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**Original Article**

**THE IMPORTANCE OF 99m-Tc DMSA RENAL SCINTIGRAPHY IN EVALUATION OF RENAL LESIONS IN CHILDREN WITH ACUTE PYELONEPHRITIS**

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**Abstract:**

Urinary tract infection (UTI) may lead to irreversible changes in renal parenchyma. Early diagnosis using scintigraphy with technetium-99<sup>m</sup>-labeled dimercaptosuccinic acid (DMSA) scan and early treatment may decrease or prevent development of renal parenchymal lesions. The aim of this study was to assess the occurrence of renal parenchymal lesion in children admitted with a first-time symptomatic UTI and to evaluate the relation between renal parenchymal damage and severity of vesicoureteral reflux (VUR). A total of 102 children with first time acute pyelonephritis (APN) were enrolled in the study. All children studied with DMSA scan and ultrasonography (US). Voiding cystourethrography (VCUG) was performed in 98 children when urine culture became negative. Changes on the DMSA scan and US were found in 178 (88%) and 5 (2.4%) out of 203 renal units during the acute phase, respectively. All abnormal renal units on US showed severe parenchymal involvement on DMSA. We also found significant correlation between severity of VUR and abnormal US results on kidneys. Of 40 kidneys with reflux, 38 (95%) were found to have abnormal renal scan. Among 155 kidneys with non-refluxing ureters 132 (85.2%) revealed parenchymal changes on renal cortical scintigraphy. Kidneys with moderate to severe reflux were more likely to have severe renal involvement. We found a high incidence of renal parenchymal changes in children with APN. Additionally, renal involvement was significantly higher in children with moderate to severe reflux. When there are high-grade VUR and female gender, the risk of renal parenchymal involvement is higher.

**Keywords:**

[Acute pyelonephritis](#) . [dimercaptosuccinic acid scan](#) . [vesicoureteral reflux](#) . [ultrasonography](#)

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