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### On the Cover

A 62 year-old woman with a history of hypertension, diabetes and breast cancer s/p bilateral mastectomy presented with fatigue, weight loss, decrease appetite and bilateral maculopapular rash over her knees. Her BP was 123/71 mm Hg. Her labs revealed pancytopenia with WBC 3.5 K/cu mm, hemoglobin 8.2 g/dL and platelet count of 84 K/ cu mm. Other labs were significant for sodium 134 mEq/L, potassium 4.8 mEq/L, BUN 46 mg/dL and serum creatinine of 3.6mg/dL (baseline 0.9mg/dl). Urinalysis revealed proteinuria with no hematuria or pyuria. Urine protein/creatinine ratio was 2.53. All serologies were negative. Kidney ultrasound revealed a 13.4 cm right kidney and 13.1 cm left kidney with increased echogenicity bilaterally. Kidney biopsy showed interstitial infiltration of myeloid cells. A bone marrow biopsy confirmed the diagnosis of acute myeloid leukemia (AML). Patient received chemotherapy for AML and her kidney function improved to baseline and did not require any kidney replacement therapy.

Kidney ultrasound showed enlarged kidneys (Figure 1). Light microscopy showed large aggregates of atypical cells with irregular nuclei, expanding the interstitium (Figure 2). Immunohistochemical stain for myelocytic cells (CD 33) was strongly positive (Figure 3). Kidney involvement including dense infiltration of kidneys is seen in up to 34% of patients diagnosed with AML, acute lymphocytic leukemia and non-Hodgkin’s lymphoma. Most cases of kidney involvement are seen in patients after a diagnosis of AML has been confirmed by bone marrow biopsy in contrast to our case where dense infiltration of the kidneys with myeloid blasts was noted first leading to bone marrow biopsy.

*(Images and text provided by Alice Chedid, MD; Mohammad Hanounah, MD; and Duvuru Geetha, MBBS, MD, Johns Hopkins University, Department of Medicine, Division of Nephrology, Baltimore, Maryland)*