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## ISOTOPE RENOGRAMS IN A LACTATING MOTHER AND A SMALL INFANT

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### ABSTRACT

Usually we do not perform the nuclear medicine investigations in pregnant women, lactating mothers and neonates. However, in some critical situations we are compelled to do these with good results as depicted by two isotope renograms, one in a lactating mother and another in a small infant of age 3 months. We report these cases considering their rarity.

### INTRODUCTION

Individual kidney functions are best assessed by DTPA renogram (diethylene triamine pentaacetic acid labelled with <sup>99m</sup>Tc), and the radiation dose is only one-tenth of plain X-ray and one-hundredth of intravenous urography (IVU). Excretion of radioactivity in breast-milk was noted following injection of <sup>99m</sup>Tc-DTPA, however, isotope renogram was done usefully in lactating mother and neonates in England and U.S.A..<sup>1,2,3</sup> Before a radiopharmaceutical is administered to a woman of child-bearing age, it is important to find out (a) if the woman is pregnant or (b) if she is breast-feeding and infant.<sup>4</sup> Recommendations applicable after the administration of radiopharmaceuticals to a nursing mother often specify that she should discontinue nursing, either of a limited period or completely. Any interruption of a few hours or longer necessitates expression of milk to avoid discomfort of congestion. Not every mother is able to express milk effectively. After a prolonged interruption it may be very difficult to resume feeding. It is therefore vital to disturb the breast feeding routine as little as possible. The biological

half-life of <sup>99m</sup>Tc-DTPA is only 1-2 h due to the fast excretion by the kidney<sup>5</sup> and one would expect little activity to be available for transference into the milk.

### CASE REPORT 1

A woman of 25 years came with complaint of pain in the left lower abdomen. She had a baby of 4 months by Caesarean section (in a Clinic), but it was not breast-fed due to lactation failure. The gamma camera renogram (Siemens, Germany) done after 5 milli-Curies of <sup>99m</sup>Tc-DTPA, I. V., showed obstruction in left renal tract (27.6%) and normal right kidney (72.4%). (Fig.1)

### CASE REPORT 2

A boy for age 3 months came with a palpable lump in left loin which was increasing gradually over the last 2 months. Renogram (0.5-mCi of <sup>99m</sup>Tc-DTPA I.V.) reveals mild obstruction in left kidney (30.3%) and normal right kidney (69.7%). (Fig.2)

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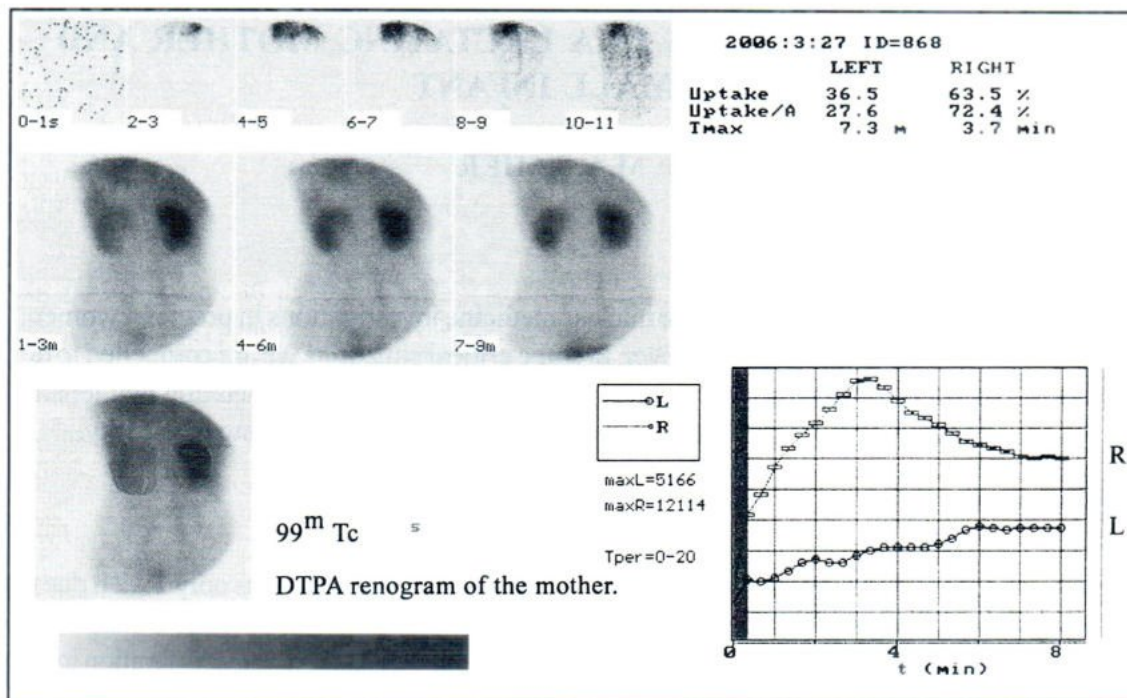


Fig.1 Renogram of Case 1.

