

Neonatal Posterior Urethral Valves as a cause of Acute Abdominal Distention

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ABSTRACT

Introduction: An 18-day-old term, male presented to the emergency department (ED) for 1-2 days of progressive abdominal distention.

Case Report: Over the past week the infant had been spitting more, but it was non-bilious and non-projectile. He had no fevers. On examination, he was ill appearing with a distended abdomen. A flat-plate of his abdomen was obtained that was concerning for possible partial small bowel obstruction, which led to extensive imaging with an upper and lower gastro-intestinal contrast studies that were negative. Ultimately, an ultrasound was performed that revealed marked bladder distention with hydronephrosis. A urinary catheter was placed to relieve his bladder obstruction. Avoiding cystourethrogram confirmed a diagnosis of posterior urethral valves.

Conclusion: Posterior urethral valves (PUVs) as a cause of abdominal distention in the neonate is a rare presentation. PUVs have an incidence of 1/4000 male births; of which 1/3rd are detected in-utero, 1/3rd in the first year of life. Most infants with PUVs will present with a urinary tract infection, others present with failure to thrive, poor urine stream and or grunting while urinating. The neonate with acute abdominal distention warrants a thorough and expedited evaluation for possible acute surgical etiologies, such as midgut volvulus due to malrotation.

Early identification of bladder obstruction by point of care ultrasound would have helped focus the evaluation and lead to earlier relief of his bladder obstruction. PUVs should be considered on all male infants with urinary tract infection, failure to thrive, poor urinary stream or abdominal distention.

Keywords

Neonatal, Abdominal Distention, Posterior Urethral Valves

Case Presentation

A term, 18-day-old infant presented to the Emergency Department for 1-2 days of progressive abdominal distention. He was breastfed and had had spitting with most feeds that was non-projectile, non-bloody and non-bilious. He was stooling with most feeds. The infant was urinating, but the mother did notice a decreased volume of urine. There was no fever. On examination he appeared ill with marked abdominal distention; vital signs revealed a rectal temperature of 35.7°C, 72 breaths per minute, heart rate of 167 beats per minute, blood pressure was 101/86, oxygen saturation

was 97%. His abdomen that was distended, tympanic and tender to palpation. No abdominal wall erythema or bruising. The infant was circumcised, testicles were palpable bilateral and no evidence of hernia. The rectal examination was normal and guaiac negative. A sepsis evaluation was started and an abdominal plain film was then obtained.

To evaluate for volvulus an upper gastro-intestinal contrast study was performed and was negative. There was concern for possible Hirschsprung disease given the paucity of air in the rectal region; lower gastro-intestinal contrast study was negative. Ultrasound of the bladder and kidneys was then performed.

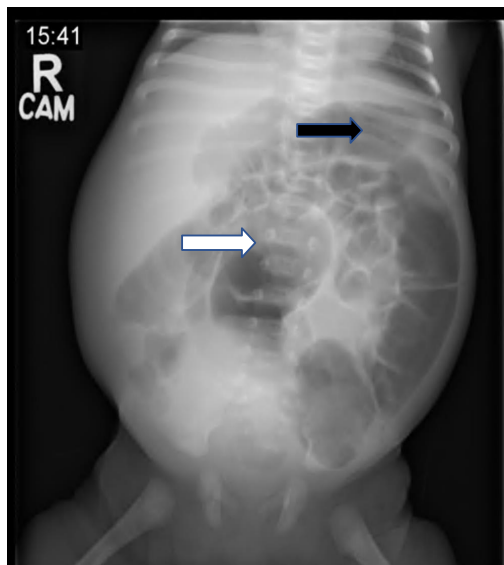


Figure 1: Upright plain film of the abdomen which reveals gaseous distention of the colon (black arrow) and a few segments of small bowel (white arrow), most prominent in the left abdomen. Small amount of air within the rectum. These findings can be seen with partial small bowel obstruction or ileus.

