	/	0 / 1	
12722/14	17	1 / 1			cavernospongious shunt	14 / 17	/	/	
12759/1	1	2 / 2	5,10	hyperalimentation[TPN with 20% fat]	cavernospongious shunt	1 / 1	0 / 1	1 / 1	bilateral shunts
12800/1	1	5 / 7	72,,24,24-168,288	sickle cell disease	cavernospongious shunt	0 / 1	/	/	
12834/1	1	2 / 4	,	drug induced [thioridazine]	cavernospongious shunt, blood pressure cuff	1 / 1	1 / 1	/	
12849/1	1	3 / 7	,,		cavernospongious shunt	0 / 1	/	/	
12849/4	1	3 / 4	,,		cavernospongious shunt	1 / 1	/	/	
12863/2	2	1 / 1		sickle cell disease, sickle cell trait	cavernospongious shunt	2 / 2	/	/	
12863/3	4	1 / 1		sickle cell disease, sickle cell trait, AA hemoglobin	cavernospongious shunt	4 / 4	/	/	article noted reduced edema and analgesia use compare to standard corporo-spongiosal shunt. This was initially coded as a corporo-spongiosal shunt with saphenous vein patch graft.
12896/6	1	1 / 1	<12		cavernospongious shunt	1 / 1	/	0 / 1	unilateral shunt
12896/8	1	3 / 3	<12,,		cavernospongious shunt	0 / 1	/	1 / 1	
12896/10	1	1 / 1	24-48		cavernospongious shunt	1 / 1	/	0 / 1	
12896/11	1	1 / 1	24-48		cavernospongious shunt	1 / 1	/	1 / 1	
12896/12	1	1 / 1	24-48		cavernospongious shunt	0 / 1	/	1 / 1	
12896/14	1	2 / 2	124-48,		cavernospongious shunt	0 / 1	/	1 / 1	

All Ischemic Patients — Cavernospongious Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12896/15	1	2 / 2	24-48,		cavernospongious shunt	0 / 1	/	1 / 1	bilateral shunts. penile prosthesis later inserted.
12896/19	1	1 / 2	72-96		cavernospongious shunt	0 / 1	/	/	
12905/1	1	1 / 1	16	drug induced [prazosin and methyldopa]	cavernospongious shunt, cavernosaphenous shunt	1 / 1	0 / 1	0 / 1	Pt. had experienced an attack of painful spontaneous erection lasting 1 hour 6 weeks earlier.
12905/2	1	1 / 1	48	drug induced [prazosin]	cavernospongious shunt	1 / 1	/	1 / 1	Pt had experienced 2 previous attacks of priapism that lasted 2 and 4 days respectively and resolved spontaneously.
12920/5	17	2 / 2	,		cavernospongious shunt	14 / 17	/	7 / 11	
12957/4	1	1 / 1	72	sickle cell disease	cavernospongious shunt	0 / 1	/	/	
12957/5	1	3 / 3	24,,240/2	sickle cell trait	irrigation and drainage, cavernospongious shunt	1 / 1	/	/	resolution occurred 3 days post shunt.
12985/2	3	1 / 1			cavernospongious shunt	2 / 2	/	2 / 2	Reason for death not given. One patient with gangrene, penile necrosis and penile sloughing on 23rd day developed urethro-cutaneous fistula. Urinary diversion and prosthesis planned. Another patient became semi-flaccid on 14th day and has remained impotent.
12995/6	1	1 / 1	72	idiopathic	cavernospongious shunt	0 / 1	/	/	partial detumescence. bilateral shunts
12995/7	1	1 / 1	72	idiopathic	cavernospongious shunt	0 / 1	/	1 / 1	partial detumescence. right side shunt only
12995/11	1	1 / 1	72	idiopathic	cavernospongious shunt	0 / 1	/	1 / 1	bilateral shunts
12995/15	1	2 / 2	48,	idiopathic	cavernospongious shunt	1 / 1	/	/	bilateral shunts.
12995/16	1	3 / 3	96,,	sickle cell disease	cavernospongious shunt	1 / 1	/	/	

All Ischemic Patients — Cavernospongious Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12995/17	1	2 / 2	50,	sickle cell disease	cavernospongious shunt	1 / 1	/	/	bilateral shunts
12995/18	1	2 / 2	48,	sickle cell trait	cavernospongious shunt	0 / 1	/	0 / 1	bilateral shunts. Partial detumescence
12995/19	1	2 / 2	24,	sickle cell disease	cavernospongious shunt	1 / 1	/	0 / 1	
12995/21	1	1 / 1		idiopathic	cavernospongious shunt	0 / 1	/	1 / 1	
12995/22	1	3 / 3	72,,	drug induced [phenothiazine]	cavernospongious shunt	1 / 1	/	/	
12995/24	1	2 / 2	48,	idiopathic	cavernospongious shunt	0 / 1	/	/	bilateral shunts
12995/25	1	1 / 1		post-epidural	cavernospongious shunt	0 / 1	/	1 / 1	
12995/26	1	2 / 2	,	sickle cell trait	cavernospongious shunt	0 / 1	/	/	
12995/27	1	2 / 2	5,	idiopathic	cavernospongious shunt	0 / 1	/	/	
12995/29	1	2 / 2	8,	idiopathic	cavernospongious shunt	1 / 1	/	0 / 1	
13006/1	1	2 / 2	78,	drug induced [chlorpromazine]	cavernospongious shunt	1 / 1	/	1 / 1	
13022/1	1	1 / 2	96	sickle cell disease	cavernospongious shunt	0 / 1	/	/	
13030/2	1	2 / 2	,	sickle cell trait	cavernospongious shunt	1 / 1	0 / 1	0 / 1	
13042/1	1	5 / 5	6,14,38,64,72	sickle cell disease	cavernospongious shunt	1 / 1	0 / 1	0 / 1	
13054/1	1	1 / 2		idiopathic	cavernospongious shunt	0 / 1	/	/	
13057/2	1	3 / 3	,,	sickle cell disease	cavernospongious shunt	1 / 1	/	0 / 1	
13065/1	1	2 / 2	60,	idiopathic, laryngeal papillomatosis	cavernospongious shunt	1 / 1	0 / 1	0 / 1	died 3 months later from bronchial papilomatosis. unilateral shunt.
13065/2	1	2 / 2	36,	hematologic malignancy[chronic myeloid leukemia]	cavernospongious shunt	1 / 1	0 / 1	1 / 1	unilateral shunt.

All Ischemic Patients — Cavernospongious Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13065/3	1	2 / 2	24,	idiopathic	cavernospongious shunt	0 / 1	/	/	bilateral shunt. lost to follow-up
13065/4	1	2 / 2	44,	idiopathic	cavernospongious shunt, steroids	1 / 1	0 / 1	0 / 1	unilateral shunt
13065/5	1	2 / 2	24,	anticoagulation [heparin for chronic glomerulonephritis]	cavernospongious shunt, steroids	1 / 1	1 / 1	1 / 1	partial erections, intercourse possible
13066/2	1	3 / 3	96,120,144	idiopathic	cavernospongious shunt	1 / 1	/	1 / 1	
13072/2	3	1 / 1		idiopathic	cavernospongious shunt	3 / 3	/	2 / 3	
13073/2	7	1 / 1		drug induced [phenothiazine (1), alcohol (1)], idiopathic, sickle cell disease	cavernospongious shunt	5 / 7	/	1 / 5	two patients lost to follow-up.
13077/4	1	2 / 2	,	anticoagulation [2 pts had priapism while heparinzed for dialysis], idiopathic	cavernospongious shunt	1 / 1	/	/	unknown impotence status for this specific patient.
13082/1	1	3 / 3	,72,	sickle cell disease	cavernospongious shunt	1 / 1	0 / 1	0 / 1	
13082/2	1	3 / 3	24,18/1,	sickle cell disease	cavernospongious shunt	1 / 1	/	0 / 1	unilateral right shunt. Edema and tenderness persisted after detumescence resulting in diagnosis of fistula and cystostomy.
13090/3	1	3 / 3	28,,100	idiopathic	cavernospongious shunt	1 / 1	/	1 / 1	
13090/4	1	2 / 2	48,72	idiopathic	cavernospongious shunt	1 / 1	/	0 / 1	
13093/1	4	4 / 5	,,,	idiopathic, sickle cell disease, sickle cell trait, acute prostatitis	cavernospongious shunt	4 / 4	1 / 4	0 / 3	1 pt. recurred (see treatment 5). The four patients receiving this shunt did not receive treatment 3 (saphenous shunt) and are not included in that page.

All Ischemic Patients — Cavernospongious Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13093/1	1	5 / 5	,,,,	idiopathic, sickle cell disease, sickle cell trait, acute prostatitis	cavernospongious shunt	1 / 1	/	0 / 1	This patient's potency also counted in treatment 4, probably.
13104/1	1	2 / 2	18-60,6570	anticoagulation [heparin with home dialysis], drug induced [guanethedine for hypertension], hematologic malignancy[chronic myeloid leukemia], idiopathic	cavernospongious shunt	1 / 1	0 / 1	1 / 1	patient had transient priapism recurrence at 2 mo after prior procedure and then this recurrence at 9 months. After second procedure pt. had erections at half their normal size.
13115/1	1	1 / 2		thallasemia major	cavernospongious shunt	0 / 1	/	/	
13116/1	1	1 / 1	72	idiopathic	penile injection (heparin irrigation), irrigation and drainage, cavernospongious shunt, compression dressing	0 / 1	/	0 / 1	The gangrene resulted in sloughing of 4/5 of pendulous protion of the penis and required multiple debridements, cystostomy tube, and skin grafts. It isn't clear when the priapism totallly resolved.
13122/1	2	2 / 2	,17-36/0	anticoagulation [heparin (1 pt.)], idiopathic	cavernospongious shunt	0 / 2	/	2 / 2	unilateral shunt
13122/3	1	2 / 2	,36	idiopathic	cavernospongious shunt	0 / 1	/	1 / 1	perineal c-sponge shunt. Initial penile flaccidity followed by intermittent uncontrolled rections refractory to heparin or estrogen. Rigidity resolved with time
13123/1	1	1 / 1	168	drug induced, idiopathic	cavernospongious shunt	1 / 1	/	1 / 1	
13124/1	12	1 / 1	70-423	idiopathic, sickle cell trait	cavernospongious shunt	12 / 12	1 / 12	3 / 12	recurrent patient received an unknown type of shunt
13144/5	1	2 / 2	72,144		cavernospongious shunt	1 / 1	/	0 / 1	
13144/6	1	2 / 2	20,140	sickle cell disease	cavernospongious shunt	1 / 1	/	0 / 1	

All Ischemic Patients — Cavernospongious Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
105182/1	13	2 / 2	,72-816	hematologic malignancy[chronic myeloid leukemia], idiopathic, sickle cell disease, sickle cell trait, sexual intercourse as precipitating factor	cavernospongious shunt	13 / 13	/	4 / 5	Urethral catheterization was sufficient to heal all fistulae. 8 patients lost to follow-up
Total Groups:	69	Total patients:	142	Outcome totals:		108 / 141 77%	4 / 27 15%	40 / 81 49%	

All Ischemic Patients — Cavernosaphenous Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12575/1	1	2 / 3	3-28,30	sickle cell disease	cavernosaphenous shunt	0 / 1	/	0 / 1	
12587/1	1	3 / 3	72,,	idiopathic	cavernosaphenous shunt	1 / 1	/	1 / 1	Originally coded as penile vein-corporal shunt using saphenous graft.
12722/13	36	1 / 1			cavernosaphenous shunt	25 / 36	/	/	
12722/18	1	1 / 1			cavernosaphenous shunt	0 / 1	/	/	Originally coded as corporo-dorsal vein shunt.
12740/1	1	4 / 4	,,,		cavernosaphenous shunt	1 / 1	/	/	bilateral shunt
12740/2	1	3 / 3	,,		cavernosaphenous shunt	1 / 1	/	/	bilateral shunt
12826/4	1	7 / 7	12,24,40,48,,72,	Fabry's disease-alpha galactosidase deficeincy	cavernosaphenous shunt	1 / 1	0 / 1	1 / 1	
12849/1	2	4 / 7	,,,		cavernosaphenous shunt	1 / 2	/	/	
12849/4	3	4 / 4	,,,		cavernosaphenous shunt	2 / 3	/	/	
12896/4	1	3 / 3	<12,,		cavernosaphenous shunt, intermittent pressure	0 / 1	/	1 / 1	unilateral shunt. Patient later received prosthesis.
12896/5	1	1 / 1	<12		cavernosaphenous shunt	1 / 1	/	0 / 1	unilateral shunt
12896/9	1	2 / 3	<12,		cavernosaphenous shunt	0 / 1	/	/	left side shunt. Recurrence data deleted per panel decision 4/02.
12896/9	1	3 / 3	<12,,5832		cavernosaphenous shunt	1 / 1	/	1 / 1	right side shunt
12896/13	1	1 / 1	24-48		cavernosaphenous shunt	0 / 1	/	1 / 1	bilateral shunt. later penile prosthesis placement
12896/14	1	1 / 2	124-48		cavernosaphenous shunt	0 / 1	/	/	unilateral shunt
12896/16	1	3 / 3	24-48,,		cavernosaphenous shunt	0 / 1	/	1 / 1	unilateral shunt

All Ischemic Patients — Cavernosaphenous Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12896/19	1	2 / 2	72-96,		cavernosaphenous shunt	0 / 1	/	1 / 1	unilateral shunt, penile prosthesis later inserted.
12896/21	1	1 / 1	240		cavernosaphenous shunt	1 / 1	/	1 / 1	unilateral shunt
12905/1	1	1 / 1	16	drug induced [prazosin and methyldopa]	cavernospongious shunt, cavernosaphenous shunt	1 / 1	0 / 1	0 / 1	Pt. had experienced an attack of painful spontaneous erection lasting 1 hour 6 weeks earlier.
12920/4	4	2 / 2	,		cavernosaphenous shunt	3 / 3	/	2 / 3	Resolution changed from 2/4 to 3/3 and impotence changed from 3/4 to 2/3 by panel decision 4/02
12955/1	1	6 / 6	12,,,,,.58/5	idiopathic	cavernosaphenous shunt, circumcision	0 / 1	/	/	partial resolution of priapism achieved. No further results given.
12968/2	1	4 / 6	>12,,,48	no discussion of cause in article	cavernosaphenous shunt	0 / 1	/	/	unilateral right shunt with subcutaneous drain for penile edema
12968/3	1	3 / 6	12,,		cavernosaphenous shunt	0 / 1	/	/	temporary detumescence for 8 hours
12985/3	1	1 / 1			cavernosaphenous shunt	1 / 1	/	1 / 1	left shunt only. Became flaccid on 11th day and has weak erections at 3 years.
12986/3	2	1 / 2		drug induced [alcohol], hyperalimentation[crohns disease]	cavernosaphenous shunt	/	/	0 / 1	
13004/1	1	5 / 6	24,32,34,38,40	idiopathic	cavernosaphenous shunt, compression dressing, heparin calcium	0 / 1	/	/	
13021/8	1	1 / 1		hematologic malignancy[chronic granulocytic leukemia]	cavernosaphenous shunt	1 / 1	/	1 / 1	shunt followed by leukapheresis times 4 and busulfan and hydroxyurea. Imperfect intercourse achieved.

All Ischemic Patients — Cavernosaphenous Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13021/9	1	1 / 1		hematologic malignancy[chronic granulocytic leukemia]	cavernosaphenous shunt, leukapheresis, busulfan, hydroxyurea	1 / 1	/	1 / 1	duration of erection impaired, but intercourse achieved
13021/10	1	1 / 1		hematologic malignancy[chronic granulocytic leukemia]	cavernosaphenous shunt, leukapheresis	1 / 1	/	/	busulfan and hydroxyurea given later, presumably preventive
13025/1	1	2 / 2	24,288	idiopathic, trauma[scrotal trauma]	cavernosaphenous shunt	1 / 1	/	/	Erections "had improved", but not clear if some impotence remained.
13037/1	8	1 / 1		drug induced [calcium heparinate], hematologic malignancy[leukemia], idiopathic, HCG injections	cavernosaphenous shunt	8 / 8	1 / 8	4 / 8	6 pts. had bilateral shunts, 2 unilateral shunts. Disease cause is different for all. Pt. with leukemia had had chemotherapy, streptokinase and X-ray before admission. Pt with recurrence 2nd day with repeated shunt. 2 pts. had delayed resolution.
13061/2	1	2 / 2	36,	idiopathic	cavernosaphenous shunt	1 / 1	/	0 / 1	satisfactory erections that were a bit slow. Orginally coded as shunt from corpora to superficial dorsal vein.
13062/1	1	1 / 2	144	idiopathic	cavernosaphenous shunt	1 / 1	1 / 1	/	unilateral shunt with resolution followed by partial recurrence at 24 hours
13062/2	1	1 / 1	48	idiopathic	cavernosaphenous shunt	1 / 1	0 / 1	0 / 1	bilateral shunt
13062/3	1	1 / 1	360	sickle cell disease	cavernosaphenous shunt	1 / 1	/	/	bilateral shunt, lost to follow-up
13062/4	1	1 / 1	72	idiopathic	cavernosaphenous shunt	1 / 1	/	0 / 1	bilateral shunt
13073/1	2	1 / 1		idiopathic, sickle cell disease	cavernosaphenous shunt	0 / 2	/	0 / 2	One patient had "fair" results and the other "poor", both treated as failure here. Impotence changed from 2 to zero per panel decision 4/02.

