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CASE REPORT

Spontaneous Bladder Rupture in Puerperium following Instrumental Vaginal Delivery

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ABSTRACT

Spontaneous rupture of urinary bladder following vaginal delivery is a surgical emergency. We present a case of primipara who presented on 6th day following instrumental vaginal delivery with distention of abdomen, massive urinary ascites, and anuria due to intraperitoneal rupture of urinary bladder. Computed tomography (CT) retrograde cystogram showed rupture at the dome of bladder for which exploratory laparotomy was done. Diagnosis of intraperitoneal bladder rupture was confirmed and the rent was repaired in two layers. Prolonged drainage of bladder was carried out. The patient on follow-up after 8 weeks did not show any voiding abnormalities.

Keywords: Computed tomography retrograde cystogram, Instrumental vaginal delivery, Urinary ascites.

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INTRODUCTION

The term "spontaneous rupture of the urinary bladder" was first coined by Sisk and Wear.[1] It was defined as if the bladder ruptures without external stimulation; it is spontaneous and deserves to be reported as such. An empty bladder is well protected in the true pelvis, but as it distends, it rises upward in the abdomen, becoming very much vulnerable. Spontaneous rupture of bladder in puerperal period is extremely rare and only few cases are reported in the literature. The main strain of distention is exerted on the posterior–superior peritonized surface which is not only developmentally weakest but has only intestine as support. The rupture may be preventable if precaution in the form of bladder evacuation before the patient goes into second stage of labor is undertaken. Postpartum patients, especially those who have had repair of perineal laceration, should be encouraged to empty their bladder completely and be observed carefully for signs of urinary retention so as to avoid or reduce the risk of possible spontaneous bladder rupture. Awareness on the part of treating surgeon that bladder rupture is a possibility will lead to an early diagnosis. Once diagnosis is made, immediate exploration, closing the rupture, and securing good vesical drainage result in resumption of vesical function, and thereby decreases the morbidity associated with the same.

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CASE REPORT

A 23-year-old primipara with gestational diabetes mellitus, controlled on diabetic diet, on 6th day following outlet forceps vaginal delivery, presented to the emergency services with distention of abdomen and inability to pass urine along with nonbilious vomiting. She denied any history of trauma to the abdomen or fall, abdominal pain, fever, and excessive vaginal bleeding. At term, her labor was induced with two doses of dinoprostone gel 6 hours apart following which artificial rupture of membrane was performed and labor was augmented with oxytocin drip. Labor progressed satisfactorily with the first stage lasting for 15 hours; however, the second stage of labor was prolonged for 2 hours' duration. Due to the maternal exhaustion, outlet forceps were applied after proper evacuation of urinary bladder and episiotomy under all aseptic precautions. She delivered a female child weighing 4.145 kg. The patient had third-degree perineal tear which was repaired under all aseptic precautions. Postdelivery, her hospital stay was uneventful and was discharged on day 3 postpartum.

On examination on 6th postpartum day, her vital parameters were maintained, pulse of 100 beats per minute and blood pressure of 110/70 mm Hg, and she was afebrile. The patient had abdominal distention with gross ascites. After bladder catheterization, 2.5 L of urine was drained following which abdominal distention was reduced. Vaginal examination revealed nonoffensive lochia. Episiotomy was healthy and

