## Case Report

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# Urinary ascitis in neonate with posterior urethral valve

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#### **ABSTRACT**

Urinary ascites in a newborn infant is not very common. It indicates a disruption to the integrity of the urinary tract. Urinary tract obstruction leads to increased pressure which causes urine collection within the peri-renal spaces and subsequent urinary ascites either by calyceal perforation or filtration through the walls of urinary tract. Posterior urethral valve is most common cause of urinary tract obstruction in male child. The report describes a male child of age 17 days, presented with gross abdomen distension and diagnosed as urinary ascites, due to underlying posterior urethral valve. The abdominal distension was relieved with subsequent drainage of urine. Diagnosis was made using imaging techniques and corrective surgery planned.

**Keywords:** Posterior urethral valve, Urinary ascitis

## **INTRODUCTION**

Reports of urinary ascites in the neonates date back to 1681 when Mauriceau, gave the earliest description of foetal ascites.<sup>1,2</sup> It was in 1952 that the first successfully treated case was reported.<sup>3</sup> Although it is a very rare condition, various causes have been attributed. Posterior urethral valve is most common accounting for approximately 70% of the etiology.<sup>4</sup> Predisposing factors apart from posterior urethral valves include neurogenic bladder, congenital bladder diverticulum and detrusor areflexia.5 It occurs most commonly from the rupture of calyceal fornixes secondary to raised intra renal pressure. Rarely, urinary bladder perforation is responsible for urinary ascites in posterior urethral valve.

Diagnosis is suspected on the basis of ascites with deranged renal function and is confirmed by imaging. Ultrasound helps to establish the presence of ascites and dilatation of the upper tracts with or without associated urinomas and cystic dysplasia of the kidneys. Voiding cystourethrography (VCUG) helps to establish the leak at the level of the urinary bladder by contrast extravasation into the peritoneal cavity and provides information about the underlying disease with associated changes in the urinary tracts. Neonatal urinary ascites is a lifethreatening condition as the peritoneal membrane "autodialyzes" the urine, leading to progressive increase in the blood urea nitrogen (BUN) and derangement of the serum electrolytes. Management consists of catheter drainage or surgery depending on the condition of the neonate, with the primary aim of diversion of urine from the peritoneal cavity. Prognosis depends on early diagnosis and adequate urinary drainage.

In most of the reported cases, the urinary ascites origin is related to the presence of posterior urethral valve leading to urinary bladder rupture and consequently ascites.<sup>6</sup> In medical literacy review, authors have found only one case of urinary ascites secondary to rupture of renal calyx in a neonate with posterior urethral valves wherever it happens, the leakage is a protective event as it relieves the urinary pressure and prevents further kidney damage.<sup>5</sup> Posterior urethral valves are one of the most common causes of lower urinary tract obstruction in newborn males. In the most severe cases, obstruction leads to urinary retention, hydronephrosis and renal insufficiency.

### **CASE REPORT**

A male child weighing 3.2 kg delivered at 39 weeks of gestation to primigravida mother by Normal vaginal delivery in a government hospital. There was only 1 antenatal visit before delivery at 6 months of pregnancy. No other documents were available with parents. At birth, the baby cried immediately and had no history of any resuscitation required and baby was shifted to mother after routine care. The baby was discharged on day 3 of life on exclusive breast feed with parents giving history of urine passed before discharge.



Figure 1: X-ray abdomen showing ascitis in the neonate.



Figure 2: MCUG showing dilatation and elongation of the posterior urethra.

The baby came to our emergency department on day 17 of life with 3.5 kg weight, with gross abdominal distension. The baby was admitted to our outborn nursery for further evaluation and management. The parents gave history of gradual increase in abdomen size and

decreased frequency of urination. On examination, abdomen was tense shiny with visible veins. Bladder was palpable. Baby was catheterised which led to accumulation of 80 ml of urine at a go and abdomen distension was relieved. X-ray abdomen done on day 1, showed massive ascitis (Figure 1).

Blood investigations were sent which showed raised blood urea (100.9 mg/dl) and serum creatinine (4.65 mg/dl) levels. Ultra-sonogram was performed which suggested gross free fluid in abdomen and collection of free fluid in both perinephric spaces. Bilateral hydronephrosis was present. Urinary bladder was normal. The USG report lead to suspicion of urinary tract obstruction and presence of posterior urethral valve was kept in mind and thus Micturating Cystourethrogram (MCUG) was planned. On day 3, The MCUG showed dilatation and elongation of posterior urethra (Figure 2). Further investigation with urinary catheter placed in situ, revealed improvement in blood urea and serum creatinine levels.

### **DISCUSSION**

The cases of urinary ascitis reported in medical literature are generally related to bladder rupture secondary to the presence of a posterior urethral valve in boys. 1-3,7 Posterior urethral valves are the most common cause of bladder outlet obstruction in newborn males, affecting approximately 2 in 10,000 live births, and occur only in males. The development of renal insufficiency in patients who have PUV may be attributed to the high pressure generated by urethral obstruction transmitted to the upper urinary tract.

The establishment of correct diagnosis may be challenging and many times it is defined by imaging studies such as MCU and Ultrasound. Initial management of PUVs involves support in the neonatal intensive care unit and passage of a urinary catheter for drainage. The bladder should be catheterised to prevent distension and allow healing. In cases of PUV, catheter drainage by urethral route with or without vesicostomy achieves healing in most patients in 10-14 days. Once the infant is stable to undergo the procedure, the valves are ablated endoscopically. Vesicostomy is reserved for infants with urethras that are too small to accommodate the scope, while upper tract diversion is not felt to offer any significant benefit in terms of drainage or future renal function.9 Long-term renal outcomes are poor, with 20-60% of boys progressing to end-stage renal disease.

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## **REFERENCES**

Mauriceau F, Grosses T, lauteur C. Paris, France, 3<sup>rd</sup> edition. 1681.

- 2. Cywes SJ, Wynne JM, Louw JH. Urinary ascites in the new-born with a report of two cases. J Pediatr Surg. 1968;3(3):350-6.
- 3. James U, Davies JA. Congenital urethral obstruction presenting in the newborn period. Proceedings of the Royal Society of Medicine. 1952;45:401.
- 4. Singh J, Khanna AC, Arora S. A rare case of urinary ascites in newborn. Int J Med and Dent Sci. 2016;5(1):1098-100.
- 5. Trulock TS, Finnerty DP, Woodard JR. Neonatal bladder rupture: case report and review of literature. J Urol. 1985;133(2):271-3.
- 6. Ahmed S, Borghol M, Hugosson C. Urinoma and urinary ascites secondary to calyceal perforation in neonatal posterior urethral valves. Br J Urol. 1997;79:991-2.
- 7. Griscom NT, Colodny AH. Diagnostic aspects of neonatal ascites: report of 27cases. AJ R Am J Roentgenol. 1977;128:961-9.

- 8. Malin G, Tonks AM, Morris RK, Gardosi J, Kilby MD. Congenital lower urinary tract obstruction: a population-based epidemiological study. BJOG. 2012;119(12):1455-64.
- 9. Farhat W, McLorie G, Capolicchio G, Khoury A, Bägli D, Merguerian PA. Outcomes of primary valve ablation versus urinary tract diversion in patients with posterior urethral valves. Urol. 2000;56(4):653-7.

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