All Ischemic Patients — Cavernosaphenous Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13077/4	11	1 / 2		anticoagulation [2 pts had priapism while heparinzed for dialysis], idiopathic	cavernosaphenous shunt	10 / 11	/	4 / 11	2 of the 4 impotent were fully potent after venous ligation of patent shunt. At least 2 patients had prior irrigations. 1 patient had prior epidural anesthesia for 8 hours and chlorpromazine. 1 patient had intra-operaitve heparinized saline irrigations. 7 patients were reported to have good results and 3 fair. Not clear about the other one, but assumed impotent (probably poor result).
13080/1	1	4 / 4	48,,,	idiopathic	cavernosaphenous shunt	1 / 1	0 / 1	0 / 1	Stricture due to catheterization.
13090/1	1	2 / 2	72,	idiopathic	cavernosaphenous shunt	1 / 1	/	1 / 1	
13090/2	1	2 / 2	72,192	idiopathic	cavernosaphenous shunt	1 / 1	0 / 1	1 / 1	
13090/3	1	2 / 3	28,	idiopathic	cavernosaphenous shunt	1 / 1	1 / 1	/	
13093/1	4	3 / 5	,,	idiopathic, sickle cell disease, sickle cell trait, acute prostatitis	cavernosaphenous shunt	3 / 4	/	3 / 4	1 pt. required a second shunt and then resolved.
13095/4	1	2 / 3	,72	hematologic malignancy[chronic granulocytic leukemia]	aspiration, cavernosaphenous shunt	0 / 1	/	/	Procedure done in Mexico City prior to transfer to New York.
13103/1	1	3 / 3	,72,	idiopathic	cavernosaphenous shunt	1 / 1	/	0 / 1	bilateral shunts
13103/2	1	2 / 2	,73	idiopathic	cavernosaphenous shunt	1 / 1	/	1 / 1	bilateral shunts
13103/3	1	2 / 2	24,48	idiopathic	cavernosaphenous shunt	1 / 1	/	0 / 1	bilateral
13103/4	1	2 / 2	,188	idiopathic	cavernosaphenous shunt	1 / 1	/	1 / 1	bilateral shunt

All Ischemic Patients — Cavernosaphenous Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13104/1	5	1 / 2	18-60	anticoagulation [heparin with home dialysis], drug induced [guanethedine for hypertension], hematologic malignancy[chronic myeloid leukemia], idiopathic	cavernosaphenous shunt	5 / 5	1 / 5	0 / 4	2 bilateral, 3 unilateral
13111/1	1	1 / 1		idiopathic	cavernosaphenous shunt	1 / 1	/	1 / 1	pt received heparin post-op
13111/2	1	1 / 2		anticoagulation [heparin]	cavernosaphenous shunt	0 / 1	/	/	shunt thrombosed within 12 hours
13111/2	1	2 / 2	,	anticoagulation [heparin]	cavernosaphenous shunt	1 / 1	/	1 / 1	prosthesis inserted for impotence
13111/3	1	1 / 1		anticoagulation [warfarin]	cavernosaphenous shunt	1 / 1	/	1 / 1	
13114/2	8	2 / 2	1-144,30-240	idiopathic, 3 patients listed as "sexual excitation" and one possible trauma	cavernosaphenous shunt	8 / 8	/	3 / 7	Impotent patients all had "fair" erections--suitable for intercourse but with some flaccidity or residual fibrotic induration.
13115/1	1	2 / 2	,504/1	thallasemia major	cavernosaphenous shunt	1 / 1	0 / 1	1 / 1	The stricture required urethrotomy. fistula predated this treatment, but stricture developed following this treatment.
13117/1	1	3 / 3	24,,60/0	following rectal exam	penile injection (heparin infusion for 5 days), cavernosaphenous shunt	1 / 1	/	1 / 1	heparin infusion part of shunt procedure
13117/2	1	1 / 1	33	idiopathic	cavernosaphenous shunt, heparin, systemic	1 / 1	/	0 / 1	resolution was delayed and occurred after heparin which resulted in the hematoma.
13122/2	4	2 / 3	,24-45	anticoagulation [heparin], hematologic malignancy[leukemia], idiopathic, trauma	cavernosaphenous shunt	1 / 4	/	4 / 4	bilateral shunt. Patient who recovered also regained partial potency, but said "it's not normal". Counted as impotent here as a result

All Ischemic Patients — Cavernosaphenous Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13127/1	1	4 / 4	18,21,26,32	idiopathic	cavernosaphenous shunt	1 / 1	/	0 / 1	pt was treated with estrogens at the time of discharge for a short term.
13135/1	1	3 / 3	336,,360	drug induced [aldomet, navidrex for hypertension], idiopathic, prolonged intercourse,	cavernosaphenous shunt	1 / 1	0 / 1	1 / 1	right side shunt only.
13135/2	1	3 / 4	24,36,48	anticoagulation [warfarin, heparin]	cavernosaphenous shunt	0 / 1	/	/	right side shunt only. Partial resolution with full recurrence 6 days later as shunt thrombosed.
13135/2	1	4 / 4	24,36,48,192	anticoagulation [warfarin, heparin]	cavernosaphenous shunt	1 / 1	0 / 1	1 / 1	shunt reopened. No erections at 1 month
13136/1	1	3 / 3	,36/0,	idiopathic, undergoing treatment for alcoholism	cavernosaphenous shunt, anticoagulation	1 / 1	/	1 / 1	pt. able to have intercourse but some erectile insufficiency
13136/2	1	2 / 2	96,168	idiopathic, alcoholism	cavernosaphenous shunt, dextran and dicumarol	1 / 1	0 / 1	1 / 1	moderate erection insufficiency
13141/1	1	3 / 3	72,144,145	drug induced [large quantities of alcohol], idiopathic	cavernosaphenous shunt	1 / 1	/	1 / 1	75mg. heparin at conclusion of shunt.
13141/2	1	2 / 2	72,	drug induced [heavy alcohol use], idiopathic	cavernosaphenous shunt	1 / 1	/	0 / 1	gradual detumescence over 1 week
13141/3	1	2 / 2	21,	drug induced [heavy alcohol use], idiopathic	cavernosaphenous shunt	1 / 1	/	0 / 1	bilateral shunts were required, then penis was wrapped, and heparin was given (65mg q 6 hours) for 6 days. Penis was flaccid 24 hours post op. Shunts were thrombosed 8 days post-op.
13144/2	1	2 / 2	36,312	sickle cell trait	cavernosaphenous shunt	1 / 1	/	1 / 1	
13144/3	1	3 / 3	36,60,80	idiopathic	cavernosaphenous shunt	1 / 1	/	0 / 1	

All Ischemic Patients — Cavernosaphenous Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13144/4	1	1 / 1	36? Lost in gutter	idiopathic	irrigation and drainage, cavernosaphenous shunt	1 / 1	/	1 / 1	"partially potent". Time of treatment lost in article gutter-36 hours is best guess
13144/5	1	1 / 2	72		irrigation and drainage, cavernosaphenous shunt	1 / 1	1 / 1	/	
13144/6	1	1 / 2	20	sickle cell disease	cavernosaphenous shunt	0 / 1	/	/	failure attributed to injection of sodium diatrizoate
13148/1	1	5 / 5	,36/0,204/0,206/0,372/0	sickle cell trait	cavernosaphenous shunt, compression dressing, heparin, low molecular weight dextran	1 / 1	/	0 / 1	
13156/20	1	2 / 3	96,144	idiopathic	cavernosaphenous shunt, blood pressure cuff, heparin[50mg q 6h]	0 / 1	/	/	50% reduction in erection. Right side shunt only
13156/20	1	3 / 3	96,144,216	idiopathic	cavernosaphenous shunt	1 / 1	0 / 1	0 / 1	resolution 5 days later. left side shunt. Time of resolution originally coded as 8 days, changed by panel decision 4/02.
13156/23	1	2 / 3	48,	sickle cell trait	cavernosaphenous shunt	0 / 1	/	/	right side shunt only
13157/1	1	5 / 5	48,96,144,192,240	idiopathic	cavernosaphenous shunt	1 / 1	0 / 1	/	DVT and PE developed 6-10 days post-op. Pt. Is flaccid and edema free at 4 weeks post op.
13166/1	1	1 / 1	96	idiopathic, prolonged eroticism	cavernosaphenous shunt	1 / 1	/	0 / 1	
13166/2	1	1 / 1	36	sickle cell disease	cavernosaphenous shunt	1 / 1	/	0 / 1	
13166/3	1	1 / 1	96	idiopathic, prolonged eroticism	cavernosaphenous shunt	1 / 1	/	0 / 1	
13166/4	1	1 / 1	72	hematologic malignancy[leukemia]	cavernosaphenous shunt	1 / 1	/	/	
13166/5	1	1 / 1	32	idiopathic, prolonged eroticism	cavernosaphenous shunt	1 / 1	/	0 / 1	

All Ischemic Patients — Cavernosaphenous Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
800009/1	1	6 / 6	84,108,,276,,	idiopathic, pneumonia	cavernosaphenous shunt, subcutaneous heparin, blood pressure cuff	1 / 1	/	1 / 1	Delay in erection treated as impotence.
Total Groups:	83	Total patients:	160	Outcome totals:		119 / 157 76%	5 / 27 19%	48 / 92 52%	

All Ischemic Patients — Phenylpropanolamine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
300250/2	1	2 / 4	>1680,	idiopathic	oral (terbutaline[5mg], phenylpropanolamine[75mg])	0 / 1	/	/	not clear if drugs given together or separated by time
Total Groups:	1	Total patients:	1	Outcome totals:		0 / 1 0%	/	/	

All Ischemic Patients — Pseudoephedrine

Ref. Num. / Group	# Pats.	Treat. # / Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12723/1	1	2 / 5	,12/0		oral (pseudoephedrine[60mg.]), pethidine IV[50 mg.]	0 / 1	/	/	
Total Groups: 1	Total patients: 1				Outcome totals:	0 / 1 0%	/	/	

All Ischemic Patients — Terbutaline

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
8154/1	7	1 / 1	2	diagnostic penile injection[papaverine,phentolamine, and PGE1]	oral (terbutaline[2.5mg.])	4 / 7	/	/	Patients failing terbutaline responded to aspiration or aspiration + alpha agonist. Mean time to detumescence in successes was 4.25 hours.
8154/2	8	1 / 1	2	diagnostic penile injection[papaverine,phentolamine, and PGE1]	oral (terbutaline[5mg.])	5 / 8	/	/	Patients failing terbutaline responded to aspiration or aspiration plus alpha agonist. Mean time to detumescence in responders was 4.25 hours.
11038/4	1	2 / 3	>6,.25/1	penile injection therapy[papaverine]	oral (terbutaline[5mg.])	0 / 1	/	/	
12834/1	1	3 / 4	,,24/2	drug induced [thioridazine]	terbutaline subcutaneous q4 hr for 48 hours[.5mg]	1 / 1	1 / 1	/	recurrence also treated with terbutaline and resolved
12834/2	5	1 / 1	>4-5	penile injection therapy[papaverine and phentolamine]	oral (terbutaline[5mg.])	5 / 5	0 / 5	/	
300250/2	1	2 / 4	>1680,	idiopathic	oral (terbutaline[5mg], phenylpropanolamine[75mg])	0 / 1	/	/	not clear if drugs given together or separated by time
Total Groups:	6	Total patients:	23	Outcome totals:		15 / 23 65%	1 / 6 17%	/	

Appendix 5-d: Ischemic Priapism- Drug Induced Detailed Reports

Drug Induced Patients — Aspiration Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug used	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12781/2	1	1 / 1		drug induced [chlorpromazine]	aspiration	1 / 1	1 / 1	0 / 1	
12902/6	1	1 / 3	10	drug induced [anti-psychotic drugs (lithium, thorazine), disulfuram for alcoholism]	aspiration	0 / 1	/	/	may have been irrigation and drainage--article not clear
Total Groups:	2	Total patients:	2	Outcome totals:		1 / 2 50%	1 / 1 100%	0 / 1 0%	

Drug Induced Patients — Irrigation and Drainage Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug used	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12852/1	1	1 / 2		drug induced [chlorpromazine, possibly fluphenazine, phenobarbital, phenytoin or other]	irrigation and drainage	0 / 1	/	/	irrigation and drainage repeated
12902/4	1	1 / 3	14	drug induced [anti-psychotic drug history]	penile injection (normal saline), irrigation and drainage	0 / 1	/	/	
12902/6	1	2 / 3	10,	drug induced [anti-psychotic drugs (lithium, thorazine), disulfuram for alcoholism]	penile injection (normal saline), irrigation and drainage	0 / 1	/	/	
13006/1	1	1 / 2	78	drug induced [chlorpromazine]	irrigation and drainage	0 / 1	/	/	
13141/2	1	1 / 2	72	drug induced [heavy alcohol use], idiopathic	irrigation and drainage	0 / 1	/	/	initial attempt with 13 guage needle failed, so incision was made to promote drainage after clots were manually expressed
105236/1	1	3 / 4	,,24/0	drug induced [sildenafil]	penile injection (saline), irrigation and drainage	0 / 1	/	/	
Total Groups:	6	Total patients:	6	Outcome totals:		0 / 6 0%	/	/	

Drug Induced Patients — Penile Injection with Sympathomimetics —epinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug used	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12852/1	1	2 / 2	,	chlorpromazine, possibly fluphenazine, phenobarbital, phenytoin or other	penile injection (epinephrine - two injecton[55 mcgrm. Total])	1 / 1	0 / 1	/	
Total Groups:	1	Total patients:	1	Outcome totals:		1 / 1 100%	0 / 1 0%	/	

Drug Induced Patients — Penile Injection with Sympathomimetics —norepinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug used	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12902/4	1	2 / 3	14,	anti-psychotic drug history	penile injection (norepinephrine in 20ml saline[20mcg.]), irrigation and drainage	0 / 1	/	/	
12902/7	1	1 / 3	18	alcohol	penile injection (norepinephrine in 20 ml saline[20mcg.]), irrigation and drainage	0 / 1	/	/	
12902/7	1	2 / 3	18,	alcohol	penile injection (norepinephrine in 20 ml saline[20mcg.]), Winter shunt	0 / 1	/	/	Winter shunt on one side only
Total Groups:	3	Total patients:	3	Outcome totals:		0 / 3 0%	/	/	

Drug Induced Patients — Penile Injection with Sympathomimetics —phenylephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug used	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12637/1	1	1 / 1	30	thioridizine (mellaril)	penile injection (phenylephrine[1.25mg.])	1 / 1	0 / 1	0 / 1	multiple injections (unspecified number) required for resolution (total 1.25 mg.)
12671/2	1	1 / 1		trazodone	penile injection (phenylephrine in saline[.5mg])	1 / 1	/	/	Only one injection required.
12781/3	1	1 / 1		trazodone	penile injection (phenylephrine), irrigation and drainage	1 / 1	1 / 1	0 / 1	agent probably phenylephrine. Panel changed record to indicate phenylephrine 4/02
105236/1	1	4 / 4	,,24/0,	sildenafil	penile injection (phenylephrine[400mg.*4]), irrigation and drainage	0 / 1	/	/	Four irrigation were done with phenylephrine. Resolution over night. Pt was partially impotent prior to episode and returned to his baseline level of function after treatment Resolution changed to n by panel decision 4/02.
Total Groups:	4	Total patients:	4	Outcome totals:		3 / 4 75%	1 / 2 50%	0 / 2 0%	

Drug Induced Patients — Al-Ghorab Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug used	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12819/1	1	3 / 3	13-36,,	trazodone 200-300 mg.	Al-Ghorab shunt	1 / 1	/	/	
Total Groups:	1	Total patients:	1	Outcome totals:		1 / 1 100%	/	/	

