Clinical Images

Crystalline Bone Marrow in Systemic Oxalosis

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Figure 1. Bone marrow biopsy demonstrating extensive calcium oxalate crystal deposition.

A 43-year-old woman with a history of two failed orthotopic kidney transplants, ventricular tachycardia, and recurrent nephrolithiasis underwent a bone marrow biopsy during an evaluation for refractory anemia. The aspirate revealed extensive crystal deposition with nearly absent residual hematopoiesis (Fig. 1). The crystals were birefringent under polarized light (Fig. 2) suggestive of calcium oxalate. The plasma oxalate level was elevated at 42.8 $\mu\text{mol/l}$ (normal < 1.8 $\mu\text{mol/l}$), consistent with a diagnosis of systemic oxalosis from presumed primary hyperoxaluria.

Primary hyperoxaluria is a rare, autosomal recessive disorder of hepatic glyoxylate metabolism resulting in overproduction of oxalate.¹ Oxalate nephropathy results in renal failure, which leads to a further increase in the plasma concentration of oxalate. Calcium oxalate can then deposit into a wide array of tissues including bone, retina, peripheral

Figure 2. Same view under polarized light.

nerves, arterial media, and the heart.² For some patients, treatment with pyridoxine to reduce urine oxalate levels may be beneficial, though liver and kidney transplantation is often required.³

Both kidney transplants had taken place overseas, and the patient's initial renal failure and first transplant failure were attributed to obstructive nephropathy from renal calculi. The second transplant loss was from rejection related to a reduction of immunosuppression, though biopsy revealed deposition of calcium oxalate crystals as well.

Conflict of Interest: Dr. Gaggar reports stock ownership and current employment with Gilead Sciences.

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