

NEPHROLOGY - II

NUCLEAR IMAGING IN PEDIATRIC NEPHROLOGY

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Abstract: Scintigraphic imaging is long in use for the assessment of nephron-urological functional status and even as a plethora of other imaging options exist, until date-most of the functional diagnostic capacity lies with nuclear medicine modalities. In the pediatric age group, with higher prevalence of congenital anomalies and functional defects, adequate renal assessment can be achieved with renal diuretic scintigraphy, cortical imaging and radionuclide cystography. Also of relevance in present scenario are multiple newer advances in nuclear medicine allowing therapeutic approach for pediatric tumors. This article aims at providing brief information on all the above modalities from a clinician's perspective.

Keywords: Diuretic renal scintigraphy, Pelviureteric junction obstruction, Vesicoureteric reflux, Cortical imaging.

Points to Remember

- Nuclear medicine imaging provides functional data for the diagnosis and treatment of children with suspected genitourinary tract issues.
- Diuretic renal scintigraphy helps in assessing the functional aspect of the kidney and significance of the obstruction, rather than just the morphological aspect.
- ^{99m}Tc-DMSA renal cortical scintigraphy is currently the investigation of choice in the assessment of renal parenchymal integrity and provides the most reliable information on differential renal function.
- Studies have shown equal or more sensitivity of radionuclide cystography over MCU for detection of VUR, with the additional benefit of lesser radiation exposure to the gonads.
- The precise role of ¹⁸F-FDG PET/CT imaging in pediatric renal tumors has not yet been well defined, however it is a whole-body scan, allowing all organs to be evaluated in a single-step examination, thereby aiding in metastatic workup.

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