Drug Induced Patients — Winter Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug used	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12819/1	3	2 / 3	13-36,	trazodone 200-300 mg.	Winter shunt	2 / 3	/	2 / 3	Potent patient had shortest duration of priapism. Prior to this treatment several non-invasive measures were attempted in selected patients, incliuding sedation, saline enemas, local anesthesia, controlle hypotension, norepinephrine infusion and deep general anesthesia. These treatments were all unsuccessful.
12902/4	1	3 / 3	14,,	anti-psychotic drug history	Winter shunt	1 / 1	/	0 / 1	
12995/22	1	2 / 3	72,	phenothiazine	Winter shunt	0 / 1	/	/	
13009/2	1	1 / 2	6	chlorpromazine	Winter shunt	0 / 1	/	/	shunt initially successful but failed within 24 hours
13009/2	1	2 / 2	6,30	chlorpromazine	Winter shunt	1 / 1	/	0 / 1	
13009/3	1	1 / 1	8	methaqualone, alcohol	Winter shunt	1 / 1	/	0 / 1	
13044/1	2	2 / 2	,72/0	methaqualone & alcohol 1 pt., ismelin 1 pt.	Winter shunt	/	/	2 / 2	1 patient impotent pre-op. Resolution data (2/2) deleted as duplicative by panel decision 4/02.
Total Groups:	7	Total patients:	10	Outcome totals:		5 / 8 63%	/	4 / 8 50%	

Drug Induced Patients — Cavernospongious Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug used	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12834/1	1	2 / 4	,	thioridazine	cavernospongious shunt, blood pressure cuff	1 / 1	1 / 1	/	
12905/1	1	1 / 1	16	prazosin and methyldopa	cavernospongious shunt, cavernosaphenous shunt	1 / 1	0 / 1	0 / 1	Pt. had experienced an attack of painful spontaneous erection lasting 1 hour 6 weeks earlier.
12905/2	1	1 / 1	48	prazosin	cavernospongious shunt	1 / 1	/	1 / 1	Pt had experienced 2 previous attacks of priapism that lasted 2 and 4 days respectively and resolved spontaneously.
12995/22	1	3 / 3	72,,	phenothiazine	cavernospongious shunt	1 / 1	/	/	
13006/1	1	2 / 2	78,	chlorpromazine	cavernospongious shunt	1 / 1	/	1 / 1	
Total Groups:	5	Total patients:	5	Outcome totals:		5 / 5 100%	1 / 2 50%	2 / 3 67%	

Drug Induced Patients — Cavernosaphenous Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug used	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12905/1	1	1 / 1	16	prazosin and methyldopa	cavernospongious shunt, cavernosaphenous shunt	1 / 1	0 / 1	0 / 1	Pt. had experienced an attack of painful spontaneous erection lasting 1 hour 6 weeks earlier.
Total Groups:	1	Total patients:	1	Outcome totals:		1 / 1 100%	0 / 1 0%	0 / 1 0%	

Drug Induced Patients — Terbutaline

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug used	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12834/1	1	3 / 4	,,24/2	thioridazine	terbutaline subcutaneous q4 hr for 48 hours[.5mg]	1 / 1	1 / 1	/	recurrence also treated with terbutaline and resolved
Total Groups:	1	Total patients:	1	Outcome totals:		1 / 1 100%	1 / 1 100%	/	

Appendix 5-e: Ischemic Priapism- Patients with a Hematologic Malignancy Detailed Reports

Hematalogic Malignancy Patients — Aspiration Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Malignancy	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12936/1	1	2 / 3	,	hematologic malignancy[chronic granulocytic leukemia]	aspiration	0 / 1	/	/	described as punctures at the roots of corpora.
13021/4	1	1 / 1		hematologic malignancy[chronic granulocytic leukemia]	aspiration, busulfan[6mg/day]	0 / 1	/	1 / 1	
13021/3	1	1 / 1		hematologic malignancy[chronic granulocytic leukemia]	aspiration, rubber band	0 / 1	/	/	
13041/1	1	1 / 2		hematologic malignancy[multiple myeloma]	aspiration	0 / 1	/	/	
13095/3	1	3 / 6	,48,292	hematologic malignancy[chronic granulocytic leukemia]	aspiration	0 / 1	/	/	
13095/1	1	3 / 3	48,480,624	hematologic malignancy[chronic granulocytic leukemia]	aspiration	0 / 1	0 / 1	1 / 1	10 cc aspirated from each corpus with some improvement noted. Complete resolution three weeks later. Resolution changed to n per panel decision 4/02.
13095/2	1	5 / 5	48,96,120,168 ,192	hematologic malignancy[chronic granulocytic leukemia]	aspiration	1 / 1	0 / 1	/	
13156/12	1	2 / 2	24,72/0	hematologic malignancy[acute myeloid leukemia]	aspiration	0 / 1	/	/	pt. died
105216/1	1	2 / 4	72,120	hematologic malignancy[chronic myeloid leukemia]	aspiration	0 / 1	/	/	slight reduction in priapism; bacterial infection 24 hours later
Total Groups:	9	Total patients:	9	Outcome totals:		1 / 9 11%	0 / 2 0%	2 / 2 100%	

Hematalogic Malignancy Patients — Irrigation and Drainage Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Malignancy	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13065/2	1	1 / 2	36	hematologic malignancy[chronic myeloid leukemia]	penile injection (rheomacrodex), irrigation and drainage	0 / 1	/	/	
13114/1	3	2 / 2	12-168,	hematologic malignancy[leukemia 1 patient], idiopathic, trauma[perineal trauma - 2 patients]	irrigation and drainage	3 / 3	/	3 / 3	1 patient had "fair" erections, I.e. able to have intercourse but some residual induration or flaccidity
13140/1	1	3 / 3	,,168	hematologic malignancy[acute granulocytic leukemia]	irrigation and drainage, general anesthesia	0 / 1	/	/	resolution three weeks after admission. Resolution changed to n per panel decision 4/02
300250/3	1	1 / 3	>14	hematologic malignancy[leukemia]	irrigation and drainage	0 / 1	/	/	
Total Groups:	4	Total patients:	6	Outcome totals:		3 / 6 50%	/	3 / 3 100%	

Hematologic Malignancy Patients — Penile Injection with Sympathomimetics —epinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Malignancy	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12794/1	1	1 / 2	12	myeloid leukemia	penile injection (epinephrine in saline[.01mg]), irrigation and drainage	0 / 1	/	/	
12794/1	1	2 / 2	12,	myeloid leukemia	penile injection (epinephrine in saline[.01mg]), irrigation and drainage	1 / 1	0 / 1	0 / 1	This was a distinctly different episode from treatment sequence 1.
300250/3	1	3 / 3	>14,,	leukemia	penile injection (epinephrine[<.05mg.])	1 / 1	/	1 / 1	
Total Groups:	3	Total patients:	3	Outcome totals:		2 / 3 67%	0 / 1 0%	1 / 2 50%	

Hematologic Malignancy Patients — Penile Injection with Sympathomimetics —metaraminol

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Malignancy	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12941/1	1	1 / 1	8	CML blast crisis	penile injection (metaraminol), irrigation and drainage	1 / 1	/	/	It took two injections for detumescence
Total Groups:	1	Total patients:	1	Outcome totals:		1 / 1 100%	/	/	

Hematalogic Malignancy Patients — Winter Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Malignancy	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13015/1	1	5 / 5	48,120,144,168,	acute lymphocytic leukemia	Winter shunt	1 / 1	0 / 1	1 / 1	
Total Groups: 1	Total patients: 1			Outcome totals:		1 / 1 100%	0 / 1 0%	1 / 1 100%	

Hematalogic Malignancy Patients — Cavernospongious Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Malignancy	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13065/2	1	2 / 2	36,	chronic myeloid leukemia	cavernospongious shunt	1 / 1	0 / 1	1 / 1	unilateral shunt.
Total Groups:	1	Total patients:	1	Outcome totals:		1 / 1 100%	0 / 1 0%	1 / 1 100%	

Hematalogic Malignancy Patients — Cavernosaphenous Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Malignancy	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13021/8	1	1 / 1		chronic granulocytic leukemia	cavernosaphenous shunt	1 / 1	/	1 / 1	shunt followed by leukapheresis times 4 and busulfan and hydroxyurea. Imperfect intercourse achieved.
13021/9	1	1 / 1		chronic granulocytic leukemia	cavernosaphenous shunt, leukapheresis, busulfan, hydroxyurea	1 / 1	/	1 / 1	duration of erection impaired, but intercourse achieved
13021/10	1	1 / 1		chronic granulocytic leukemia	cavernosaphenous shunt, leukapheresis	1 / 1	/	/	busulfan and hydroxyurea given later, presumably preventive
13095/4	1	2 / 3	,72	chronic granulocytic leukemia	aspiration, cavernosaphenous shunt	0 / 1	/	/	Procedure done in Mexico City prior to transfer to New York.
13166/4	1	1 / 1	72	leukemia	cavernosaphenous shunt	1 / 1	/	/	
Total Groups:	5	Total patients:	5	Outcome totals:		4 / 5 80%	/	2 / 2 100%	

Hematalogic Malignancy Patients — Chemical Cancer Therapy

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Malignancy	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12936/1	1	3 / 3	,,	chronic granulocytic leukemia	oral (allopurinol[600mg/day], hydroxyurea for 4 days[200mg*3]), IV alkalinization	0 / 1	/	/	At this point diagnosed with chronic granulocytic leukemia
13015/1	1	1 / 5	48	acute lymphocytic leukemia	oral (prednisone, allopurinol), IV alkalinization, hydration IV, transfusions - red cell, platelets, analgesics	0 / 1	/	/	
13015/1	1	2 / 5	48,120	acute lymphocytic leukemia	penile radiation[25 rad], brain radiation[200 rad/day], dexamthasone, vincristine	0 / 1	/	/	
13021/1	1	1 / 1		chronic granulocytic leukemia	oral (busulfan[40mg then 8mg/day]), spinal anesthesia, radiation to lumbar spine[500 rad]	0 / 1	/	1 / 1	Anticoagulation also listed as an "other" treatment, but deleted to prevent occurrence in evidence table by panel decision 4/02.
13021/4	1	1 / 1		chronic granulocytic leukemia	aspiration, busulfan[6mg/day]	0 / 1	/	1 / 1	
13021/5	1	1 / 1		chronic granulocytic leukemia	oral (steroids), busulfan[6-8mg/day]	1 / 1	/	1 / 1	Anticoagulation deleted from "other" treatments to prevent occurrence in evidence tables by panel decision 4/02.
13077/2	1	1 / 1		leukemia	oral (busulfan)	1 / 1	/	1 / 1	fair result--some flaccidity and/or induration
13095/2	1	1 / 5	48	chronic granulocytic leukemia	ice, sedation, busulfan, papase	0 / 1	/	/	pt had an episode of priapism 5 days prior to this episode which resolved spontaneously in 48 hours.
13095/2	1	2 / 5	48,96	chronic granulocytic leukemia	sedation, busulfan	0 / 1	/	/	busulfan dose unreadable on my copy of article - HSB
13095/3	1	4 / 6	,48,292,316	chronic granulocytic leukemia	radiation to spleen and penis[50 rads], busulfan	0 / 1	/	/	

Hematalogic Malignancy Patients — Chemical Cancer Therapy

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Malignancy	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13095/3	1	5 / 6	,48,292,316,364	chronic granulocytic leukemia	cytosine arabinoside IV[500mg/M@ continous for 72 hours]	0 / 1	/	/	
13095/4	1	3 / 3	,72,336	chronic granulocytic leukemia	cytosine arabinoside IV[500 mg/M2 continous for 72 hours]	0 / 1	0 / 1	1 / 1	WBC decreased from 187000 to 6600 by day 21 with marked improvement in priapism. By day 33 WBCs 4200 and penis was flaccid. Resolution changed to n per panel decision 4/02
13120/1	1	3 / 3	,,2880	acute lymphoblastic leukemia	methotrexate (intrathecal)[12mg/mm2]	1 / 1	0 / 1	/	pt died of leukemia 2 months later.
13140/1	1	1 / 3		acute granulocytic leukemia	oral (allopurinol), IV alkalinization, estrogens, antibiotics, platelets, prednisone, transfusions, vincristine, meperidine	0 / 1	/	/	medication schedule not given
105216/1	1	1 / 4	72	chronic myeloid leukemia	oral (analgesics), leukapheresis, hydroxyurea[100mg/kg]	0 / 1	/	/	
Total Groups:	15	Total patients:	15	Outcome totals:		3 / 15 20%	0 / 2 0%	5 / 5 100%	

Hematalogic Malignancy Patients — Hydroxyurea

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Malignancy	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12936/1	1	3 / 3	,,	chronic granulocytic leukemia	oral (allopurinol[600mg/day], hydroxyurea for 4 days[200mg*3]), IV alkalinization	0 / 1	/	/	At this point diagnosed with chronic granulocytic leukemia
Total Groups:	1	Total patients:	1	Outcome totals:		0 / 1 0%	/	/	

Hematalogic Malignancy Patients — Pheresis Procedures

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Malignancy	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13021/6	1	2 / 2	,	chronic granulocytic leukemia	heroin, leukapheresis	1 / 1	/	1 / 1	"erection not as good as before", later given high dose busulfan as a preventive measure
13021/7	1	1 / 1		chronic granulocytic leukemia	leukapheresis	1 / 1	/	/	busulfan high dose preventive
13041/1	1	2 / 2	,672	multiple myeloma	plasma pheresis, transfusions - packed red cells[2 units]	1 / 1	0 / 1	/	
105216/1	1	1 / 4	72	chronic myeloid leukemia	oral (analgesics), leukapheresis, hydroxyurea[100mg/kg]	0 / 1	/	/	
Total Groups:	4	Total patients:	4	Outcome totals:		3 / 4	0 / 1	1 / 1	
						75%	0%	100%	

Appendix 5-f: Ischemic Priapism- Idiopathic Detailed Reports

Idiopathic Only Patients — Aspiration Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12734/1	1	1 / 4	72	aspiration	0 / 1	/	/	
13061/2	1	1 / 2	36	aspiration, spinal anesthesia	0 / 1	/	/	
13103/3	1	1 / 2	24	aspiration, spinal anesthesia	0 / 1	/	/	One year ago, patient had a previous case of priapism that resolved after 2 days spontaneously
13149/1	5	1 / 1		aspiration, T-binder with foley catheter	5 / 5	/	0 / 5	Aspiration through needles through perineum to base of corpora and massage of blood down to needles. Patients all resolved within 9 days. Patients all had return to intercourse but didn't have erections as firm as before.
13157/1	1	1 / 5	48	aspiration	0 / 1	/	/	
13157/1	1	2 / 5	48,96	aspiration	0 / 1	/	/	
13157/1	1	4 / 5	48,96,144,192	aspiration	0 / 1	/	/	
Total Groups:	7	Total patients:	11	Outcome totals:	5 / 11 45%	/	0 / 5 0%	

Idiopathic Only Patients — Irrigation and Drainage Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12808/2	4	1 / 1		irrigation and drainage, compression with indwelling catheter	4 / 4	0 / 4	0 / 4	
12820/1	1	1 / 2	8	irrigation and drainage	0 / 1	/	/	
12902/5	1	3 / 4	,96/0,	irrigation and drainage	0 / 1	/	/	
12968/1	1	1 / 3	>48	irrigation and drainage, spinal anesthesia	0 / 1	/	/	
12968/1	1	3 / 3	>48,,	irrigation and drainage	1 / 1	0 / 1	0 / 1	
12995/4	1	2 / 2	504,	irrigation and drainage	0 / 1	/	/	partial detumescence
13002/1	1	1 / 3	48	irrigation and drainage, spinal anesthesia	0 / 1	/	/	
13002/1	1	3 / 3	48,,	irrigation and drainage	1 / 1	0 / 1	0 / 1	
13012/1	1	2 / 3	21,	irrigation and drainage, epidural anesthesia, blood pressure cuff	0 / 1	/	/	
13064/1	1	1 / 3	72	irrigation and drainage, intermittent compression dressings	0 / 1	/	/	
13065/3	1	1 / 2	24	oral (diazepam), penile injection (rheomacrodex), irrigation and drainage, morphine	0 / 1	/	/	
13065/4	1	1 / 2	44	oral (diazepam), penile injection (rheomacrodex), irrigation and drainage, morphine, spinal anesthesia	0 / 1	/	/	
13077/1	3	1 / 1		ice, irrigation and drainage, anticoagulation, sedation, spinal anesthesia	3 / 3	/	3 / 3	1 patient had fair erections (satisfactory for intercourse but some flaccidity and/or induration). Treatments were alone or in combination, but no details given.
13090/3	1	1 / 3	28	irrigation and drainage, spinal anesthesia	0 / 1	/	/	
13144/3	1	2 / 3	36,60	irrigation and drainage	0 / 1	/	/	
300250/2	1	1 / 4	>1680	irrigation and drainage	0 / 1	/	/	

