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A Comparative Study of Plain Radiography, Ultrasound and Static MR Urography in Evaluation of Urinary Tract Pathologies

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Abstract

Background: Several techniques are available for the imaging of the urinary tract. CT urography, MR urography is used for assessment of urinary collecting system, renal parenchyma, and adjacent structures. Recently, interest has grown for increased use of MR urography for imaging the urinary tract pathologies. The present study aimed to evaluate patients presenting with suspected urinary tract abnormalities using plain radiography, ultrasonography, and static MR urography. **Methods:** This is a prospective comparative study done in the Department of Radio-Diagnosis, Prathima Institute of medical sciences Karimnagar, Telangana State, India. Data for the study were collected from patients with clinically suspected urinary tract pathologies undergoing plain X-ray KUB, ultrasonography and static MR urography in our Department. A total of n=60 patients were included based on the inclusion and exclusion criteria. Patients were selected based on their symptoms and clinical findings suggestive of urinary tract abnormalities such as loin pain, hematuria, edema, and congenital urinary tract anomalies. **Results:** The most common presentation was presence of loin pain in n=32(47.70%) followed by nausea and vomiting in n=10(14.90%) patients. The urinary tract abnormalities among the population shows the presence of obstructive calculi in n=30(50%) of patients followed by congenital abnormalities in n=18(%). In our study, most common site of obstruction of calculi was found to be PUJ followed by lower ureter. The presence of hydernephrosis was found in n=30 patients, out of the n=30 patients mild hydronephrosis was found in n=10(33.3%) of patients. Moderate hydronpehrosis was found in n=15(50%) of patients and severe hydronephrosis was found in n=5(16.7%) of patients. **Conclusion:** The role of MR Urography in renal and urothelial imaging continues to emerge. MRU is a particularly useful technique for pregnant females, pediatric patients, cardiac patients and those with renal impairment. MRU is preferable to X-ray and ultrasound in the assessment of collecting systems in case of obstruction, diagnosis, and staging of urothelial malignancies and assessment of renal function.