Case Report

A rare case of urinary ascites in newborn

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ABSTRACT

Urinary ascites in a newborn infant is unusual and most commonly indicates a disruption to the integrity of urinary tract, the most common cause being posterior urethral valve. The report describes a case of urinary ascites, probably calyx or bladder rupture due to underlying posterior urethral valve. The patient presented as an emergency and was treated with ventilator support and subsequent drainage of urine.

Introduction

Reports of urinary ascites in the neonates date back to 1681 when Mauriceau, gave the earliest description of foetal ascites. [1, 2] It was in 1952 that the first successfully treated case was reported. [3] Although it is a very rare condition, various causes have been attributed. Posterior urethral valve is most common accounting for approximately 70% of the aetiology. It occurs most commonly from the rupture of calyceal fornixes secondary to raised intrarenal 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 life-threatening 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.

Ascites is a rare condition in neonates and has many causes, such as

those of a biliary nature, liver, heart, chylous infection, urinary disease or even a condition of unknown nature. Urinary disease is one of the most frequently observed causes. [4, 5] 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. [6] 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. [7]

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

Case report of a male infant born through LSCS because of fetal ascites with severe placental insufficiency. The baby cried immediately after birth with an APGAR score of 8 at 1 minute and 9 at 5 minutes. birth weight was 2.56 kg. The infant presented with massive abdominal distention and respiratory distress and was shifted to NICU and placed on ventilator support (SIMV mode). Ascitic tap was done and around 300ml of fluid was drained. Catheterization was done since the baby also had urinary retention. Ventilator settings were reduced gradually and baby was extubated on 4th day of admission. The baby started accepting and tolerating breast feed well.

Complete blood count was done on admission and was within normal limits. Renal function tests were derranged with urea of 62 mg % and creatnine of 1.5 mg%. These gradually improved on day 6th of admission. X-ray abdomen done on day 1, showed massive ascites. USG on day 2 revealed bilateral moderate hydronephrosis, so MCU (Micturating Cystourethrogarm) was done which showed Posterior Urethral Valves. (Fig.1) Ascitic tap confirmed urinary etiology with urea 52 mg/dl and creatinine 1.4 mg/dl.

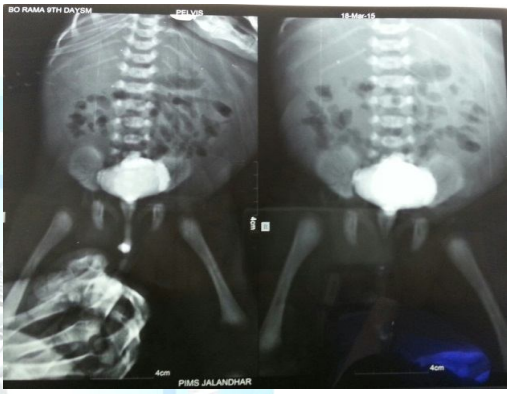

Fig.1MCU showing posterior urethral valve

DISCUSSION

The cases of urinary ascites reported in medical literature are generally related to bladder rupture secondary to the presence of a posterior urethral valve in boys (1–4). Posterior urethral valves (PUV), (1/5000 to 12500 births) are the most frequent cause of lower urinary tract obstruction in male children. 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, Ultrasound & Tc-99m Scintigraphy.

The diagnosis of ascites as a cause of abdominal distension is easily made clinically and by ultrasound. Establishing the

cause of the ascites is important for further management. Useful information can be gained from the analysis of the ascitic fluid because only in urinary ascites can the concentration of creatinine and urea exceed that of the plasma (although because of the back diffusion across the peritoneum, these values will be midway between those for urine and plasma). An additional point of differentiation is that with ascitic fluid of other origin the protein concentration is much higher. The diagnosis of a ruptured bladder can, if possible, be confirmed with a micturating cystogram. Conservative management of this condition is the management of choice. The bladder should be catheterized to prevent distention and aid in healing.

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