Idiopathic Only Patients — Irrigation and Drainage Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
Total Groups:	16	Total patients:	21	Outcome totals:	9 / 21 43%	0 / 6 0%	3 / 9 33%	

Only Idiopathic Patients — Penile Injection with Sympathomimetics —epinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12734/1	1	2 / 4	72,	penile injection (epinephrine)	0 / 1	/	/	
12794/0	8	1 / 1	6-48	penile injection (epinephrine in saline[.01mg]), irrigation and drainage	/	/	/	Group 0 created to record hematoma data.
12794/2	2	1 / 1	6-12	penile injection (epinephrine in saline[.01mg.]), irrigation and drainage	1 / 2	1 / 2	0 / 1	
12820/1	1	2 / 2	8,	penile injection (epinephrine in saline (10 ml)[.01mg])	1 / 1	1 / 1	0 / 1	Pt trained to use epinephrine injections to deal with recurrent priapism successfully. Pt. lives at a distance from medical facilities.
300250/2	1	3 / 4	>1680,,	penile injection (methylene blue[50mg], epinephrine[<.05mg], phenylephrine[<1mg])	0 / 1	/	/	order and timing of injections not clear
Total Groups:	5	Total patients:	13	Outcome totals:	2 / 5 40%	2 / 3 67%	0 / 2 0%	

Only Idiopathic Patients — Penile Injection with Sympathomimetics —norepinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12902/7	1	1 / 3	18	penile injection (norepinephrine in 20 ml saline[20mcg.]), irrigation and drainage	0 / 1	/	/	
12902/7	1	2 / 3	18,	penile injection (norepinephrine in 20 ml saline[20mcg.]), Winter shunt	0 / 1	/	/	Winter shunt on one side only
Total Groups:	2	Total patients:	2	Outcome totals:	0 / 2 0%	/	/	

Only Idiopathic Patients — Penile Injection with Sympathomimetics —phenylephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12671/3	1	1 / 1		penile injection (phenylephrine in saline[.5mg])	1 / 1	/	/	Only one injection required.
12679/1	19	1 / 2	<4	penile injection (phenylephrine[100mcg])	0 / 19	/	/	implied selection bias since all failed.Resolution changed from 19 to 0 per panel decision 4/02.
12679/1	19	2 / 2	<4,<4	penile injection (phenylephrine[1-2mcg/l]), irrigation and drainage	18 / 19	/	/	one patient required an unspecified shunt. Phenylephrine dose very low.
12781/1	1	2 / 3	,	penile injection (phenylephrine), irrigation and drainage	0 / 1	/	/	adrenergic agent probably phenylephrine given its use elsewhere in the paper, but it wasn't specified in this case. Panel changed record to indicate phenylephrine 4/02.
300250/2	1	3 / 4	>1680,,	penile injection (methylene blue[50mg], epinephrine[<.05mg], phenylephrine[<1mg])	0 / 1	/	/	order and timing of injections not clear
Total Groups:	5	Total patients:	41	Outcome totals:	19 / 41 46%	/	/	

Only Idiopathic Patients — Penile Injection with Sympathomimetics —unspec. sympathomimetic

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12589/2	1	1 / 3	72	penile injection (dilute adrenergic agent), irrigation and drainage	0 / 1	/	/	
Total Groups:	1	Total patients:	1	Outcome totals:	0 / 1 0%	/	/	

Idiopathic Only Patients — Al-Ghorab Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12589/3	1	1 / 1	240	Al-Ghorab shunt	1 / 1	/	/	resolution after 1 day. Erectile function unknown
12734/1	1	3 / 4	72,,	Al-Ghorab shunt	0 / 1	/	/	
Total Groups:	2	Total patients:	2	Outcome totals:	1 / 2 50%	/	/	

Idiopathic Only Patients — Ebbehoj Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12902/5	1	4 / 4	,96/0,,	Ebbehoj shunt	1 / 1	/	0 / 1	pt reported erection adequate for intercourse, but penis is shorter/thinner than before episode. Shunt just described as using #11 blade, but assumed to be corporo-glandular due to similar listing for next patient. Reclassified as Ebbehoj per panel decision 4/02.
13066/1	1	2 / 2	10,	Ebbehoj shunt	1 / 1	/	0 / 1	Reclassified CG shunt to Ebbehoj per panel decision 4/02
13066/2	1	2 / 3	96,120	Ebbehoj shunt	1 / 1	1 / 1	/	CG shunt reclassified to Ebbehoj per panel decision 4/02.
Total Groups:	3	Total patients:	3	Outcome totals:	3 / 3 100%	1 / 1 100%	0 / 2 0%	

Idiopathic Only Patients — Winter Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12781/1	1	3 / 3	,,	Winter shunt	1 / 1	1 / 1	0 / 1	
12808/1	2	1 / 1		Winter shuntcompression with indwelling catheter	2 / 2	0 / 2	0 / 2	
12902/5	1	1 / 4		Winter shunt	0 / 1	/	/	Pt known to be a diabetic under insulin injection.
12902/5	1	2 / 4	,96/0	Winter shunt	0 / 1	/	/	
12938/1	3	1 / 1		Winter shunt	2 / 3	/	1 / 3	1 impotent patient-not clear if patient receiving second shunt.
12995/9	1	2 / 2	14,	Winter shunt	1 / 1	/	/	
12995/10	1	2 / 2	36,	Winter shunt	1 / 1	/	1 / 1	
12995/27	1	1 / 2	5	Winter shunt	0 / 1	/	/	
12998/2	3	2 / 2	96-504,	irrigation and drainage, Winter shunt	3 / 3	0 / 3	0 / 3	
12998/3	2	2 / 2	48,	irrigation and drainage, Winter shunt	1 / 1	0 / 1	0 / 1	
13004/1	1	4 / 6	24,32,34,38	Winter shunt	0 / 1	/	/	
13004/1	1	6 / 6	24,32,34,38,40,150	Winter shuntdrainage of hematoma	1 / 1	/	1 / 1	patient underwent penectomy for gangrene
13009/1	1	1 / 1	12	Winter shunt	1 / 1	/	0 / 1	
13009/4	1	1 / 2	30	Winter shunt	1 / 1	1 / 1	0 / 1	
13009/4	1	2 / 2	30,4330	Winter shunt	1 / 1	/	0 / 1	
13030/1	4	1 / 1	4-210	Winter shunt	/	/	1 / 3	1 additional patient was impotent preoperatively. Resolution (4/4) and recurrence (0/4) data deleted per panel decision as duplicative 4/02.
13057/1	4	1 / 1	4-210	Winter shunt	/	/	1 / 3	One additional patient was impotent prior to priapism. Resolution (4/4) and recurrence (0/4) data deleted as duplicative by panel decision 4/02.

Idiopathic Only Patients — Winter Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13064/1	1	2 / 3	72,90	oral (penicillin), irrigation and drainage, Winter shuntblood pressure cuff, catheterization	0 / 1	/	/	partial resollution
13064/1	1	3 / 3	72,90,114	Winter shunt	1 / 1	/	/	
13064/2	1	1 / 1		Winter shunt	1 / 1	/	/	
Total Groups:	20	Total patients:	32	Outcome totals:	17 / 23 74%	2 / 8 25%	5 / 21 24%	

Idiopathic Only Patients — Cavernospongious Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12995/6	1	1 / 1	72	cavernospongious shunt	0 / 1	/	/	partial detumescence. bilateral shunts
12995/7	1	1 / 1	72	cavernospongious shunt	0 / 1	/	1 / 1	partial detumescence. right side shunt only
12995/11	1	1 / 1	72	cavernospongious shunt	0 / 1	/	1 / 1	bilateral shunts
12995/15	1	2 / 2	48,	cavernospongious shunt	1 / 1	/	/	bilateral shunts.
12995/21	1	1 / 1		cavernospongious shunt	0 / 1	/	1 / 1	
12995/24	1	2 / 2	48,	cavernospongious shunt	0 / 1	/	/	bilateral shunts
12995/27	1	2 / 2	5,	cavernospongious shunt	0 / 1	/	/	
12995/29	1	2 / 2	8,	cavernospongious shunt	1 / 1	/	0 / 1	
13054/1	1	1 / 2		cavernospongious shunt	0 / 1	/	/	
13065/3	1	2 / 2	24,	cavernospongious shunt	0 / 1	/	/	bilateral shunt. lost to follow-up
13065/4	1	2 / 2	44,	cavernospongious shunt, steroids	1 / 1	0 / 1	0 / 1	unilateral shunt
13066/2	1	3 / 3	96,120,144	cavernospongious shunt	1 / 1	/	1 / 1	
13072/2	3	1 / 1		cavernospongious shunt	3 / 3	/	2 / 3	
13090/3	1	3 / 3	28,,100	cavernospongious shunt	1 / 1	/	1 / 1	
13090/4	1	2 / 2	48,72	cavernospongious shunt	1 / 1	/	0 / 1	
13116/1	1	1 / 1	72	penile injection (heparin irrigation), irrigation and drainage, cavernospongious shunt, compression dressing	0 / 1	/	0 / 1	The gangrene resulted in sloughing of 4/5 of pendulous protion of the penis and required multiple debridements, cystostomy tube, and skin grafts. It isn't clear when the priapism totallly resolved.
13122/3	1	2 / 2	,36	cavernospongious shunt	0 / 1	/	1 / 1	perineal c-sponge shunt. Initial penile flaccidity followed by intermittent uncontrolled rections refractory to heparin or estrogen. Rigidity resolved with time

Idiopathic Only Patients — Cavernospongious Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
Total Groups:	17	Total patients:	19	Outcome totals:	9 / 19 47%	0 / 1 0%	8 / 13 62%	

Idiopathic Only Patients — Cavernosaphenous Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12587/1	1	3 / 3	72,,	cavernosaphenous shunt	1 / 1	/	1 / 1	Originally coded as penile vein-corporal shunt using saphenous graft.
12955/1	1	6 / 6	12,,,,,.58/5	cavernosaphenous shunt, circumcision	0 / 1	/	/	partial resolution of priapism achieved. No further results given.
13004/1	1	5 / 6	24,32,34,38,40	cavernosaphenous shunt, compression dressing, heparin calcium	0 / 1	/	/	
13061/2	1	2 / 2	36,	cavernosaphenous shunt	1 / 1	/	0 / 1	satisfactory erections that were a bit slow. Orginally coded as shunt from corpora to superficial dorsal vein.
13062/1	1	1 / 2	144	cavernosaphenous shunt	1 / 1	1 / 1	/	unilateral shunt with resolution followed by partial recurrence at 24 hours
13062/2	1	1 / 1	48	cavernosaphenous shunt	1 / 1	0 / 1	0 / 1	bilateral shunt
13062/4	1	1 / 1	72	cavernosaphenous shunt	1 / 1	/	0 / 1	bilateral shunt
13080/1	1	4 / 4	48,,,	cavernosaphenous shunt	1 / 1	0 / 1	0 / 1	Stricture due to catheterization.
13090/1	1	2 / 2	72,	cavernosaphenous shunt	1 / 1	/	1 / 1	
13090/2	1	2 / 2	72,192	cavernosaphenous shunt	1 / 1	0 / 1	1 / 1	
13090/3	1	2 / 3	28,	cavernosaphenous shunt	1 / 1	1 / 1	/	
13103/1	1	3 / 3	,72,	cavernosaphenous shunt	1 / 1	/	0 / 1	bilateral shunts
13103/2	1	2 / 2	,73	cavernosaphenous shunt	1 / 1	/	1 / 1	bilateral shunts
13103/3	1	2 / 2	24,48	cavernosaphenous shunt	1 / 1	/	0 / 1	bilateral
13103/4	1	2 / 2	,188	cavernosaphenous shunt	1 / 1	/	1 / 1	bilateral shunt
13111/1	1	1 / 1		cavernosaphenous shunt	1 / 1	/	1 / 1	pt received heparin post-op
13117/2	1	1 / 1	33	cavernosaphenous shunt, heparin, systemic	1 / 1	/	0 / 1	resolution was delayed and occurred after heparin which resulted in the hematoma.

Idiopathic Only Patients — Cavernosaphenous Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13127/1	1	4 / 4	18,21,26,32	cavernosaphenous shunt	1 / 1	/	0 / 1	pt was treated with estrogens at the time of discharge for a short term.
13144/3	1	3 / 3	36,60,80	cavernosaphenous shunt	1 / 1	/	0 / 1	
13144/4	1	1 / 1	36? Lost in gutter	irrigation and drainage, cavernosaphenous shunt	1 / 1	/	1 / 1	"partially potent". Time of treatment lost in article gutter-36 hours is best guess
13156/20	1	2 / 3	96,144	cavernosaphenous shunt, blood pressure cuff, heparin[50mg q 6h]	0 / 1	/	/	50% reduction in erection. Right side shunt only
13156/20	1	3 / 3	96,144,216	cavernosaphenous shunt	1 / 1	0 / 1	0 / 1	resolution 5 days later. left side shunt. Time of resolution originally coded as 8 days, changed by panel decision 4/02.
13157/1	1	5 / 5	48,96,144,192 ,240	cavernosaphenous shunt	1 / 1	0 / 1	/	DVT and PE developed 6-10 days post-op. Pt. Is flaccid and edema free at 4 weeks post op.
Total Groups:	23	Total patients:	23	Outcome totals:	20 / 23 87%	2 / 7 29%	7 / 17 41%	

Idiopathic Only Patients — Phenylpropanolamine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
300250/2	1	2 / 4	>1680,	oral (terbutaline[5mg], phenylpropanolamine[75mg])	0 / 1	/	/	not clear if drugs given together or separated by time
Total Groups:	1	Total patients:	1	Outcome totals:	0 / 1 0%	/	/	

Idiopathic Only Patients — Terbutaline

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
300250/2	1	2 / 4	>1680,	oral (terbutaline[5mg], phenylpropanolamine[75mg])	0 / 1	/	/	not clear if drugs given together or separated by time
Total Groups:	1	Total patients:	1	Outcome totals:	0 / 1 0%	/	/	

Appendix 5-g: Ischemic Priapism- Due to Penile Injection Detailed Reports

Patients with Priapism Due to Penile Injection — Aspiration Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug injected	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12671/1	1	2 / 2	,	penile injection therapy[papaverine (2), trimix (5)]	aspiration	1 / 1	/	/	30cc. of blood aspirated
12790/3	1	4 / 5	48,,,	penile injection therapy[papaverine and phentolamine - double dose]	aspiration	0 / 1	/	/	aspiration done twice in 12 hours. semiflaccid penis achieved.
12819/2	6	1 / 1	6-28	penile injection therapy[papverin 15-30mg.]	aspiration, compression dressing[10X15 min.]	6 / 6	/	/	All impotent pre-treatment, but continued to respond to papaverine, post treatment.
12819/3	1	1 / 2	6-28	penile injection therapy[papaverine 15-30mg.]	aspiration, compression dressing[10x15 min]	0 / 1	/	/	
12902/2	1	1 / 2	23	penile injection therapy[papaverine, 60mg.]	aspiration	0 / 1	/	/	60 ml aspirated
12902/2	1	2 / 2	23,	penile injection therapy[papaverine, 60mg.]	aspiration	1 / 1	/	0 / 1	further aspiration to a total of 95ml
Total Groups:	6	Total patients:	11	Outcome totals:		8 / 11 73%	/	0 / 1 0%	

Patients with Priapism Due to Penile Injection — Irrigation and Drainage Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug injected	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12595/1	3	1 / 2		diagnostic penile injection[n=2 PGE1], penile injection therapy[n=1 PGE1]	irrigation and drainage	0 / 3	/	/	
300250/1	10	1 / 2	3.5-9	penile injection therapy[PGE1 or papaverine/phentolamine]	irrigation and drainage	0 / 10	/	/	
Total Groups:	2	Total patients:	13	Outcome totals:		0 / 13 0%	/	/	

Patients with Priapism due to Penile Injection — Penile Injection with Sympathomimetics —epinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug injected	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12704/1	1	1 / 2	12	papaverine/phentolamine	penile injection (epinephrine in saline[.01mg x2]), irrigation and drainage	0 / 1	/	/	
12790/1	1	1 / 1	2	papaverine and phentolamine	penile injection (epinephrine[.5 cc of 1:20000]), irrigation and drainage	1 / 1	/	/	after testing patient was advised to use 1/2 dose.
12790/2	1	1 / 1	12	papaverine and phentolamine /double dose	penile injection (epinephrine[.5cc of 1:20000]), irrigation and drainage	1 / 1	/	/	
12790/3	1	2 / 5	48,	papaverine and phentolamine - double dose	penile injection (epinephrine), irrigation and drainage	0 / 1	/	/	some degree of detumescence
12794/3	5	1 / 1	6-48	papaverine	penile injection (epinephrine in saline[.01mg.]), irrigation and drainage	4 / 5	/	/	All patients impotent prior to priapism.
12895/1	9	1 / 1		papaverine +/- phentolamine	penile injection (epinephrine in saline 20-30 ml[1mcg/ml]), irrigation and drainage	9 / 9	/	/	pts impotent prepriapism
12895/2	45	1 / 1		papaverine +/- phentolamine	penile injection (epinephrine in saline 20-30 ml[1mcg/ml]), irrigation and drainage	45 / 45	/	/	pts. impotent prepriapism
Total Groups:	7	Total patients:	63	Outcome totals:		60 / 63 95%	/	/	

