

Imaging Sciences Interesting Cases

CASE 499

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CLINICAL PRESENTATION: Patient is a 60-year-old male, with history of bipolar depression and previous lithium use, now seen for vomiting.

IMAGING FINDINGS: A CT was performed without IV contrast due to low renal function. CT images demonstrated innumerable tiny cysts throughout the renal cortex and medulla. The kidney was slightly atrophic as well.



Figure 1: Axial CT image.



Figure 2: Coronal CT image.



Figure 3: Oblique minimum intensity projection (MinIP) of the left kidney.

DIAGNOSIS: Lithium nephrotoxicity

DISCUSSION: Lithium is the medication of choice for bipolar mood stabilization in the US. Most cases of lithium nephrotoxicity occur within a month of beginning therapy and manifests as polyuria and polydipsia. Initially these symptoms are reversible, but long-term use or high serum levels can cause permanent renal insufficiency. T2WI images usually show innumerable tiny (2-5 mm) cysts throughout the kidney.

The differential consideration for multiple renal cysts should include autosomal dominant polycystic kidney disease (ADPKD) (which usually presents as larger cysts), autosomal recessive polycystic kidney disease (ARPKD) (which occurs in children), tuberous sclerosis (the cysts can be larger, and this is associated with angiomyolipomas), medullary cystic kidney disease and glomerulocystic kidney disease.

MRI can be very helpful for making the diagnosis, especially in the proper clinical setting of lithium use. In many cases, it can replace biopsy.

REFERENCES:

1. Farres MT, Ronco P, Saadoun D, et al. Chronic lithium nephropathy: MR imaging for diagnosis. *Radiology*. 2003 Nov;229(2):570-4. PMID: 14595154 [PubMed]