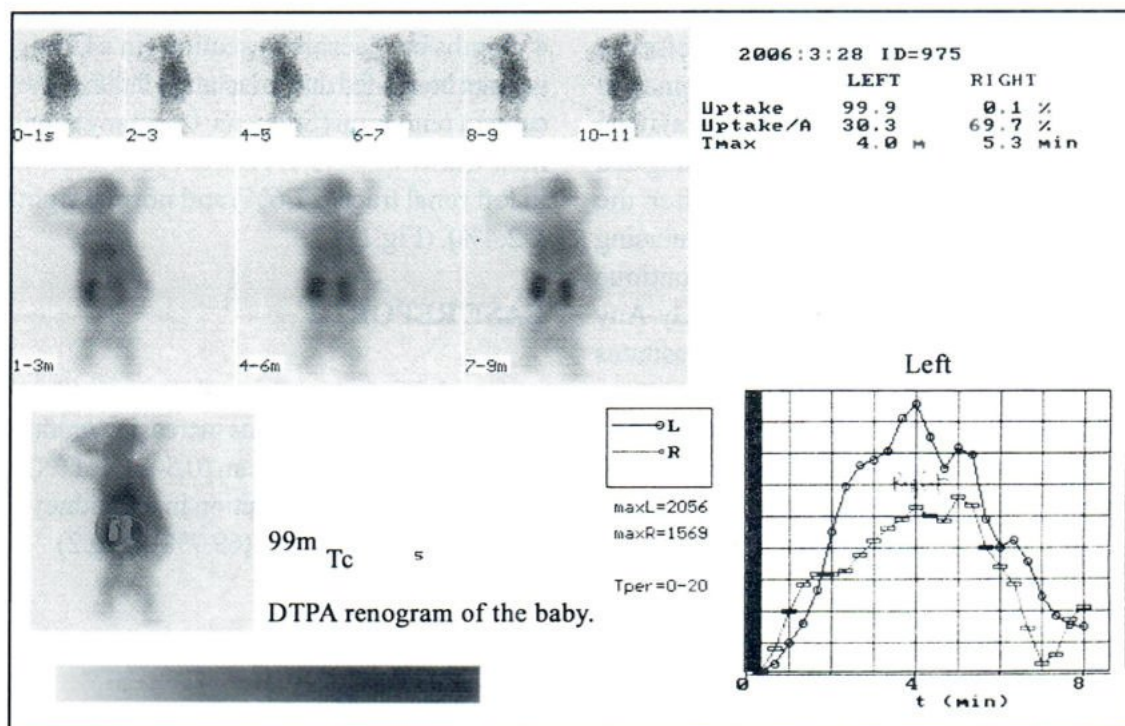


Fig. 2 Renogram of Case 2.



## DISCUSSION

In 1985, Mountford et al<sup>1</sup> performed isotope renogram in a lactating mother for infected renal calculus and Kass et al<sup>2</sup> performed renogram in 34 children aged 1 week to 16 years for hydronephrosis. However, Homsy et al showed that diuresis renograms performed in early infancy correlated poorly with follow-up examination at 3 to 6 months and suggested that the washout response on the initial examination should not be used to determine the need for surgery.<sup>6</sup> Therapeutically Koff and Campbell concluded that most infants whose hydronephrosis was discovered by prenatal ultrasound could be managed non-operatively.<sup>7</sup> Gordon et al questioned the role of surgery because many neonatal hydronephrotic kidneys improved spontaneously and those that did have surgery did not show significant functional improvement.<sup>8</sup> Since 85% to 90% of affected neonates may appear entirely normal on physical examination, prenatal detection of ureteropelvic junction obstruction permits early therapy of a correctable lesion that may otherwise remain unrecognized for years.<sup>9</sup> Obstruction frequently occurs at the ureteropelvic junction, the site of the first bifurcation of the ureteral bud. This represents the most common cause of neonatal hydronephrosis.<sup>10</sup>

## CONCLUSION

DTPA renogram is a reliable investigation to assess individual kidney functions in the initial diagnosis and subsequent follow-ups. As the radiation dose is small, it can be performed in lactating mothers and neonates also quite safely.

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