Annals of Nuclear Medicine Vol. 5, No. 1, 29–34, 1991

# Single photon emission computed tomography with Tc-99m-dimercaptosuccinic acid in patients with upper urinary tract infection and/or vesicoureteral reflux

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By means of Tc-99m dimercaptosuccinic acid (DMSA) scintigraphy, an established method for assessing renal cortical damage, we evaluated the pick-up rate for renal defects (scars) by single photon computed tomography (SPECT) and planar images of 10 normal volunteers, and 58 patients (70 scintigrams) with upper urinary tract infections, most of whom had a history of vesicoureteral reflux (VUR). The positive study rate for renal defects depended on the severity of VUR. The overall positive rates for renal cortical defects obtained by DMSA SPECT imaging and DMSA planar imaging were 60% and 43%, respectively, and the difference between these was significant ($p<0.005$). The mean absolute individual renal uptake (/injected dose) at 2 hours post-injection was decreased in kidneys with defects detected by SPECT alone. The positive study rate for intravenous urography (IVU) depended on the grade of VUR and was 15% overall.

DMSA SPECT imaging detects renal cortical defects at greater frequency than previously achieved.

**Key words:** Tc-99m dimercaptosuccinic acid (DMSA), single photon emission tomography (SPECT), urinary tract infection, vesicoureteral reflux, scarring