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Spontaneous self-alkalinization in spontaneous tumor lysis syndrome

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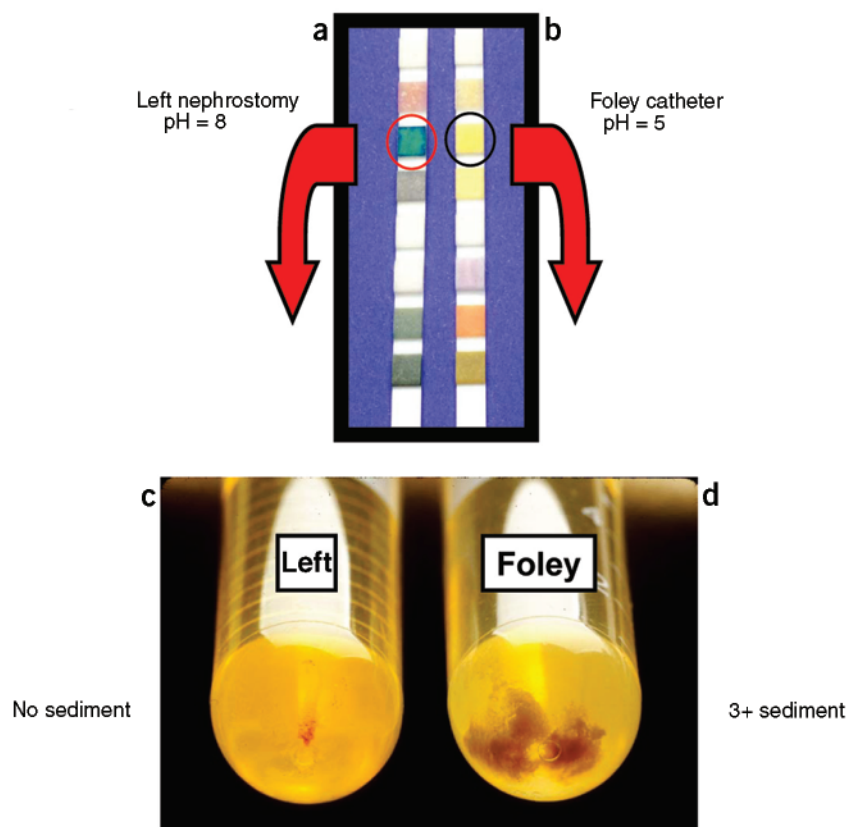


Figure 1 | Spontaneous self-alkalinization in tumor lysis syndrome. (a) Alkaline pH from the left-nephrostomy tube, which corresponds to the absence of sediment in panel c. (b) Acidic pH from the Foley catheter, which results in a significant amount of sediment in panel d.

A 64-year-old white male presented to the hospital with a scrotal mass, diffuse pelvic lymphadenopathy, and right hydronephrosis due to a diffuse large B-cell lymphoma. He was also found to have a left staghorn calculus. The patient was treated with a right orchiectomy and placement of a right-sided ureteral stent. Before initiation of chemotherapy, however, he was readmitted with a spontaneous tumor lysis syndrome (uric acid 25 mg/dl, creatinine 6 mg/dl) and was also found to have a left hydronephrosis. A left-sided nephrostomy tube was placed, and the patient was dialyzed. After nephrostomy placement it was noted that the urine from his Foley catheter contained a lot of sediment (Figure 1d) whereas the urine from the left-nephrostomy tube was clear

(Figure 1c). A urine dipstick analysis demonstrated a pH of 8.0 (Figure 1a, circled in red) in the urine from the left nephrostomy (side of staghorn calculus), whereas the pH of the urine in the Foley bag was 5.0 (Figure 1b, circled in black).

We believe that this patient with spontaneous tumor lysis syndrome was protected from the detrimental effects of uric acid nephropathy in his left kidney because of the staghorn calculus (with in-dwelling bacteria) and consequent high pH. The high urine pH converts uric acid to the more soluble urate salt, thus reducing the tendency to uric acid precipitation. This appears to represent a case of spontaneous unilateral self-alkalinization of urine in spontaneous tumor lysis syndrome.