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


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

Introduction

A $^{99m}$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 $^{99m}$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 and confirmed absent/non-functioning left kidney. This case exemplifies the relevance of incidental
discussion

$^{99m}$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.\(^1\) According to Gordon,\(^2\) $^{99m}$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. $^{99m}$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.\(^3\) 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.\(^4\) V Raman\(^5\) 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\(^6\) reported a case of aortic aneurysm detection on $^{99m}$Tc-pyrophosphate imaging.

References