Patients with Priapism due to Penile Injection — Penile Injection with Sympathomimetics —metaraminol

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug injected	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12823/1	1	1 / 3	48	papaverint, 80 mg.	penile injection (metaraminol), irrigation and drainage	0 / 1	/	/	partial response for short duration
12854/1	18	1 / 2		papaverine +/- phentolamine +/- phenoxybenzamine	aspiration, penile injection (metaraminol in 5ml saline[1mg])	17 / 18	/	/	all patients impotent prepriapism. 2 pts. improved after treatment, 1 worse, 3 unknown and the rest unchanged
12902/1	1	1 / 2	10	papaverine 60mg.	penile injection (metaraminol dilute)	0 / 1	/	/	
12902/1	1	2 / 2	10,	papaverine 60mg.	penile injection (metaraminol dilute)	1 / 1	/	/	resolution 3 hours after 2nd injection. Patient impotent before priapism. BP 200/140 after injection
12945/1	1	1 / 1	20	phenoxybenzamine, 2mg.	penile injection (metaraminol[.8mg]), irrigation and drainage	0 / 1	/	/	Flaccidity 3.5 hours after treatment. Resolution changed to n by panel decision 4/02.
12945/2	1	1 / 3	13	phenoxybenzamine, 4mg	penile injection (metaraminol[2mg]), irrigation and drainage	0 / 1	/	/	
12945/2	1	2 / 3	13,14	phenoxybenzamine, 4mg	penile injection (metaraminol[2mg]), irrigation and drainage	0 / 1	/	/	
12945/2	1	3 / 3	13,14,15	phenoxybenzamine, 4mg	penile injection (metaraminol[3mg.]), irrigation and drainage	1 / 1	/	/	Flaccidity 70 min. from last treatment
12945/3	1	1 / 3	12	phenoxybenzamine, 4mg	penile injection (metaraminol[3mg.]), irrigation and drainage	0 / 1	/	/	
12945/3	1	2 / 3	12,13	phenoxybenzamine, 4mg	penile injection (metaraminol[3mg.]), irrigation and drainage	0 / 1	/	/	
12945/3	1	3 / 3	12,13,15	phenoxybenzamine, 4mg	penile injection (metaraminol[3mg.]), irrigation and drainage	1 / 1	/	/	flaccidity 50 min. after last treatment

Patients with Priapism due to Penile Injection — Penile Injection with Sympathomimetics —metaraminol

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug injected	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12945/4	1	1 / 1	15	phenoxybenzamine, 4mg	penile injection (metaraminol[1mg.]), irrigation and drainage	1 / 1	/	0 / 1	flaccidity after 20minutes. Erection impaired for < 1 week afterwards.
12945/5	1	1 / 1	23	phenoxybenzamine unknown dose	penile injection (metaraminol[1.5mg.]), irrigation and drainage	1 / 1	/	/	flaccidity after 1-8 hours post treatment
12945/6	1	1 / 1	31	papaverint, 80 mg.	penile injection (metaraminol[1.5mg.]), irrigation and drainage	1 / 1	/	/	flaccidity after 75 min. post treatment
12945/7	1	1 / 1	40	papaverine, 40 mg.	penile injection (metaraminol[2mg.]), irrigation and drainage	1 / 1	/	/	flaccidity 16 min. post treatment
Total Groups:	15	Total patients:	32	Outcome totals:		24 / 32 75%	/	0 / 1 0%	

Patients with Priapism due to Penile Injection — Penile Injection with Sympathomimetics —norepinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug injected	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12819/3	1	2 / 2	6-28,	papaverine 15-30mg.	penile injection (norepinephrine in saline[1mg/ml]), irrigation and drainage	1 / 1	/	/	impotent pre-treatment and continued to respond to papaverine post treatment
Total Groups:	1	Total patients:	1	Outcome totals:		1 / 1 100%	/	/	

Patients with Priapism due to Penile Injection — Penile Injection with Sympathomimetics —phenylephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug injected	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
11038/4	1	3 / 3	>6,.25/1,.75/1	papaverine	penile injection (phenylephrine[200mcg.]), irrigation and drainage	1 / 1	/	/	
12671/1	7	1 / 2		papaverine (2), trimix (5)	penile injection (phenylephrine in saline[.05mg])	6 / 7	/	/	All 6 responders required 3 or fewer injections. The non-responder was given 6 injections.
12730/3	1	1 / 2	5	PGE1, 6 micrograms	penile injection (phenylephrine), irrigation and drainage	1 / 1	1 / 1	/	Patient impotent prior to treatment. Impotence changed from y to blank per panel decision 4/02.
12823/1	1	2 / 3	48,	papaverint, 80 mg.	penile injection (phenylephrine[1mg])	0 / 1	/	/	multiple doses given - number unspecified
12823/1	1	3 / 3	48,,	papaverint, 80 mg.	penile injection (phenylephrine continuous infusion[2mg/hr for 12 hours])	1 / 1	0 / 1	/	patient impotent at baseline
Total Groups:	5	Total patients:	11	Outcome totals:		9 / 11 82%	1 / 2 50%	/	

Patients with Priapism due to Penile Injection — Terbutaline

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Drug injected	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
8154/1	7	1 / 1	2	papaverine,phentolamine, and PGE1	oral (terbutaline[2.5mg.])	4 / 7	/	/	Patients failing terbutaline responded to aspiration or aspiration + alpha agonist. Mean time to detumescence in successes was 4.25 hours.
8154/2	8	1 / 1	2	papaverine,phentolamine, and PGE1	oral (terbutaline[5mg.])	5 / 8	/	/	Patients failing terbutaline responded to aspiration or aspiration plus alpha agonist. Mean time to detumescence in responders was 4.25 hours.
11038/4	1	2 / 3	>6,.25/1	papaverine	oral (terbutaline[5mg.])	0 / 1	/	/	
12834/2	5	1 / 1	>4-5	papaverine and phentolamine	oral (terbutaline[5mg.])	5 / 5	0 / 5	/	
Total Groups:	4	Total patients:	21	Outcome totals:		14 / 21 67%	0 / 5 0%	/	

Appendix 5-h: Ischemic Priapism- Patients with Sickle Cell Disease or Trait Detailed Reports

Sickle Cell Patients — Aspiration Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13149/2	2	1 / 1		aspiration, T-binder with Foley catheter	2 / 2	/	2 / 2	
13149/3	1	1 / 1		aspiration, T-binder with Foley catheter	1 / 1	/	0 / 1	
13156/2	1	5 / 6	,,,168/0,	aspiration, caudal anesthesia	0 / 1	/	/	
13156/3	1	4 / 5	,,48/0,	aspiration, general anesthesia	0 / 1	/	/	30% reduction in erection
13156/4	1	2 / 4	,<24/0	aspiration, catheterization, caudal anesthesia	0 / 1	/	/	
13156/4	1	3 / 4	,<24/0,48	aspiration	0 / 1	/	/	
Total Groups:	6	Total patients:	7	Outcome totals:	3 / 7 43%	/	2 / 3 67%	

Sickle Cell Patients — Irrigation and Drainage Only

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12657/1	1	3 / 4	96,,	irrigation and drainage	0 / 1	/	/	
12902/3	1	1 / 3	72	irrigation and drainage	0 / 1	/	/	
12957/1	1	1 / 2	192	irrigation and drainage	0 / 1	/	/	
13144/1	1	1 / 1	144	irrigation and drainage	0 / 1	/	1 / 1	Priapism resolved two weeks later
13144/2	1	1 / 2	36	irrigation and drainage, hyperbaric oxygen[6 hours]	0 / 1	/	/	
105230/1	6	1 / 2	28-168	irrigation and drainage, sedation, hydration, adrenergic agonists or antagonists	0 / 6	/	/	
105230/2	1	1 / 2		irrigation and drainage, sedation, hydration, adrenergic agonists or antagonists	0 / 1	/	/	
Total Groups:	7	Total patients:	12	Outcome totals:	0 / 12 0%	/	1 / 1 100%	

Sickle Cell Patients — Penile Injection with Sympathomimetics —epinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12575/1	14	1 / 3	3-28	penile injection (epinephrine), irrigation and drainage	13 / 14	0 / 6	0 / 10	Some patients received multiple treatments-up to 15. 10 patients received only one treatment.
12575/2	1	1 / 2	28	penile injection (epinephrine), irrigation and drainage	0 / 1	/	/	
Total Groups:	2	Total patients:	15	Outcome totals:	13 / 15 87%	0 / 6 0%	0 / 10 0%	

Sickle Cell Patients — Penile Injection with Sympathomimetics —norepinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12902/3	1	2 / 3	72,	penile injection (norepinephrine in saline 10ml[10mcg]), irrigation and drainage	0 / 1	/	/	injection repeated four times
Total Groups:	1	Total patients:	1	Outcome totals:	0 / 1 0%	/	/	

Sickle Cell Patients — Penile Injection with Sympathomimetics —phenylephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12692/1	1	2 / 8	24,72	aspiration, penile injection (phenylephrine[100mg])	0 / 1	/	/	
12692/1	1	3 / 8	24,72,108	aspiration, penile injection (phenylephrine[100mg]), Winter shunt	1 / 1	1 / 1	/	
12692/1	1	5 / 8	24,72,108,828,	aspiration, penile injection (phenylephrine[100mg]), Winter shunt	1 / 1	1 / 1	/	
12692/1	1	7 / 8	24,72,108,828,,2184,	aspiration, penile injection (phenylephrine[100mg])	/	/	/	aspirations diagnostic
12692/2	1	3 / 5	24,72,96	aspiration, penile injection (phenylephrine[150mg])	0 / 1	/	/	
12692/2	1	4 / 5	24,72,96,97	penile injection (phenylephrine[100mg])	0 / 1	/	/	
Total Groups:	6	Total patients:	6	Outcome totals:	2 / 5 40%	2 / 2 100%	/	

Sickle Cell Patients — Penile Injection with Sympathomimetics —unspec. sympathomimetic

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12613/1	1	2 / 4	,	penile injection (alpha-adrenergic agents), irrigation and drainage	0 / 1	/	/	Agent/dose not specified. Unclear if no resolution or recurred.
Total Groups:	1	Total patients:	1	Outcome totals:	0 / 1 0%	/	/	

Sickle Cell Patients — Ebbehoj Shunt

Ref. Num. / Group	# Pats.	Treat. # / Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12982/1	5	3 / 3	,24,48	Ebbehoj shunt	5 / 5	/	0 / 3	
Total Groups:	1	Total patients:	5	Outcome totals:	5 / 5 100%	/	0 / 3 0%	

Sickle Cell Patients — Winter Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12613/1	1	3 / 4	,,	Winter shunt	0 / 1	/	/	Unclear if recurred or unresolved.
12657/1	1	4 / 4	96,,,	Winter shunt	1 / 1	0 / 1	0 / 1	shunt similar to winter shunt except using plastic catheters. Reclassified to Winter shunt per panel decision 4/02 and treated as sickle cell (as opposed to combined drug induced/sickle cell) by panel chair/hsb 6/02.
12692/1	1	3 / 8	24,72,108	aspiration, penile injection (phenylephrine[100mg]), Winter shunt	1 / 1	1 / 1	/	
12692/1	1	5 / 8	24,72,108,828,	aspiration, penile injection (phenylephrine[100mg]), Winter shunt	1 / 1	1 / 1	/	
12800/1	1	3 / 7	72,,24	Winter shunt	0 / 1	/	/	Reclassified as Winter shunt only per panel decision 4/02.
12902/3	1	3 / 3	72,,	Winter shunt	1 / 1	/	0 / 1	resolution 8 hours after operation.
12995/16	1	2 / 3	96,	Winter shunt	0 / 1	/	/	
12995/19	1	1 / 2	24	Winter shunt	0 / 1	/	/	
13009/5	1	1 / 3	168	Winter shunt	0 / 1	/	/	successful only for a few hours
13009/5	1	2 / 3	168,	Winter shunt	0 / 1	/	/	procedure failed within a few hours
Total Groups:	10	Total patients:	10	Outcome totals:	4 / 10 40%	2 / 3 67%	0 / 2 0%	

Sickle Cell Patients — Cavernospongious Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12800/1	1	5 / 7	72,,24,24-168,288	cavernospongious shunt	0 / 1	/	/	
12957/4	1	1 / 1	72	cavernospongious shunt	0 / 1	/	/	
12957/5	1	3 / 3	24,,240/2	irrigation and drainage, cavernospongious shunt	1 / 1	/	/	resolution occurred 3 days post shunt.
12995/16	1	3 / 3	96,,	cavernospongious shunt	1 / 1	/	/	
12995/17	1	2 / 2	50,	cavernospongious shunt	1 / 1	/	/	bilateral shunts
12995/18	1	2 / 2	48,	cavernospongious shunt	0 / 1	/	0 / 1	bilateral shunts. Partial detumescence
12995/19	1	2 / 2	24,	cavernospongious shunt	1 / 1	/	0 / 1	
12995/26	1	2 / 2	,	cavernospongious shunt	0 / 1	/	/	
13022/1	1	1 / 2	96	cavernospongious shunt	0 / 1	/	/	
13030/2	1	2 / 2	,	cavernospongious shunt	1 / 1	0 / 1	0 / 1	
13042/1	1	5 / 5	6,14,38,64,72	cavernospongious shunt	1 / 1	0 / 1	0 / 1	
13057/2	1	3 / 3	,,	cavernospongious shunt	1 / 1	/	0 / 1	
13082/1	1	3 / 3	,72,	cavernospongious shunt	1 / 1	0 / 1	0 / 1	
13082/2	1	3 / 3	24,18/1,	cavernospongious shunt	1 / 1	/	0 / 1	unilateral right shunt. Edema and tenderness persisted after detumescence resulting in diagnosis of fistula and cystostomy.
13144/6	1	2 / 2	20,140	cavernospongious shunt	1 / 1	/	0 / 1	
Total Groups:	15	Total patients:	15	Outcome totals:	10 / 15 67%	0 / 3 0%	0 / 8 0%	

Sickle Cell Patients — Cavernosaphenous Shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12575/1	1	2 / 3	3-28,30	cavernosaphenous shunt	0 / 1	/	0 / 1	
13062/3	1	1 / 1	360	cavernosaphenous shunt	1 / 1	/	/	bilateral shunt, lost to follow-up
13144/2	1	2 / 2	36,312	cavernosaphenous shunt	1 / 1	/	1 / 1	
13144/6	1	1 / 2	20	cavernosaphenous shunt	0 / 1	/	/	failure attributed to injection of sodium diatrizoate
13148/1	1	5 / 5	,36/0,204/0,206/0,372/0	cavernosaphenous shunt, compression dressing, heparin, low molecular weight dextran	1 / 1	/	0 / 1	
13156/23	1	2 / 3	48,	cavernosaphenous shunt	0 / 1	/	/	right side shunt only
13166/2	1	1 / 1	36	cavernosaphenous shunt	1 / 1	/	0 / 1	
Total Groups:	7	Total patients:	7	Outcome totals:	4 / 7 57%	/	1 / 4 25%	

Sickle Cell Patients — Exchange Transfusions

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12575/2	1	2 / 2	28,	exchange transfusion(s)	1 / 1	0 / 1	1 / 1	pt. on oral psuedoephedrine pm. as preventive measure.
12683/1	1	1 / 1		exchange transfusion(s)	1 / 1	/	/	3 transfusions performed
12683/5	1	1 / 1		exchange transfusion(s)	1 / 1	0 / 1	0 / 1	patient placed on a regimen transfusions for 6 months.
12692/1	1	1 / 8	24	exchange transfusion(s), IV alkalinization, nasal oxygen, hydration IV	0 / 1	/	/	
12692/1	1	4 / 8	24,72,108,828	exchange transfusion(s), IV alkalinization	0 / 1	/	/	
12692/1	1	6 / 8	24,72,108,828 ,,2184	exchange transfusion(s), IV alkalinization, hydration IV	0 / 1	/	/	
12692/2	1	1 / 5	24	exchange transfusion(s), IV alkalinization, nasal oxygen, hydration IV	0 / 1	/	/	
12692/2	1	2 / 5	24,72	exchange transfusion(s), IV alkalinization, nasal oxygen, hydration IV	0 / 1	/	/	
12800/1	1	2 / 7	72,	exchange transfusion(s), hydration IV, analgesics	0 / 1	/	/	
12800/1	1	4 / 7	72,,24,24-168	exchange transfusion(s), transfusions	0 / 1	/	/	
12995/1	1	1 / 2	12	exchange transfusion(s)	0 / 1	/	/	
13009/5	1	3 / 3	168,,	exchange transfusion(s), oxygen	1 / 1	/	/	
13022/1	1	2 / 2	96,360	exchange transfusion(s)	1 / 1	0 / 1	/	exchange tranfusions via pheresis
13042/1	1	4 / 5	6,14,38,64	exchange transfusion(s)	0 / 1	/	/	
13082/1	1	2 / 3	,72	exchange transfusion(s)	0 / 1	/	/	
13082/2	1	2 / 3	24,18/1	exchange transfusion(s)	0 / 1	/	/	

