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Tsili, A.C.^a, Varkarakis, I.^b, Pasoglou, V.^c, Anagnostou, N.^a, Argyropoulou, M.I.^a

CT of the urinary tract revisited
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^a Department of Clinical Radiology, School of Health Sciences, Faculty of Medicine, University of Ioannina, Ioannina, 45110, Greece
^b 2nd Department of Urology, National and Kapodistrian University of Athens, Sismanoglio Hospital, Athens, Greece
^c Department of Radiology, Centre du Cancer et Institut de Recherche Experimentale et Clinique (IREC), Cliniques Universitaires Saint Luc, Universite catholique de Louvain, Brussels, Belgium

Abstract
Computed tomography (CT) of the abdomen is usually appropriate for the initial imaging of many urinary tract diseases, due to its wide availability, fast scanning and acquisition of thin slices and isotropic data, that allow the creation of multiplanar reformatted and three-dimensional reconstructed images of excellent anatomic details. Non-enhanced CT remains the standard imaging modality for assessing renal colic. The technique allows the detection of nearly all types of urinary calculi and the estimation of stone burden. CT is the primary diagnostic tool for the characterization of an indeterminate renal mass, including both cystic and solid tumors. It is also the modality of choice for staging a primary renal tumor. Urolithiasis and urinary tract malignancies represent the main urogenic causes of hematuria. CT urography (CTU) improves the visualization of both the upper and lower urinary tract and is recommended for the investigation of gross hematuria and microscopic hematuria, in patients with predisposing factors for urologic malignancies. CTU is highly accurate in the detection and staging of upper tract urothelial malignancies. CT represents the most commonly used technique for the detection and staging of bladder carcinoma and the diagnostic efficacy of CT staging improves with more advanced disease. Nevertheless, it has limited accuracy in differentiating non-muscle invasive bladder carcinoma from muscle-invasive bladder carcinoma. In this review, clinical indications and the optimal imaging technique for CT of the urinary tract is reviewed. The CT features of common urologic diseases, including ureterolithiasis, renal tumors and urothelial carcinomas are discussed. © 2023 Elsevier B.V.

Author Keywords
Computed tomography; Kidney neoplasms; Transitional cell carcinoma; Urinary bladder cancer; Urinary calculi

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Correspondence Address
Tsili A.C.; Department of Clinical Radiology, Greece; email: atsili@uoi.gr

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