Clinical History

A 67-year-old man with chronic renal insufficiency and nephrogenic diabetes insipidus.

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Diagnosis

Lithium nephropathy

Lithium nephropathy gives the sonographic appearance of numerous uniformly distributed microcysts and punctuate echogenic foci (red arrows) in normal-size kidneys.

Punctate echogenic foci are most likely secondary to posterior acoustic enhancement behind microcysts, which are below sonographic resolution. Magnetic resonance imaging demonstrates numerous microcysts. Computed tomography may also reveal microcysts.
Lithium, extensively used to treat bipolar depression, can be toxic to many organs. A specific finding seen with chronic lithium-related renal toxicity is tubulointerstitial nephritis, characterized by distal tubular microcysts and interstitial fibrosis. Renal toxicity may manifest as nephrogenic diabetes insipidus, acute toxicity, and chronic renal disease. Nephrogenic diabetes insipidus occurs in about 40% of patients.

Decreasing renal function, evidenced by increasing serum creatinine and decreased creatinine clearance, is seen in chronic lithium nephropathy. An increased duration of lithium therapy increases the risk of progression to end-stage renal disease.
Differential Diagnosis

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- Autosomal dominant polycystic kidney disease;
- Glomerulocystic kidney disease;
- Medullary cystic kidney disease; and
- Acquired cystic kidney disease.
References