Sickle Cell Patients — Exchange Transfusions

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13118/5	1	5 / 5	8,56,2936,4064,4184	exchange transfusion(s)	0 / 1	/	/	Pt had semi-erections as a result of previous episodes of priapism. Gradual recovery over 4 days. Resolution changed to no per panel decision. 4/02
105230/1	6	2 / 2	28-168,	exchange transfusion(s)	0 / 6	/	/	
105230/2	1	2 / 2	,	exchange transfusion(s)	1 / 1	/	/	
Total Groups:	19	Total patients:	24	Outcome totals:	6 / 24	0 / 3	1 / 2	
					25%	0%	50%	

Sickle Cell Patients — Hydration

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12683/4	1	1 / 1		hydration	1 / 1	1 / 1	/	
12787/1	1	1 / 1	48	oral (chloroquine, vitamins), hydration IV[500ml q 3hrs], pentazocine IM[12.5mg], atropine IV[.3mg q 6hrs]	0 / 1	/	/	resolution over two days. Resolution changed to n per panel decision 4/02.
12982/1	9	1 / 3		observation, hydration, analgesics	3 / 9	/	/	3 resolved within 24 hours on very conservative therapy.
12995/2	1	1 / 1		hydration IV	0 / 1	/	/	partial detumescence
13082/2	1	1 / 3	24	hydration IV, meperidine	0 / 1	/	/	
13082/3	1	1 / 1	24	oral (analgesics, ampicillin), observation, hydration	0 / 1	/	0 / 1	child had fever and otitis media. Resolution after 8 days. Parents refused transfusion for religious reasons. Resolution changed to n per panel decision 4/02.
13106/2	1	1 / 1		catheterization, hydration IV	1 / 1	/	0 / 1	catheter for retention.
13118/3	1	1 / 2	24	hydration IV[3 liters], meperidine IV[100mg*6]	0 / 1	/	/	
13118/5	1	1 / 5	8	hydration IV[3 liters], meperidine IV[75mg*8]	0 / 1	/	/	pt. had prior corporo-saphenous shunt
Total Groups:	9	Total patients:	17	Outcome totals:	5 / 17 29%	1 / 1 100%	0 / 2 0%	

Sickle Cell Patients — IV Alkalinization

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13042/1	1	2 / 5	6,14	IV alkalinization, hydration IV, sedation	0 / 1	/	/	
13118/5	1	4 / 5	8,56,2936,4064	IV alkalinization, hydration IV[3 liters], meperidine IV[50mg]	0 / 1	/	/	
Total Groups:	2	Total patients:	2	Outcome totals:	0 / 2 0%	/	/	

Sickle Cell Patients — Oxygen

Ref. Num. / Group	# Pats.	Treat. # / Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13156/2	1	3 / 6	,,	100% Oxygen, amyl nitrate	0 / 1	/	/	
Total Groups:	1	Total patients:	1	Outcome totals:	0 / 1 0%	/	/	

Sickle Cell Patients — Transfusions

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
12575/1	1	3 / 3	3-28,30,	transfusions	1 / 1	/	0 / 1	
12613/1	1	1 / 4		oral (analgesics), IV alkalinization, transfusions, hydration IV	0 / 1	/	/	Presumably failed, but may have resolved and recurred.
12657/1	1	1 / 4	96	transfusions[2 units]	0 / 1	/	/	
12800/1	1	1 / 7	72	transfusions, analgesics	0 / 1	/	/	
12982/1	6	2 / 3	,24	transfusions	1 / 6	/	/	
12995/14	1	1 / 1	8	transfusions to hematocrit > 40	0 / 1	/	/	partial detumescence
13042/1	1	3 / 5	6,14,38	transfusions - packed red cells[500ml]	0 / 1	/	/	
13082/1	1	1 / 3		oral (analgesics, antibiotics), transfusions	0 / 1	/	/	
13106/1	5	1 / 1		transfusions - packed red cells	5 / 5	/	0 / 5	2-3 units of packed red cells were given to each boy at different times reanging from the 1st to the fifth day of hospitalization. 4 of five received two sets of transfusions, the fifth only received one. One boy had had a corpos-saphenous shunt 18 months previously. One boy required a foley catheter for retention.
13118/3	1	2 / 2	24,96	transfusions - packed red cells[2 units]	0 / 1	0 / 1	0 / 1	Slow resolution over 20 days. Resolution changed to n per panel decision 4/02.
13118/5	1	3 / 5	8,56,2936	meperidine IV[75mg.], transfusions - packed red cell[2 units]	0 / 1	1 / 1	/	gradual resolution over 5 days. Resolution changed to n per panel decision 4/02.
13129/2	1	1 / 2		transfusions - packed red cells[250ml]	0 / 1	/	/	
13129/2	1	2 / 2	,24/1	transfusions - packed red cells[250ml]	0 / 1	/	/	resolution to "softer penis" over 2 days. Total resolution not reported. Resolution changed to n per panel decision 4/02
13129/3	1	1 / 1	12	4 transfusion of packed red cells	1 / 1	/	0 / 1	Patient had "softening" evident the next day.
13131/1	2	2 / 2	,	transfusions	2 / 2	0 / 2	0 / 2	

Sickle Cell Patients — Transfusions

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13156/4	1	1 / 4		oral (analgesics), ice, transfusions	0 / 1	/	/	
13156/11	1	2 / 4	48,96/1	estrogens, transfusions	0 / 1	/	/	stilbesterol 5mg tid
Total Groups:	17	Total patients:	27	Outcome totals:	10 / 27 37%	1 / 4 25%	0 / 10 0%	

Sickle Cell Patients — Urea

Ref. Num. / Group	# Pats.	Treat. # / Max treat.	Time Sequence	Therapy	Resolve x / y	Recur. x / y	Impot. x / y	Comments
13118/5	1	2 / 5	8,56	urea IV[90gm.]	1 / 1	1 / 1	/	resolution over 4 days
Total Groups:	1	Total patients:	1	Outcome totals:	1 / 1 100%	1 / 1 100%	/	

Appendix 5-i: Treatment Side Effects Detailed Reports

All Side Effects — Penile Injection with Sympathomimetics —epinephrine — cardiovascular

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
10918/14	1	1 / 1	36		penile injection (saline, epinephrine), irrigation and drainage		chest pains	1 / 1
10918/14	1	1 / 1	36		penile injection (saline, epinephrine), irrigation and drainage		transient ECG changes	1 / 1
Total Groups:	2	Total patients:	2				Outcome totals:	2 / 2

All Side Effects — Penile Injection with Sympathomimetics —epinephrine — fibrosis

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
10918/14	1	1 / 1	36		penile injection (saline, epinephrine), irrigation and drainage		fibrosis of the corpora	1 / 1
10918/22	1	2 / 2	72,		penile injection (epinephrine), Ebbehoj shunt	prosthesis later inserted	fibrosis of the corpora	1 / 1
12575/2	1	1 / 2	28	sickle cell disease	penile injection (epinephrine), irrigation and drainage		fibrosis	1 / 1
Total Groups:	3	Total patients:	3				Outcome totals:	3 / 3

All Side Effects — Penile Injection with Sympathomimetics —epinephrine — hematoma/echymoses

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12794/0	8	1 / 1	6-48	hematologic malignancy[leukemia], idiopathic, penile injection therapy[papaverine]	penile injection (epinephrine in saline[.01mg]), irrigation and drainage	Group 0 created to record hematoma data.	hematoma	1 / 8
Total Groups:	1	Total patients:	8				Outcome totals:	1 / 8

All Side Effects — Penile Injection with Sympathomimetics —epinephrine — pain

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
300250/2	1	3 / 4	>1680,,	idiopathic	penile injection (methylene blue[50mg], epinephrine[<.05mg], phenylephrine[<1mg])	order and timing of injections not clear	burning sensation	0 / 1

Total Groups: 1 Total patients: 1 Outcome totals: 0 / 1

All Side Effects — Penile Injection with Sympathomimetics —epinephrine — penile necrosis

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
300250/2	1	3 / 4	>1680,,	idiopathic	penile injection (methylene blue[50mg], epinephrine[<.05mg], phenylephrine[<1mg])	order and timing of injections not clear	penile necrosis	0 / 1

Total Groups: 1 Total patients: 1 Outcome totals: 0 / 1

All Side Effects — Penile Injection with Sympathomimetics —epinephrine — urinary retention

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12790/3	1	2 / 5	48,	penile injection therapy[papaverine and phentolamine - double dose]	penile injection (epinephrine), irrigation and drainage	some degree of detumescence	urine retention	1 / 1

Total Groups: 1 Total patients: 1 Outcome totals: 1 / 1

All Side Effects — Penile Injection with Sympathomimetics —metaraminol — cardiovascular

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12902/1	1	2 / 2	10,	diagnostic penile injection[papaverine 60mg.]	penile injection (metaraminol dilute)	resolution 3 hours after 2nd injection. Patient impotent before priapism. BP 200/140 after injection	chest pain	1 / 1
Total Groups:	1	Total patients:	1				Outcome totals:	1 / 1

All Side Effects — Penile Injection with Sympathomimetics —metaraminol — fibrosis

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
10918/15	1	1 / 1	40		penile injection (saline, metaraminol), irrigation and drainage		fibrosis of the corpora	1 / 1
12902/1	1	2 / 2	10,	diagnostic penile injection[papaverine 60mg.]	penile injection (metaraminol dilute)	resolution 3 hours after 2nd injection. Patient impotent before priapism. BP 200/140 after injection	fibrosis	0 / 1
Total Groups:	2	Total patients:	2				Outcome totals:	1 / 2

All Side Effects — Penile Injection with Sympathomimetics —metaraminol — no complication

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12941/1	1	1 / 1	8	hematologic malignancy[CML blast crisis]	penile injection (metaraminol), irrigation and drainage	It took two injections for detumescence	no systemic side effects	1 / 1
Total Groups:	1	Total patients:	1				Outcome totals:	1 / 1

All Side Effects — Penile Injection with Sympathomimetics —metaraminol — pain

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12941/1	1	1 / 1	8	hematologic malignancy[CML blast crisis]	penile injection (metaraminol), irrigation and drainage	It took two injections for detumescence	injections painful	1 / 1

Total Groups: 1 Total patients: 1 Outcome totals: 1 / 1

All Side Effects — Penile Injection with Sympathomimetics —metaraminol — tachycardia

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12902/1	1	2 / 2	10,	diagnostic penile injection[papaverine 60mg.]	penile injection (metaraminol dilute)	resolution 3 hours after 2nd injection. Patient impotent before priapism. BP 200/140 after injection	tachycardia	1 / 1

Total Groups: 1 Total patients: 1 Outcome totals: 1 / 1

All Side Effects — Penile Injection with Sympathomimetics —norepinephrine — cardiovascular

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
10918/8	1	1 / 1	30		aspiration, penile injection (norepinephrine)		chest pains	1 / 1
10918/8	1	1 / 1	30		aspiration, penile injection (norepinephrine)		transient ECG changes	1 / 1
Total Groups:	2	Total patients:	2				Outcome totals:	2 / 2

All Side Effects — Penile Injection with Sympathomimetics —norepinephrine — fibrosis

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
10918/21	1	1 / 1	72		aspiration, penile injection (norepinephrine)		fibrosis of the corpora	1 / 1
Total Groups:	1	Total patients:	1				Outcome totals:	1 / 1

All Side Effects — Penile Injection with Sympathomimetics —phenylephrine — arrhythmia

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12637/1	1	1 / 1	30	drug induced [thioridizine (mellaril)]	penile injection (phenylephrine[1.25mg.])	multiple injections (unspecified number) required for resolution (total 1.25 mg.)	arrhythmia	0 / 1
12671/1	7	1 / 2		penile injection therapy[papaverine (2), trimix (5)]	penile injection (phenylephrine in saline[.05mg])	All 6 responders required 3 or fewer injections. The non-responder was given 6 injections.	arrhythmia	0 / 7
Total Groups:	2	Total patients:	8				Outcome totals:	0 / 8

All Side Effects — Penile Injection with Sympathomimetics —phenylephrine — fibrosis

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
10918/23	1	1 / 1	72		penile injection (heparinized saline, neosynephrine), irrigation and drainage	prosthesis later inserted	fibrosis of the corpora	1 / 1
Total Groups:	1	Total patients:	1				Outcome totals:	1 / 1

All Side Effects — Penile Injection with Sympathomimetics —phenylephrine — hematoma/echymoses

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12637/1	1	1 / 1	30	drug induced [thioridizine (mellaril)]	penile injection (phenylephrine[1.25mg.])	multiple injections (unspecified number) required for resolution (total 1.25 mg.)	transient hematoma at injection site	1 / 1
12671/1	7	1 / 2		penile injection therapy[papaverine (2), trimix (5)]	penile injection (phenylephrine in saline[.05mg])	All 6 responders required 3 or fewer injections. The non-responder was given 6 injections.	hematoma	1 / 7
Total Groups:	2	Total patients:	8				Outcome totals:	2 / 8

All Side Effects — Penile Injection with Sympathomimetics —phenylephrine — pain

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
300250/2	1	3 / 4	>1680,,	idiopathic	penile injection (methylene blue[50mg], epinephrine[<.05mg], phenylephrine[<1mg])	order and timing of injections not clear	burning sensation	0 / 1

Total Groups: 1 Total patients: 1 Outcome totals: 0 / 1

All Side Effects — Penile Injection with Sympathomimetics —phenylephrine — penile necrosis

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
300250/2	1	3 / 4	>1680,,	idiopathic	penile injection (methylene blue[50mg], epinephrine[<.05mg], phenylephrine[<1mg])	order and timing of injections not clear	penile necrosis	0 / 1

Total Groups: 1 Total patients: 1 Outcome totals: 0 / 1

All Side Effects — Penile Injection with Sympathomimetics —phenylephrine — tachycardia

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12637/1	1	1 / 1	30	drug induced [thioridizine (mellaril)]	penile injection (phenylephrine[1.25mg.])	multiple injections (unspecified number) required for resolution (total 1.25 mg.)	tachycardia	0 / 1
12671/1	7	1 / 2		penile injection therapy[papaverine (2), trimix (5)]	penile injection (phenylephrine in saline[.05mg])	All 6 responders required 3 or fewer injections. The non-responder was given 6 injections.	tachycardia	0 / 7
12773/1	20	1 / 1		diagnostic penile injection, penile injection therapy	penile injection (phenylephrine[.2-.5 mg.])	doses ranged from .2 to .5 mg. Age range was for group that included intra-operative erection patients. Tachycardia also may have been in intra-operative group and represents increase of 15 beats/min.	tachycardia	1 / 20
Total Groups:	3	Total patients:	28				Outcome totals:	1 / 28

Cardiovascular Side Effects — Penile Injection with Sympathomimetics —epinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
10918/14	1	1 / 1	36		penile injection (saline, epinephrine), irrigation and drainage		transient ECG changes	1 / 1
10918/14	1	1 / 1	36		penile injection (saline, epinephrine), irrigation and drainage		chest pains	1 / 1

Total Groups: 2 Total patients: 2 Outcome totals: 2 / 2

Cardiovascular Side Effects — Penile Injection with Sympathomimetics —metaraminol

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12902/1	1	2 / 2	10,	diagnostic penile injection[papaverine 60mg.]	penile injection (metaraminol dilute)	resolution 3 hours after 2nd injection. Patient impotent before priapism. BP 200/140 after injection	tachycardia	1 / 1
12902/1	1	2 / 2	10,	diagnostic penile injection[papaverine 60mg.]	penile injection (metaraminol dilute)	resolution 3 hours after 2nd injection. Patient impotent before priapism. BP 200/140 after injection	chest pain	1 / 1

Total Groups: 2 Total patients: 2 Outcome totals: 2 / 2

Cardiovascular Side Effects — Penile Injection with Sympathomimetics —norepinephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
10918/8	1	1 / 1	30		aspiration, penile injection (norepinephrine)		transient ECG changes	1 / 1
10918/8	1	1 / 1	30		aspiration, penile injection (norepinephrine)		chest pains	1 / 1