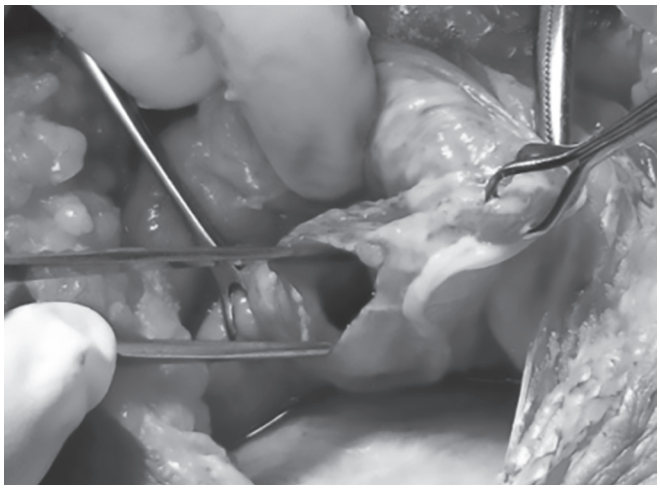

Fig. 1: Bladder rent

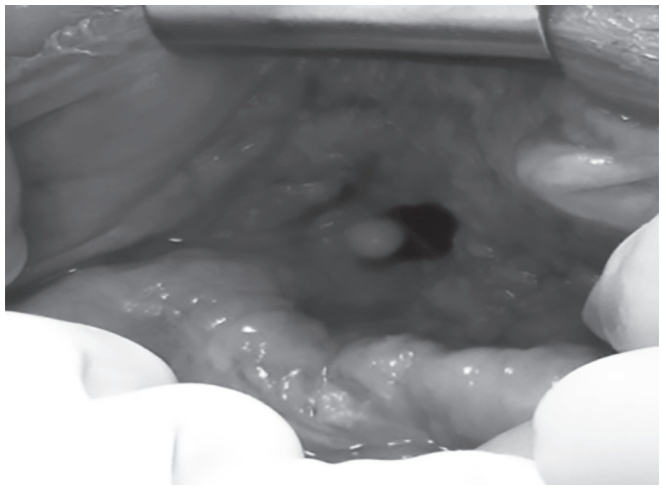

Fig. 2: Tip of Foley seen through rent

Fig. 3: Foley through bladder rent

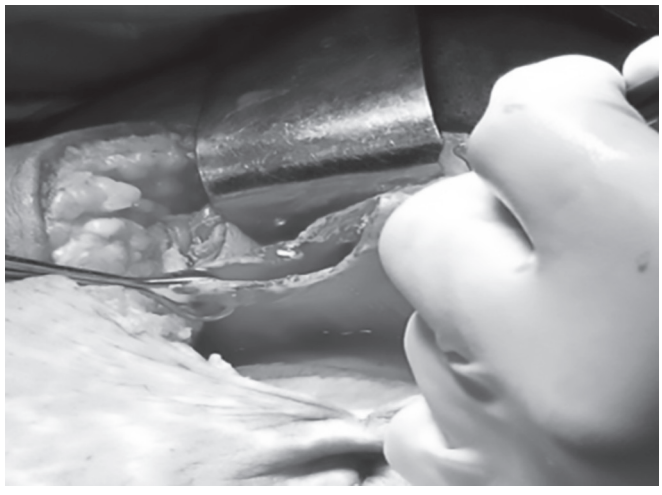

Fig. 4: Cut edges of bladder rent

healed. Ultrasonography (USG) of abdomen revealed gross ascites with internal echoes with paralytic ileus. X-ray erect abdomen showed dilated bowel loops with air fluid levels suggestive of subacute intestinal obstruction. The USG-guided diagnostic tapping of ascitic fluid showed clear ascitic fluid whose specific gravity and pH along with creatinine levels were similar to that of urine collected simultaneously.

The investigation chart was as follows: total leukocyte count was 14,900/mm^3, prothrombin time/international normalized ratio was 10.1/1.13, arterial blood gases showed pH of 7.46, serum creatinine 2.5 mg/dL, urine creatinine 6.40 mg/dL, and ascitic fluid creatinine 5.73 mg/dL. Specific gravity of ascitic fluid and urine was the same, 1.010, and pH was also the same, 8.

The CT retrograde cystography revealed intraperitoneal bladder rupture with suspicious rent in fundus of bladder with moderate ascites.

Intravenous antibiotics were started. Emergency exploratory laparotomy was performed. Intraoperatively, peritoneal cavity showed serosanguinous ascitic fluid with pus flakes (Figs 1 to 3). A rent of 1.5 cm was present in the dome of urinary bladder with thinned-out edges (Fig. 4). Both ureteric orifices were visualized and normal. There was no evidence of uterine rupture. Small bowel tracing showed intact bowel loops with gaseous distention. Peritoneal lavage was given. Both ureteric orifices were cannulated with no. 6 infant feeding tube. Suprapubic cystostomy was done with Malecot catheter. The rent on the bladder was repaired in two layers after freshening the edges of the rent. Postoperative period was uneventful. Prolonged bladder drainage for 3 weeks was carried out followed by bladder training. Patient resumed normal bladder function.