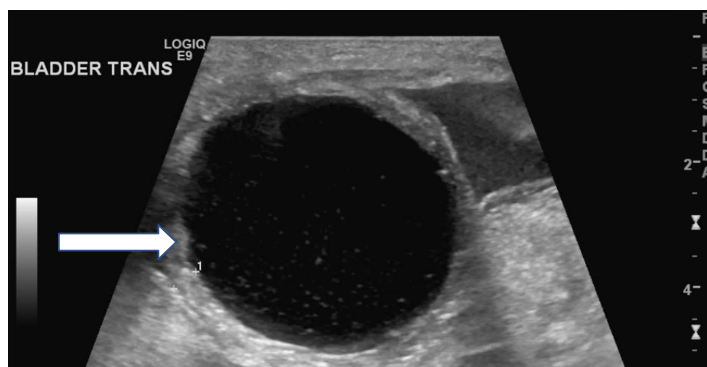


Figure 2: Ultrasound of Bladder that reveals a markedly distended bladder with mildly thickened wall (white arrow).

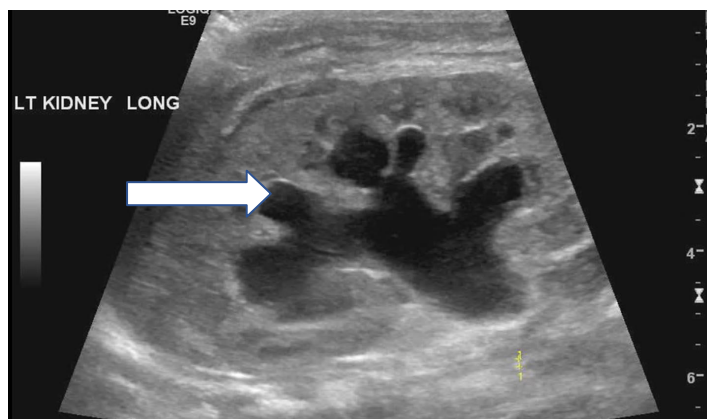


Figure 3: Significantly enlarged kidney with moderate pelvocaliectasis and numerous cysts of various sizes which appear to be centered in the medullary pyramids (white arrow).

A urinary catheter was placed, and the infant had a large amount of urine output. A voiding cytourethral gram was performed that confirmed the diagnosis of posterior urethral valves.

Discussion

Acute Abdominal distention in the neonate warrants quick yet thorough evaluation for possible surgical or infectious etiologies; such as acute volvulus, necrotizing enterocolitis and sepsis [1]. In our case, the neonate had bladder outlet obstruction due to posterior urethral valves (PUVs) contributing to a partial small bowel obstructive appearance on plain film and sepsis.

Other clues that his illness was renal in etiology was his decreasing urination, which could have also been due to sepsis. In addition, he was hypertensive with a blood pressure of 101/86mmHg; 90th %tile for a 1-month-old is 98/65 mmHg. Posterior urethral valves have an incidence of 1/4000 male births, 1/3 present prenatally, 1/3 present during infancy [2]. It is the leading cause of end-stage renal disease in childhood [3]. Most infants with PUVs will present with a urinary tract infection, others present with failure to thrive, poor urine stream and or grunting while urinating [2].

A point of care ultrasound of the bladder and kidneys in this neonate with would have helped focus the diagnosis towards bladder obstruction and earlier urinary catheter placement. Instead, the infant underwent multiple radiologic procedures to evaluate for a partial small bowel obstruction before having an ultrasound. Obstructive uropathy should always be considered in conjunction of acute bowel pathology in the neonate with abdominal distention.

Conclusion

Although the differential diagnosis for acute abdominal distension in vast, it is imperative to not forget other organ systems if the initial workup is unrevealing. Without much technological or resource-intensive images, it is straightforward to rule out obstructive uropathy in the setting of a neonate with abdominal distention. Not only is there diagnostic clarity in this approach, it certainly affects management and outcomes.

References

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