Total Groups: 2 Total patients: 2 Outcome totals: 2 / 2

Cardiovascular Side Effects — Penile Injection with Sympathomimetics —phenylephrine

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12637/1	1	1 / 1	30	drug induced [thioridizine (mellaril)]	penile injection (phenylephrine[1.25mg.])	multiple injections (unspecified number) required for resolution (total 1.25 mg.)	tachycardia	0 / 1
12637/1	1	1 / 1	30	drug induced [thioridizine (mellaril)]	penile injection (phenylephrine[1.25mg.])	multiple injections (unspecified number) required for resolution (total 1.25 mg.)	arrhythmia	0 / 1
12671/1	7	1 / 2		penile injection therapy[papaverine (2), trimix (5)]	penile injection (phenylephrine in saline[.05mg])	All 6 responders required 3 or fewer injections. The non-responder was given 6 injections.	tachycardia	0 / 7
12671/1	7	1 / 2		penile injection therapy[papaverine (2), trimix (5)]	penile injection (phenylephrine in saline[.05mg])	All 6 responders required 3 or fewer injections. The non-responder was given 6 injections.	arrhythmia	0 / 7
12773/1	20	1 / 1		diagnostic penile injection, penile injection therapy	penile injection (phenylephrine[.2-.5 mg.])	doses ranged from .2 to .5 mg. Age range was for group that included intra-operative erection patients. Tachycardia also may have been in intra-operative group and represents increase of 15 beats/min.	tachycardia	1 / 20

Total Groups: 5 Total patients: 36 Outcome totals: 1 / 36

Al-Ghorab Shunt Side Effects — significant complication

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12984/2	3	1 / 1			Al-Ghorab shunt		major complications	0 / 3
Total Groups:	1	Total patients:	3				Side effect totals:	0 / 3

Al-Ghorab Shunt Side Effects — urethral fistula

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12984/2	3	1 / 1			Al-Ghorab shunt		fistulas	0 / 3
Total Groups:	1	Total patients:	3				Side effect totals:	0 / 3

Ebbehöj Shunt Side Effects — fibrosis

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
10918/20	1	2 / 2	48,		Ebbehoj shunt		fibrosis of the corpora	1 / 1
10918/22	1	2 / 2	72,		penile injection (epinephrine), Ebbehoj shunt	prosthesis later inserted	fibrosis of the corpora	1 / 1
Total Groups:	2	Total patients:	2				Side effect totals:	2 / 2

Ebbehöj Shunt Side Effects — infection

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
10918/20	1	2 / 2	48,		Ebbehoj shunt		infection after papaverine injection	1 / 1
Total Groups:	1	Total patients:	1				Side effect totals:	1 / 1

Winter Shunt Side Effects — cardiovascular

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12683/2	1	2 / 2	,	sickle cell disease	Winter shunt	Resolution after 9 days of hospitalization, not clear how long after procedure.	cerebrovascular accident 2 weeks after priapism	1 / 1
Total Groups:	1	Total patients:	1				Side effect totals:	1 / 1

Winter Shunt Side Effects — edema

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12919/0.1	17	1 / 1			Winter shunt		bullous edema of penile skin	2 / 17
Total Groups:	1	Total patients:	17				Side effect totals:	2 / 17

Winter Shunt Side Effects — epididymitis

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12919/0.1	17	1 / 1			Winter shunt		epididymitis	1 / 17
Total Groups:	1	Total patients:	17				Side effect totals:	1 / 17

Winter Shunt Side Effects — fibrosis

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
10918/17	1	2 / 2	48,		Winter shunt		fibrosis of the corpora	1 / 1
10918/24	1	2 / 2	96,		Winter shunt	prosthesis later inserted	fibrosis of the corpora	1 / 1
Total Groups:	2	Total patients:	2				Side effect totals:	2 / 2

Winter Shunt Side Effects — hematoma/echymoses

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12919/0.1	17	1 / 1			Winter shunt		penile or scrotal hematoma	3 / 17
Total Groups:	1	Total patients:	17				Side effect totals:	3 / 17

Winter Shunt Side Effects — infection

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12984/1	1	2 / 2	,		Winter shunt		cavernositis	1 / 1
12998/1	4	1 / 1	48-528	drug induced [prochlorperzine - 1 pt.], idiopathic	irrigation and drainage, Winter shunt		purulent cavernositis	1 / 4
Total Groups:	2	Total patients:	5				Side effect totals:	2 / 5

Winter Shunt Side Effects — penile necrosis

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12919/0.1	17	1 / 1			Winter shunt		penile necrosis	1 / 17
12919/0.1	17	1 / 1			Winter shunt		gangrene requiring partial amputation	1 / 17
13004/1	1	6 / 6	24,32,34,38,40,150	idiopathic	Winter shuntdrainage of hematoma	patient underwent penectomy for gangrene	penile gangrene	1 / 1
Total Groups:	3	Total patients:	35				Side effect totals:	3 / 35

Winter Shunt Side Effects — significant complication

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12808/1	2	1 / 1		idiopathic	Winter shuntcompression with indwelling catheter		post-op complications	0 / 2
12938/1	3	1 / 1		idiopathic	Winter shunt	1 impotent patient-not clear if patient receiving second shunt.	unspecified complications	0 / 3
12984/1	5	1 / 2			Winter shunt		major complications	0 / 5
12998/2	3	2 / 2	96-504,	idiopathic	irrigation and drainage, Winter shunt		unspecified complications	0 / 3
Total Groups:	4	Total patients:	13				Side effect totals:	0 / 13

Winter Shunt Side Effects — urethral fistula

Ref. Num. / Group	# Pats.	Treat. # / Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
10918/17	1	2 / 2	48,		Winter shunt		urethral damage	1 / 1
12919/0.1	17	1 / 1			Winter shunt		urethral perforation	1 / 17
12984/1	5	1 / 2			Winter shunt		fistulas	0 / 5
Total Groups:	3	Total patients:	23				Side effect totals:	2 / 23

Winter Shunt Side Effects — urethral stricture

Ref. Num. / Group	# Pats.	Treat. # / Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
10918/17	1	2 / 2	48,		Winter shunt		later urethral stricture	1 / 1
Total Groups:	1	Total patients:	1				Side effect totals:	1 / 1

Cavernospongious Shunt Side Effects — death

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12985/2	3	1 / 1			cavernospongious shunt	Reason for death not given. One patient with gangrene, penile necrosis and penile sloughing on 23rd day developed urethro-cutaneous fistula. Urinary diversion and prosthesis planned. Another patient became semi-flaccid on 14th day and has remained impotent.	death, post-op day 2	1 / 3
Total Groups:	1	Total patients:	3				Side effect totals:	1 / 3

Cavernospongious Shunt Side Effects — fibrosis

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
13042/1	1	5 / 5	6,14,38,64,72	sickle cell disease	cavernospongious shunt		minimal induration at the base of both corpora	1 / 1
13090/3	1	3 / 3	28,,100	idiopathic	cavernospongious shunt		induration of the base of the penis	1 / 1
13090/4	1	2 / 2	48,72	idiopathic	cavernospongious shunt		induration at the base of shaft	1 / 1
13123/1	1	1 / 1	168	drug induced, idiopathic	cavernospongious shunt		induration of penis at 6 months	1 / 1
Total Groups:	4	Total patients:	4				Side effect totals:	4 / 4

Cavernospongious Shunt Side Effects — hypoesthesia

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
13090/3	1	3 / 3	28,,100	idiopathic	cavernospongious shunt		cutaneous hypoesthesia at vein harvest site	1 / 1
Total Groups:	1	Total patients:	1				Side effect totals:	1 / 1

Cavernospongious Shunt Side Effects — infection

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
13065/2	1	2 / 2	36,	hematologic malignancy[chronic myeloid leukemia]	cavernospongious shunt	unilateral shunt.	abscess at site of shunt	1 / 1
13065/5	1	2 / 2	24,	anticoagulation [heparin for chronic glomerulonephritis]	cavernospongious shunt, steroids	partial erections, intercourse possible	infection of the corpora	1 / 1
105182/1	13	2 / 2	,72-816	hematologic malignancy[chronic myeloid leukemia], idiopathic, sickle cell disease, sickle cell trait, sexual intercourse as precipitating factor	cavernospongious shunt	Urethral catheterization was sufficient to heal all fistulae. 8 patients lost to follow-up	wound infection	1 / 13
Total Groups:	3	Total patients:	15				Side effect totals:	3 / 15

Cavernospongious Shunt Side Effects — pain

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
13123/1	1	1 / 1	168	drug induced, idiopathic	cavernospongious shunt		pain at 6 months	1 / 1
Total Groups:	1	Total patients:	1				Side effect totals:	1 / 1

Cavernospongious Shunt Side Effects — penile necrosis

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12985/2	3	1 / 1			cavernospongious shunt	Reason for death not given. One patient with gangrene, penile necrosis and penile sloughing on 23rd day developed urethro-cutaneous fistula. Urinary diversion and prosthesis planned. Another patient became semi-flaccid on 14th day and has remained impotent.	penile necrosis	1 / 3
13116/1	1	1 / 1	72	idiopathic	penile injection (heparin irrigation), irrigation and drainage, cavernospongious shunt, compression dressing	The gangrene resulted in sloughing of 4/5 of pendulous protion of the penis and required multiple debridements, cystostomy tube, and skin grafts. It isn't clear when the priapism totallly resolved.	penile gangrene	1 / 1
Total Groups:	2	Total patients:	4				Side effect totals:	2 / 4

Cavernospongious Shunt Side Effects — urethral fistula

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
12863/2	2	1 / 1		sickle cell disease, sickle cell trait	cavernospongious shunt		urethrocutaneous fistula	1 / 2
12985/2	3	1 / 1			cavernospongious shunt	Reason for death not given. One patient with gangrene, penile necrosis and penile sloughing on 23rd day developed urethro-cutaneous fistula. Urinary diversion and prosthesis planned. Another patient became semi-flaccid on 14th day and has remained impotent.	urethrocutaneous fistula	1 / 3
13006/1	1	2 / 2	78,	drug induced [chlorpromazine]	cavernospongious shunt		urethrocavernous fistula	1 / 1
13054/1	1	1 / 2		idiopathic	cavernospongious shunt		urethrocavernous fistula	1 / 1
13065/2	1	2 / 2	36,	hematologic malignancy[chronic myeloid leukemia]	cavernospongious shunt	unilateral shunt.	urethral fistula	1 / 1
13082/2	1	3 / 3	24,18/1,	sickle cell disease	cavernospongious shunt	unilateral right shunt. Edema and tenderness persisted after detumescence resulting in diagnosis of fistula and cystostomy.	urethrocavernous fistula necessitating suprapubic	1 / 1
13124/1	12	1 / 1	70-423	idiopathic, sickle cell trait	cavernospongious shunt	recurrent patient received an unknown type of shunt	urethral fistula	1 / 12
105182/1	13	2 / 2	,72-816	hematologic malignancy[chronic myeloid leukemia], idiopathic, sickle cell disease, sickle cell trait, sexual intercourse as precipitating factor	cavernospongious shunt	Urethral catheterization was sufficient to heal all fistulae. 8 patients lost to follow-up	urethral injury with fistula	4 / 13

Total Groups: 8 Total patients: 34 Side effect totals: 11 / 34

Cavernosaphenous Shunt Side Effects — cardiovascular

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
13157/1	1	5 / 5	48,96,144,192 ,240	idiopathic	cavernosaphenous shunt	DVT and PE developed 6-10 days post-op. Pt. Is flaccid and edema free at 4 weeks post op.	pulmonary embolism	1 / 1
13157/1	1	5 / 5	48,96,144,192 ,240	idiopathic	cavernosaphenous shunt	DVT and PE developed 6-10 days post-op. Pt. Is flaccid and edema free at 4 weeks post op.	DVT	1 / 1
Total Groups:	2	Total patients:	2				Side effect totals:	2 / 2

Cavernosaphenous Shunt Side Effects — edema

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
13117/1	1	3 / 3	24,,60/0	following rectal exam	penile injection (heparin infusion for 5 days), cavernosaphenous shunt	heparin infusion part of shunt procedure	penile edema	1 / 1
Total Groups:	1	Total patients:	1				Side effect totals:	1 / 1

Cavernosaphenous Shunt Side Effects — fibrosis

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
13021/8	1	1 / 1		hematologic malignancy[chronic granulocytic leukemia]	cavernosaphenous shunt	shunt followed by leukapheresis times 4 and busulfan and hydroxyurea. Imperfect intercourse achieved.	fibrous corpus	1 / 1
13061/1	1	3 / 3	,132,133	trauma[auto transmission falling on perineum]	cavernosaphenous shunt	side effects at 6 months. Fibrotic mass was then excised. Originally coded as shunt from corpora to deep dorsal penile vein.	2 cm fibrotic mass in corpora	1 / 1
13090/2	1	2 / 2	72,192	idiopathic	cavernosaphenous shunt		induration at base of penis	1 / 1
13117/1	1	3 / 3	24,,60/0	following rectal exam	penile injection (heparin infusion for 5 days), cavernosaphenous shunt	heparin infusion part of shunt procedure	persistent penile induration	1 / 1
13135/2	1	4 / 4	24,36,48,192	anticoagulation [warfarin, heparin]	cavernosaphenous shunt	shunt reopened. No erections at 1 month	corporal fibrosis	1 / 1
13144/4	1	1 / 1	36? Lost in gutter	idiopathic	irrigation and drainage, cavernosaphenous shunt	"partially potent". Time of treatment lost in article gutter-36 hours is best guess	shaft induration	1 / 1
13166/1	1	1 / 1	96	idiopathic, prolonged eroticism	cavernosaphenous shunt		moderate fibrosis	1 / 1
13166/2	1	1 / 1	36	sickle cell disease	cavernosaphenous shunt		moderate fibrosis	1 / 1
13166/3	1	1 / 1	96	idiopathic, prolonged eroticism	cavernosaphenous shunt		moderate fibrosis	1 / 1
800009/1	1	6 / 6	84,108,,276,,	idiopathic, pneumonia	cavernosaphenous shunt, subcutaneous heparin, blood pressure cuff	Delay in erection counted as impotent.	induration at base of corpora	1 / 1

Total Groups: 10 Total patients: 10 Side effect totals: 10 / 10

Cavernosaphenous Shunt Side Effects — hematoma/echymoses

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
13004/1	1	5 / 6	24,32,34,38,40	idiopathic	cavernosaphenous shunt, compression dressing, heparin calcium		hematoma	1 / 1
13021/8	1	1 / 1		hematologic malignancy[chronic granulocytic leukemia]	cavernosaphenous shunt	shunt followed by leukapheresis times 4 and busulfan and hydroxyurea. Imperfect intercourse achieved.	hematoma	1 / 1
13117/2	1	1 / 1	33	idiopathic	cavernosaphenous shunt, heparin, systemic	resolution was delayed and occurred after heparin which resulted in the hematoma.	scrotal hematoma	1 / 1
13135/2	1	3 / 4	24,36,48	anticoagulation [warfarin, heparin]	cavernosaphenous shunt	right side shunt only. Partial resolution with full recurrence 6 days later as shunt thrombosed.	hematoma, groin	1 / 1
Total Groups:	4	Total patients:	4				Side effect totals:	4 / 4

Cavernosaphenous Shunt Side Effects — hemorrhage

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
13090/2	1	2 / 2	72,192	idiopathic	cavernosaphenous shunt		2 units of blood transfused post-op for anemia	1 / 1
Total Groups:	1	Total patients:	1				Side effect totals:	1 / 1

Cavernosaphenous Shunt Side Effects — infection

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
13037/1	8	1 / 1		drug induced [calcium heparinate], hematologic malignancy[leukemia], idiopathic, HCG injections	cavernosaphenous shunt	6 pts. had bilateral shunts, 2 unilateral shunts. Disease cause is different for all. Pt. with leukemia had had chemotherapy, streptokinase and X-ray before admission. Pt with recurrence 2nd day with repeated shunt. 2 pts. had delayed resolution.	corpus suppuration	1 / 8
13062/3	1	1 / 1	360	sickle cell disease	cavernosaphenous shunt	bilateral shunt, lost to follow-up	slight wound infection	1 / 1
13095/4	1	2 / 3	,72	hematologic malignancy[chronic granulocytic leukemia]	aspiration, cavernosaphenous shunt	Procedure done in Mexico City prior to transfer to New York.	wound infection	1 / 1
13117/1	1	3 / 3	24,,60/0	following rectal exam	penile injection (heparin infusion for 5 days), cavernosaphenous shunt	heparin infusion part of shunt procedure	wound infection	1 / 1
13136/2	1	2 / 2	96,168	idiopathic, alcoholism	cavernosaphenous shunt, dextran and dicumarol	moderate erection insufficiency	moderate wound infection	1 / 1
Total Groups:	5	Total patients:	12				Side effect totals:	5 / 12

