

Secondary Megacystic Megaureter and Giant Hydronephrosis Presenting as Hematemesis

VINCENT LABARBERA, MD; DELANEY CONWAY GOULET, MD

KEYWORDS: urinary retention, hematemesis, urethral stricture, giant hydronephrosis

A 60-year-old man with a past medical history of idiopathic urethral stricture status post-dilatation 15 years earlier and gastroesophageal reflux presented to the emergency department with syncope after vomiting blood. He reported two months of progressive abdominal distension with nausea and two days of vomiting and retching, culminating in a bout of hematemesis. He reported “normal” urination (including on day of presentation) as well as regular bowel movements over the past two months; however, his last bowel movement was four days prior to presentation. He also noted intermittent pink urine, but had no other urinary or bowel complaints. He denied previous hematemesis, hematochezia or melena.

Physical examination in the emergency department revealed tachycardia to 130, temperature of 98.6 degrees Fahrenheit, and blood pressure of 142/73. A general examination was notable for cachexia, pallor, and a significantly distended and tympanitic abdomen and suprapubis, without significant tenderness on palpation. Bladder ultrasound indicated retention of at least 1000 milliliters. A Coude catheter placement was unsuccessful, and urology was consulted and placed a suprapubic catheter, yielding greater than nine liters of urine.

Laboratory evaluation revealed hemoglobin 8.9 g/dl, BUN 175 mg/dl, and Creatinine 14.9 mg/dl (baseline 0.8). Nephrology recommended frequent electrolyte monitoring and replacement and replacement of renal fluid losses. Esophagogastroduodenoscopy (EGD) revealed chronic Grade D esophagitis, using the Los Angeles Classification System (one or more mucosal breaks involving at least 75% of esophageal circumference), and pathology demonstrated severe inflammation and ulceration without metaplasia.

His 18-day hospitalization consisted of fluid replacement for post-obstructive

diuresis of five to six liters daily, electrolyte repletion, and cardiopulmonary monitoring via telemetry. His course was complicated by *Serratia marcescens* cystitis, as well as colonic obstipation requiring manual disimpaction. By time of discharge, urine output fell to two liters daily and creatinine decreased to 4.65. After six months the patient’s new creatinine baseline was 3.5 mg/dl. He remains off hemodialysis with suprapubic catheter. Two years after this event, he continues to struggle with recurrent urinary tract infection, but has had no recurrent hematemesis and his hemoglobin has remained stable near 14 g/dl.

DISCUSSION

This article reports on a remarkable case of chronic urinary retention of 9 liters of urine, attributed to prior urethral stricture disease, resulting in massive urinary bladder distension. **Figures 1–4** reveal the extensive nature of this patient’s secondary megacystic megaureter and giant hydronephrosis.

Figure 1. CT scan of the abdomen and pelvis, Coronal view: Severe bilateral hydroureteronephrosis with associated marked cortical thinning (solid arrow), left greater than right; findings may represent chronic megacystic megaureter.



Figure 2. CT scan of the abdomen and pelvis, Coronal view of bladder: At its largest dimensions, the bladder measured 14.4 cm x 18.5 cm x 25.62 cm (solid arrow).

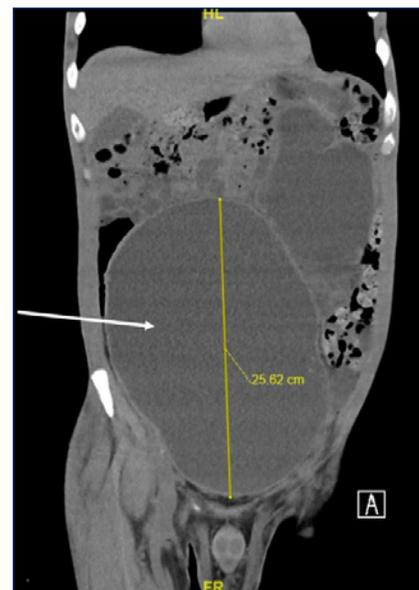


Figure 3. CT scan of the abdomen and pelvis, Axial view of the bladder (solid arrow) and left kidney (dashed arrow). At its largest dimensions, the bladder measured 14.4 cm x 18.5 cm x 25.6 cm. Pancolonic stool loading (dot dash arrow) is evident.



This patient's giant distended bladder likely caused colonic pseudoobstruction via mass effect on the colon, resulting in a subsequent exacerbation of chronic esophagitis (the presumed etiology of the chronic esophagitis being severe gastroesophageal reflux disease), acutely presenting as hematemesis.

Urinary retention, which can be acute or chronic, is defined as a palpable or percussable bladder. It can be painful, especially in the setting of inability to pass urine (as is the case in acute urinary retention) versus non-painful, in the setting of retaining the ability to pass urine (as is the case in chronic urinary retention)¹. Chronic urinary retention is also defined as post-void residual of more than 300 milliliters in men who are able to void, or more than 1000 milliliters in men who are unable to void.² Although the nine liters of urine removed upon presentation in this case is quite impressive and dwarfs the consensus definition of chronic urinary retention as described previously, it is not the only report of giant hydronephrosis (defined as greater than one liter held within the renal collecting system) or massive urinary retention.³⁻¹²

This case report is novel and unique in two important ways. A literature review reveals that this is the first report of giant hydronephrosis and secondary megacystic megaureter presenting as hematemesis. More common presentations reported are lower abdominal pain, distension, and constipation,¹³ of which our patient also complained. Rectal bleeding without urinary symptoms has also been described,¹¹ and complete mechanical bowel obstruction has also been reported as a complication of urinary retention.¹⁴⁻¹⁷

In addition, this is the only account of urethral stricture causing giant hydronephrosis and giant bladder. Other mechanical causes of ureteropelvic junction obstruction, stone disease, trauma, renal ectopy, ureteral tumor, and primary bladder neck obstruction,⁹ have been reported to cause giant hydronephrosis.¹⁰ Neurologic causes of urinary

Figure 4. CT scan of the abdomen and pelvis, Coronal view of the bladder and left kidney. Post decompression bladder (solid arrow) with suprapubic catheter.



retention are well documented and include idiopathic atonic bladder,¹¹ neurogenic bladder from various causes (multiple sclerosis, parkinsonism, stroke, spinal cord injury), and autonomic neuropathy from diabetes mellitus.^{12,18}

This case also highlights the importance of recognition of this condition in patients presenting with progressive abdominal distension, and reiterates the management of massive urinary output, including fluid and electrolyte resuscitation, cardiopulmonary monitoring, and interdisciplinary care amongst emergency physicians, urologists, nephrologists, and internists.

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Authors

Vincent LaBarbera, MD, Alpert Medical School of Brown University, Department of Neurology, Providence, RI.
Delaney Conway Goulet, MD, Alpert Medical School of Brown University.

Correspondence

Vincent LaBarbera, MD
Rhode Island Hospital
593 Eddy Street, 5th Floor, Ambulatory Patient Center
Providence, RI 02903
401-606-2513
Fax 401-606-6858
vincent_labarbera@brown.edu

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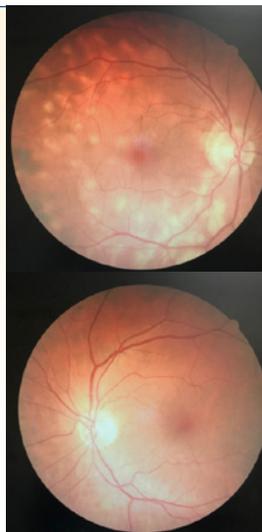
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