

## A patient with recurrent episodes of red urine: question

Carlton M. Bates · Brent M. Adler ·  
Andrew Schwaderer · Brian D. Coley

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### Case summary

A 16-year-old male presented to the Pediatric Nephrology clinic at Columbus Children's Hospital with a 6-month history of recurrent bouts of red urine. The episodes occurred once every month, would last for 3–5 days and were often preceded by heavy physical activity, such as wrestling or basketball. While the red urine was present, he complained of a "catching sensation" in his left lower back, which was becoming more painful. The patient denied dysuria, urgency, frequency, abdominal pain, edema, rash, joint swelling, bloody stools, bleeding gums, frequent nosebleeds, weight loss, or fatigue. His past medical history was unremarkable. He was on no medications. His family

history was negative for kidney disease, kidney stones, and hearing loss.

On physical exam, he was at the 75th percentile for length, 10th percentile for weight and his blood pressure was normal at 117/66. Generally he appeared well-developed, well-nourished, and in no acute distress. His head, eyes, ears, nose, and throat exams were normal. His cardiac and respiratory exams were normal. His abdomen was soft, non-tender, and without organomegaly. He had no rash, edema, or joint swelling. His genitourinary exam was normal, without evidence of a varicocele.

Laboratory data obtained prior to the Nephrology clinic visit were as follows: two urinalyses obtained during the episodes of red urine demonstrated large blood with many eumorphic red blood cells per high-power field and no other abnormalities; a urinalysis collected between episodes of gross hematuria which was normal; a normal set of electrolytes; serum creatinine of 0.8 mg/dl; blood urea nitrogen (BUN) of 11 mg/dl; normal C<sub>3</sub> and C<sub>4</sub> complements of 90 mg/dl and 14 mg/dl, respectively; a normal anti-streptolysin O titer of 108 IU/ml (range 0–90 IU/ml).

At the Nephrology clinic visit, the patient had normal serum electrolytes, creatinine, and BUN measurements. His serum calcium was 9.6 mg/dl, phosphorous 4.6 mg/dl, and magnesium 2.1 mg/dl. His urinalysis was normal and his urine calcium/creatinine was normal at 0.04 (mg/mg).

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The answer to this question can be found at <http://www.dx.doi.org/10.1007/s00467-006-0281-5>.

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C. M. Bates (✉)  
Center for Cell and Developmental Biology,  
Children's Research Institute,  
700 Children's Drive,  
Columbus, OH 43205, USA  
e-mail: batesc@pediatrics.ohio-state.edu

C. M. Bates · A. Schwaderer  
Division of Nephrology, Department of Pediatrics,  
College of Medicine, The Ohio State University,  
Columbus, OH 43210, USA

B. M. Adler · B. D. Coley  
Department of Radiology, Children's Hospital,  
Columbus, OH 43205, USA

### Questions

1. What is the most likely diagnosis?
2. What additional diagnostic tests would you perform?