

# Incidental Detection of Previously Undiagnosed Dextrocardia with a DMSA CT-SPECT Scan Performed for Evaluation of Ectopic Left Kidney

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## Abstract

The purpose of this case report is to describe a case of an incidental detection of previously undiagnosed dextrocardia on a  $^{99m}\text{Tc}$ -Dimercaptosuccinic acid (DMSA) scan.

## Introduction

A  $^{99m}\text{Tc}$ -DMSA scan was performed and due to the findings seen in the planar images, supplement DMSA CT-SPECT scan was acquired, this case highlights the importance of detailed image evaluation for incidental findings, performing supplementary scan and the usefulness of reviewing correlative imaging in arriving at the diagnosis.

## Case Report

A six year old child, who presented with history of fever, the ultrasound demonstrated non-visualization of the left kidney in the left renal fossa or elsewhere in the abdomen and the right kidney was normal in size and position. A  $^{99m}\text{Tc}$ -Dimercaptosuccinic acid (DMSA) scan was performed for detection of ectopic left kidney. DMSA scintigraphy has high sensitivity and specificity for evaluating the ectopic position, cortical function and for diagnosing cortical defects (scar/ pyelonephritis). DMSA scan in this patient revealed normally positioned right kidney, with absent radiotracer concentration in the left renal fossa. On the planar images, there was a mild diffuse increase in radiotracer concentration noted just above the right kidney which rose the suspicion of an ectopic thoracic kidney thus, a DMSA CT-SPECT scan was performed by Millennium Discovery VG Hawkeye dual head gamma camera. The DMSA CT-SPECT images demonstrated a previously undiagnosed dextrocardia

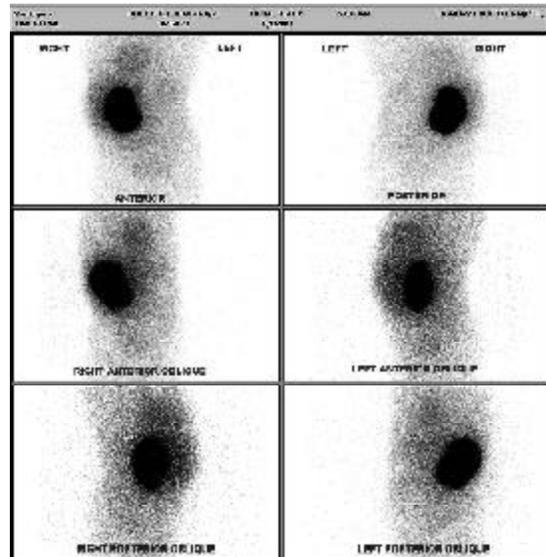


Fig. 1 : Planar Tc-99m Dimercaptosuccinic acid (DMSA) imaging performed 4 hours following the injection of 74 MBq (2 mCi) of Tc-99m DMSA.<sup>4</sup> Anterior, posterior, RAO, LPO, LAO, RPO projections were obtained. The right kidney reveals good cortical function and no evidence of cortical scarring. Absent radiotracer concentration noted in the left renal fossa. Mild diffuse increase in radiotracer concentration noted just above the right kidney, which rose the suspicion of an ectopic thoracic kidney.

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and confirmed absent/non-functioning left kidney. This case exemplifies the relevance of incidental

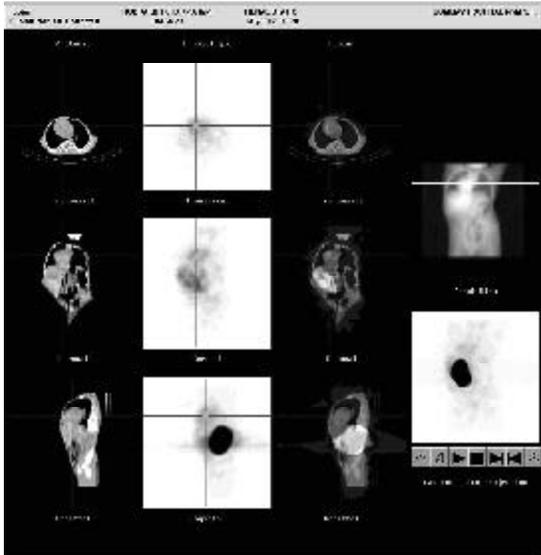


Fig. 2 :CT-SPECT images acquired with FOV including thorax and upper abdomen: In light of the findings seen on the routine view ( in FIGURE 1), the above abnormality was again visualized and was seen to lie just superior to the right kidney in the SPECT images. Assessment with the correlative imaging (CT images) showed that the activity corresponded to the heart in the CT-SPECT fusion images and thus incidentally detected previously undiagnosed dextrocardia.

finding detected by CT-SPECT.

## Discussion

<sup>99m</sup>Tc-Dimercaptosuccinic acid is a cortical scanning agent that localizes in the proximal tubule. It is only minimally excreted and produces images of functioning renal mass.<sup>1</sup> According to Gordon,<sup>2</sup> <sup>99m</sup>Tc-DMSA scan is indicated in children for evaluation and/ or detection of ectopic kidney, renal scars, small kidneys, duplicating collecting systems, renal masses and systemic hypertension. <sup>99m</sup>Tc-DMSA scanning has many advantages over intravenous pyelography (IVP). It offers a lower radiation dose, is not affected by

overlying bowel gas or bones, and avoids possible allergic reactions.<sup>3</sup> Any functioning renal tissue, irrespective of its location, can be visualized by radionuclide renal imaging. Ectopic kidneys, which are often superimposed on bones and may remain obscure on IVP, can be easily demonstrated and differentiated from renal agenesis. This is particularly important in evaluation of girls with paradoxical enuresis secondary to ectopic kidney.<sup>4</sup> V Raman<sup>5</sup> highlighted the importance of detailed image evaluation for any ancillary findings, performing supplementary views and the usefulness of reviewing correlative imaging in arriving at a diagnosis of aortic aneurysm on DMSA scan. Campeau *et al*<sup>6</sup> reported a case of aortic aneurysm detection on <sup>99m</sup>Tc-pyrophosphate imaging.

## References

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