Cavernosaphenous Shunt Side Effects — pain

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
13061/1	1	3 / 3	,132,133	trauma[auto transmission falling on perineum]	cavernosaphenous shunt	side effects at 6 months. Fibrotic mass was then excised. Originally coded as shunt from corpora to deep dorsal penile vein.	genital pain	1 / 1
13090/1	1	2 / 2	72,	idiopathic	cavernosaphenous shunt		pain at site of saphenous mobilization	1 / 1
Total Groups:	2	Total patients:	2				Side effect totals:	2 / 2

Cavernosaphenous Shunt Side Effects — penile necrosis

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
13037/1	8	1 / 1		drug induced [calcium heparinate], hematologic malignancy[leukemia], idiopathic, HCG injections	cavernosaphenous shunt	6 pts. had bilateral shunts, 2 unilateral shunts. Disease cause is different for all. Pt. with leukemia had had chemotherapy, streptokinase and X-ray before admission. Pt with recurrence 2nd day with repeated shunt. 2 pts. had delayed resolution.	prepucian sloughing	1 / 8
Total Groups:	1	Total patients:	8				Side effect totals:	1 / 8

Cavernosaphenous Shunt Side Effects — thrombosed shunt

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
13090/3	1	2 / 3	28,	idiopathic	cavernosaphenous shunt		thrombosis of vein conduit	1 / 1
Total Groups:	1	Total patients:	1				Side effect totals:	1 / 1

Cavernosaphenous Shunt Side Effects — urethral fistula

Ref. Num. Group	# Pats.	Treat. # Max treat.	Time Sequence	Cause	Therapy	Comments	Side effect	x / y
13115/1	1	2 / 2	,504/1	thallasemia major	cavernosaphenous shunt	The stricture required urethrotomy. fistula predated this treatment, but stricture developed following this treatment.	urethrocavernous fistula requiring cytostomy	1 / 1
Total Groups:	1	Total patients:	1				Side effect totals:	1 / 1

Appendix 6: Summary Reports

Nonischemic (Arterial) Priapism

	Groups/ Patients	Resolution	Recurrence	Erectile Dysfunction
Observation	13/13	8/13 62%	0/5 0%	3/9 33%
Aspiration	7/7	0 / 7 0%	0 / 1 0%	0 / 1 0%
Irrigation and Drainage	9/9	0 / 9 0%	/	/
Embolization and Ligation:				
Embolization - Temporary	49/61	45 / 61 74%	3 / 22 14%	2 / 38 5%
Embolization - Permanent	20/22	18 / 23 78%	0 / 8 0%	7 / 18 39%
Arterial Ligation	8/8	5 / 8 63%	0 / 7 0%	3 / 6 50%
Shunts:				
Al-Ghorab	3/3	1 / 3 33%	1 / 1 100%	/
Winter	11/11	1 / 11 9%	1 / 1 100%	/
Quackles	4/4	1 / 4 25%	/ 0%	0 / 1
Grayhack	7/7	5 / 7 71%	2 / 3 67%	2 / 4 50%

Ischemic Priapism

	Groups/ Patients	Resolution	Recurrence	Erectile Dysfunction
Aspiration	49/59	21 / 59 36%	1 / 4 25%	4 / 14 29%
Irrigation and Drainage	52/121	29 / 121 24%	0 / 9 0%	7 / 14 50%
<u>Injection with Sympathomimetics (with aspiration):</u>				
Epinephrine	29/123 3%	98 / 115 85%	2 / 11	1 / 29 18%
Metaraminol	19/36	25 / 36 69%	/	0 / 1 0%
Norepinephrine	10/10	3 / 10 30%	/	/
Phenylephrine	19/37	28 / 36 78%	4 / 5 80%	0 / 1 0%
Unspecified	2/2	0 / 2 0%	/	/
Total	**79/208**	**154 / 199 77%**	**6 / 16 38%**	**1 / 31 3%**
<u>Penile Injection with Sympathomimetics (no aspiration):</u>				
Epinephrine	1/17	9 / 17 53%	/	/
Metaraminol	3/4	3 / 4 75%	/	/
Norepinephrine	1/13	7 / 13 54%	/	/
Phenylephrine	9/65	38 / 65 58%	0 / 1 0%	0 / 1 0%
Total	**14/99**	**57 / 99 58%**	**0 / 1 0%**	**0 / 1 0%**

Ischemic Priapism (cont.)

	Groups/ Patients	Resolution	Recurrence	Erectile Dysfunction
Penile Injection with Sympathomimetics (overall):				
Epinephrine	31/141	108 /133 81%	2 / 11 18%	1 / 29 3%
Metaraminol	22/40	28 / 40 70%	/	0 / 1 0%
Norepinephrine	11/23	10 / 23 43%	/	/
Phenylephrine	28/102	66 / 101 65%	4 / 6 67%	0 / 2 0%
Unspec. Sympathomimetics	2/2	0 / 2 0%	/	/
Other Penile Injections:				
Heparin	23/65	22/66 33%	1/14 7%	12/16 65%
Shunts:				
Al-Ghorab	11/23	17 / 23 74%	/ 25%	2 / 8
Ebbehøj	15/52	37 / 51 73%	1 / 1 100%	1 / 7 14%
Winter	79/235	131 / 200 66%	4 / 24 17%	18 / 71 25%
Quackles	69/142	108 /141 77%	4 / 27 15%	40 / 81 49%
Grayhack	83/160	119 / 157 76%	5 / 27 19%	48 / 92 52%

Ischemic Priapism (cont.)

	Groups/ Patients	Resolution	Recurrence	Erectile Dysfunction
Oral therapies:				
Phenylpropanolamine	1/1	0/1 0%	/	/
Psuedoephedrine	1/1	0/1 0%	/	/
Terbutaline	6/23	15/23 65%	1/6 17%	/

Ischemic Priapism – Drug Induced

	Groups/ Patients	Resolution	Recurrence	Erectile Dysfunction
Aspiration	2/2	1 / 2 50%	1 / 1 100%	0 / 1 0%
Irrigation and Drainage	6/6	0 / 6 0%	/	/
<u>Penile Injection with Sympathomimetics</u>				
Epinephrine	1/1	1 / 1 100%	0 / 1 0%	/
Norepinephrine	3/3	0 / 3 0%	/	/
Phenylephrine	4/4	3 / 4 75%	1 / 2 50%	0 / 2 0%
<u>Shunts</u>:				
Al-Ghorab	1/1	1 / 1 100%	/	/
Winter	7/10	5 / 8 63%	/	4 / 8 50%
Quackles	5/5	5 / 5 100%	1 / 2 50%	2 / 3 67%
Grayhack	1/1	1 / 1 100%	0 / 1 0%	0 / 1 0%
<u>Oral Therapies:</u>				
Terbutaline	1/1	1/1 100%	1/1 100%	/

Ischemic Priapism – Patients with a Hematologic Malignancy

	Groups/ Patients	Resolution	Recurrence	Erectile Dysfunction
Patients Aspiration	9/9	/ 9 11%	0 / 2 0%	2 / 2 100%
Patients Irrigation and Drainage	4/6	3 / 6 50%	/	3 / 3 100%
Penile Injection with Sympathomimetics				
Epinephrine	3/3	2 / 3 67%	0 / 1 0%	1 / 2 50%
Metaraminol	1/1	1 / 1 100%	/	/
Shunts:				
Winter	1/1	1 / 1 100%	0 / 1 0%	1 / 1 100%
Quackles	1/1	1 / 1 100%	0 / 1 0%	1 / 1 100%
Grayhack	5/5	4 / 5 80%	/	2 / 2 100%
Malignancy specific treatments:				
Chemical Cancer Therapy	15/15	3 / 15 20%	0 / 2 0%	5 / 5 100%
Hydroxyurea	1/1	0 / 1 0%	/	/
Pheresis Procedures	4/4	3 / 4 75%	0 / 1 0%	1 / 1 100%

Ischemic Priapism – Idiopathic

	Groups/ Patients	Resolution	Recurrence	Erectile Dysfunction
Aspiration	7/11	5 / 11 45%	/	0 / 5 0%
Irrigation and Drainage	16/21	9 / 21 43%	0 / 6 0%	3 / 9 33%
<u>Penile Injection with Sympathomimetics</u>				
Epinephrine	5/13	2 / 5 40%	2 / 3 67%	0 / 2 0%
Norepinephrine	2/2	0 / 2 0%	/	/
Phenylephrine	5/41	19 / 41 46%	/	/
Unspec. Sympathomimetic	1/1	0 / 1 0%	/	/
<u>Shunts</u>:				
Al-Ghorab	2/2 50%	1 / 2	/	/
Ebbehøj	3/3	3 / 3 100%	1 / 1 100%	0 / 2 0%
Winter	20/32	17 / 23 74%	2 / 8 25%	5 / 21 24%
Quackles	17/19	9 / 19 47%	0 / 1 0%	8 / 13 62%
Grayhack	23/23	20 / 23 87%	2 / 7 29%	7 / 17 41%
<u>Oral Therapies:</u>				
Phenylpropanolamine	1/1	0/1 0%	/	/
Terbutaline	1/1	0/1 0%	/	/

Ischemic Priapism – Due to Penile Injection

	Groups/ Patients	Resolution	Recurrence	Erectile Dysfunction
Aspiration	6/11	8 / 11 73%	/	0 / 1 0%
Irrigation and Drainage	2/13	0 / 13 0%	/	/
<u>Penile Injection with Sympathomimetics</u>				
Epinephrine	7/63	60 / 63 95%	/	/
Metaraminol	15/32	24 / 32 75%	/	0 / 1 0%
Norepinephrine	1/1	1 / 1 100%	/	/
Phenylephrine	5/11	9 / 11 82%	1 / 2 50%	/
<u>Oral Therapies:</u>				
Terbutaline	4/21	14/21 67%	0/5 0%	/

Ischemic Priapism – Patients with Sickle Cell Disease or Trait

	Groups/ Patients	Resolution	Recurrence	Erectile Dysfunction
Aspiration	6/7	3 / 7 43%	/	2 / 3 67%
Irrigation and Drainage	7/12	0 / 12 0%	/	1 / 1 100%
<u>Penile Injection with Sympathomimetics</u>				
Epinephrine	2/15	13 / 15 87%	0 / 6 0%	0 / 10 0%
Norepinephrine	1/1	0 / 1 0%	/	/
Phenylephrine	6/6	2 / 5 40%	2 / 2 100%	/
Unspec. Sympathomimetic	1/1	0 / 1 0%	/	/
<u>Shunts</u>:				
Grayhack	7/7	4 / 7 57%	/	1 / 4 25%
Quackles	15/15	10 / 15 67%	0 / 3 0%	0 / 8 0%
Ebbehøj	1/5	5 / 5 100%	/	0 / 3 0%
Winter	10/10	4 / 10 40%	2 / 3 67%	0 / 2 0%

Ischemic Priapism – Patients with Sickle Cell Disease or Trait (cont.)

	Groups/ Patients	Resolution	Recurrence	Erectile Dysfunction
Sickle cell specific treatments:				
Exchange Transfusions	19/24	6 / 24 25%	0 / 3 0%	1 / 2 50%
Hydration	9/17	5 / 17 29%	1 / 1 100%	0 / 2 0%
IV Alkalinization	2/2	0 / 2 0%	/	/
Oxygen	1/1	0 / 1 0%	/	/
Transfusions	17/27	10 / 27 37%	1 / 4 25%	0 / 10 0%
Urea	1/1	1 / 1 100%	1 / 1 100%	/

Treatment Side Effects

All Side Effects Penile Injection with Sympathomimetics

Epinephrine:

Cardiovascular	Groups:	2	Patients:	2	Outcome totals:	2 / 2
Fibrosis	Groups:	3	Patients:	3	Outcome totals:	3 / 3
Hematoma/ecchymoses	Groups:	1	Patients:	8	Outcome totals:	1 / 8
Pain	Groups:	1	Patients:	1	Outcome totals:	0 / 1
Penile necrosis	Groups:	1	Patients:	1	Outcome totals:	0 / 1
Urinary retention	Groups:	1	Patients:	1	Outcome totals:	1 / 1

Metaraminol

Cardiovascular	Groups:	1	Patients:	1	Outcome totals:	1 / 1
Fibrosis	Groups:	2	Patients:	2	Outcome totals:	1 / 2
No complication	Groups:	1	Patients:	1	Outcome totals:	1 / 1
Pain	Groups:	1	Patients:	1	Outcome totals:	1 / 1
Tachycardia	Groups:	1	Patients:	1	Outcome totals:	1 / 1

Norepinephrine:

Cardiovascular	Groups:	2	Patients:	2	Outcome totals:	2 / 2
Fibrosis	Groups:	1	Patients:	1	Outcome totals:	1 / 1

Phenylephrine:

Arrhythmia	Groups:	2	Patients	8	Outcome totals:	0 / 8
Fibrosis	Groups:	1	Patients	1	Outcome totals:	1 / 1
Hematoma/ecchymoses	Groups:	2	Patients	8	Outcome totals:	2 / 8
Pain	Groups:	1	Patients	1	Outcome totals:	0 / 1
Penile necrosis	Groups:	1	Patients	1	Outcome totals:	0 / 1
Tachycardia	Groups:	3	Patients	28	Outcome totals:	1 / 28

Treatment Side Effects (cont.)

CardiovascularSide Effects Totals – Penile Injection with Sympathomimetics

Epinephrine	Groups:	2	Patients:	2	Outcome totals:	2 / 2
Metaraminol	Groups:	2	Patients:	2	Outcome totals:	2 / 2
Norepinephrine	Groups:	2	Patients:	2	Outcome totals:	2 / 2
Phenylephrine	Groups:	5	Patients:	36	Outcome totals:	1 / 36

Treatment Side Effects (cont.)

Shunt Side Effects:

Al-Ghorab

Significant complication	Groups:	1	Patients:	3	Outcome totals:	0 / 3
Urethral fistula	Groups:	1	Patients:	3	Outcome totals:	0 / 3

Ebbehøj

Fibrosis	Groups:	2	Patients	2	Outcome totals:	2 / 2
Infection	Groups:	1	Patients	1	Outcome totals:	1 / 1

Winter

Cardiovascular	Groups:	1	Patients	1	Outcome totals:	1 / 1
Edema	Groups:	1	Patients	17	Outcome totals:	2 / 17
Epididymitis	Groups:	1	Patients	17	Outcome totals:	1 / 17
Fibrosis	Groups:	2	Patients	2	Outcome totals:	2 / 2
Hematoma/ecchymoses	Groups:	1	Patients	17	Outcome totals:	3 / 17
Infection	Groups:	2	Patients	5	Outcome totals:	2 / 5
Penile necrosis	Groups:	3	Patients	35	Outcome totals:	3 / 35
Significant complication	Groups:	4	Patients	13	Outcome totals:	0 / 13
Urethral fistula	Groups:	3	Patients	23	Outcome totals:	2 / 23
Urethral stricture	Groups:	1	Patients	1	Outcome totals:	1 / 1

Caverno-spongious (Quackles)

Death	Groups:	1	Patients:	3	Outcome totals:	1 / 3
Fibrosis	Groups:	4	Patients:	4	Outcome totals:	4 / 4
Hypoesthesia	Groups:	1	Patients:	1	Outcome totals:	1 / 1
Infection	Groups:	3	Patients:	15	Outcome totals:	3 / 15
Pain	Groups:	1	Patients:	1	Outcome totals:	1 / 1
Penile necrosis	Groups:	2	Patients:	4	Outcome totals:	2 / 4
Urethral fistula	Groups:	8	Patients:	34	Outcome totals:	11 / 34

Treatment Side Effects (cont.)

Caverno-saphenous (Grayhack)

Cardiovascular	Groups:	2	Patients:	2	Outcome totals:	2 / 2
Edema	Groups:	1	Patients:	1	Outcome totals:	1 / 1
Fibrosis	Groups:	10	Patients:	10	Outcome totals:	10 / 10
Hematoma/ecchymoses	Groups:	4	Patients:	4	Outcome totals:	4 / 4
Hemorrhage	Groups:	1	Patients:	1	Outcome totals:	1 / 1
Infection	Groups:	5	Patients:	12	Outcome totals:	5 / 12
Pain	Groups:	2	Patients:	2	Outcome totals:	2 / 2
Penile necrosis	Groups:	1	Patients:	8	Outcome totals:	1 / 8
Thrombosed shunt	Groups:	1	Patients:	1	Outcome totals:	1 / 1
Urethral fistula	Groups:	1	Patients:	1	Outcome totals:	1 / 1