

Appendix II

Summary of evidence regarding the test characteristics for radiologic tests for the identification of high grade UTUC.			
Author, Year Sample size Study Design RoB	Key Inclusion Criteria	Diagnostic test Reference standard	Results: Diagnostic accuracy for identifying HG disease and/or association of test result with HG disease (95% CI, unless otherwise indicated)
Mammen, ⁴⁶ 2018 N=48 (with 49 UTUCs) Retrospective [chart review] Moderate	UTUC with RNU	Test: CT Reference: Final surgical pathology results	Findings on CT Appearance: filling defect or mass vs. wall thickening or stricture Sensitivity: 86% (73% to 95%) Specificity: 20% (51% to 72%) PPV: 90% (86% to 94%) NPV: 14% (2% to 53%) Margin: spiculated vs. smooth Sensitivity: 50% (35% to 65%) Specificity: 80% (28% to 99%) PPV: 96% (79% to 99%) NPV: 15% (10% to 24%) Collecting system: Dilated vs. non-dilated Sensitivity: 43% (28% to 59%) Specificity: 60% (15% to 95%) PPV: 90% (76% to 97%) NPV: 11% (5% to 20%) Texture: heterogeneous vs. homogeneous Sensitivity: 70% (55% to 83%) Specificity: 100% (48% to 100%) PPV: 100% (NA) NPV: 28% (20% to 38%) Calcification vs. no calcification Sensitivity: 14% (5% to 27%) Specificity: 100% (48% to 100%) PPV: 100% (NA) NPV: 12% (10% to 13%)
Ng, ⁴⁷ 2011 N=106 Retrospective [chart review] Moderate	UTUC with RNU	Test: CT (ipsilateral hydronephrosis) Reference: Final surgical pathology results	Sensitivity: 40% (26% to 56%) Specificity: 66% (53% to 78%) PPV: 49% (37% to 61%) NPV: 58% (51% to 65%) Hydronephrosis on CT was not significantly associated with HG (chi-squared test, p=0.49)
Almas, ⁴⁹ 2021 N=176 (CT); N=60 (cytology) Retrospective [chart review] High	UTUC with RNU	Test: CT (n=176) Test: Urinary cytology (n=60; 43 with sample during ureteroscopy) Reference: Final surgical pathology results	CT for predicting NOCD (\geq pT3 and/or N+)[n=176] Local invasion on CT: Sensitivity: 49% Specificity: 85% Pathological lymph nodes on CT: Sensitivity: 22% Specificity: 98% Urine cytology Presence of NOCD according to presence of malignant cells on cytology: OR 1.84 (95% CI: 0.55 to 6.14), p=0.3
Scolieri, ⁴⁸ 2000 N=37 Retrospective [chart review] Moderate	UTUC with RNU or distal ureterectomy	Test: CT Reference: Final surgical pathology results	For HS (\geq pT3) Sensitivity: 28% (8% to 76%) Specificity: 100% (88% to 100%) PPV: 100% (NA) NPV: 85% (77% to 91%) CT failed to detect 34% (10/29) of tumors staged <pT3, which was treated as <T3 on CT for the above measures of diagnostic accuracy
Yu, ⁵⁰ 2021 N= 125 Retrospective [chart review] Low	UTUC with RNU with MDCTU	MDCTU	For HS (\geq pT3) Sensitivity: 75% (59% to 87%) Specificity: 84% (74% to 91%) PPV: 68% (56% to 78%) NPV: 88% (80% to 92%)