DISCUSSION

Bladder rupture during delivery is classified as intraperitoneal or extraperitoneal. The etiology of this condition is multifactorial. Big-sized baby, prolonged second stage of labor, and sustained pressure of the fetal head against the bladder during forceful uterine contractions may lead to pressure necrosis of the dome of bladder.

This is more likely if the bladder is not evacuated during labor. In our patient, urinary bladder rupture during delivery was unlikely, as the bladder was evacuated prior to delivery of the fetus. It is possible that patient had voiding difficulties later in her postpartum period, which would be expected, especially in the presence of painful episiotomy 4° perineal tear, with perineal tear that might discourage voiding, leading to urinary retention. Literature has reported cases of spontaneous rupture of bladder in the second trimester.[2] There have been cases of spontaneous bladder rupture in cases of radiotherapy for cancer surgery.[3] Other causes of spontaneous rupture include binge alcohol drinking, bladder diverticulum, neuropathic bladder, and in association with pelvic organ prolapse.

The patient usually presents with abdominal pain and oliguria. The triad of intraperitoneal bladder rupture includes abdominal pain, distention, and urinary ascites.

Diagnosis of intraperitoneal bladder rupture depends on retrograde cystoscopy, analysis of ascitic fluid for urea and creatinine, blood biochemistry, and exploratory finding. The imaging test of choice is cystography, demonstrating intraperitoneal contrast extravasation. The test is highly accurate, unless the lesion is blocked by the dilated loops of small bowel.[4] A high index of suspicion is required if a patient presents with acute renal failure and huge ascites following vaginal delivery. Decision for laparotomy in the presence of signs of peritonitis should not be delayed. Laparotomy is required for peritoneal lavage, excision of devitalized tissue, and primary repair of bladder perforation.[5] Early diagnosis and prompt surgical treatment will decrease the morbidity associated with this condition. Literature has reported cases wherein conservative management was undertaken with antibiotics and prolonged bladder catheterization.[3] Urinary ascites resulting in peritonitis progressing to abdominal sepsis due to missed diagnosis or comorbidities like old age and diabetes usually culminate in poor outcome leading to death.[6]

CONCLUSION

Spontaneous rupture of bladder is usually associated with an existing underlying bladder disease, history of recent trauma, or in the setting of acute or chronic urinary retention. The bladder is known to empty poorly in the intrapartum and postpartum period, leading to an increase in urinary retention after delivery. Instrumental or prolonged second stage of labor can lead to spontaneous rupture of bladder following vaginal delivery. Proper evacuation of bladder in the second stage of labor is therefore crucial. Postpartum patients who have had episiotomy or perineal tear frequently have voiding difficulties which may lead to urinary retention. Retention may not be recognized since these patients pass small amounts of urine frequently. Retention may result in overdistention and bladder rupture. It is therefore important to observe the urinary output in postpartum period and encourage adequate bladder emptying. High degree of suspicion remains the cornerstone of treatment. Early operative intervention with closure of bladder rent along with prolonged bladder drainage using both suprapubic and per urethral catheter can reduce the morbidity and mortality attributed to this condition.

REFERENCES

1. Sisk IR, Wear JB. Spontaneous rupture of the urinary bladder. J Urol 1929;21:517-521.
2. Pal DK, Bag AK. Spontaneous rupture of urinary bladder in puerperium. Indian J Surg 2005 Dec;67(6):325-326.
3. Basavaraj DR, Zachariah KK, Feggetter JG. Acute abdomen: remember spontaneous perforation of the urinary bladder. J R Coll Surg Edinb 2011 Oct;46(5):316-317.
4. Santucci RA, Mcaninch JW. Bladder injuries: evaluation and management. Braz J Urol 2000 Jul-Aug;26(4):408-414.
5. Macalister CL. Spontaneous rupture of the urinary bladder. Proc R Soc Med 1955 Sep;48(9):693-697.
6. Gomes AC, de Figueiredo AA, Soares Júnior C, Bastos Netto JM, Tassi FR. Acute abdomen: spontaneous bladder rupture as an important differential diagnosis. Rev Col Bras Cir 2009 Aug;36(4):364-365.