

Trauma and reconstruction

Surgical management of spontaneous post-partum bladder rupture in an Amazonian emergency hospital

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ABSTRACT

Spontaneous rupture of the urinary bladder (SRUB) is a rare urological emergency and even more uncommon in the puerperium. Post-partum bladder rupture might be associated with fetal pressure on the not emptied bladder wall during labor. We report a case of SRUB three days after normal vaginal delivery with high values of creatinine and absence of hematuria, surgically managed in an emergency hospital in the Amazon.

Introduction

Post-partum spontaneous rupture of the urinary bladder (SRUB) is an extremely rare urological emergency, with only few cases reported in the literature.¹⁻⁵ It usually presents as acute abdomen without obvious traumatic or iatrogenic etiology.^{1,2} It is a challenging diagnosis and there are no published guidelines for management. We report a case of SRUB 3 days after vaginal delivery.

Case presentation

A 30-year-old woman (G2P2) was admitted to the emergency department with generalized abdominal pain and abdominal distension for 1 day, associated with a four-day anuria complaint after second vaginal delivery. She had an uneventful 39-week pregnancy with cephalic presentation in the labor. The baby's birth weight was 3,200 g. There was no history of abdominal trauma and the patient reported no hematuria. She had a healthy medical history with no previous abdominal surgery, radiotherapy for malignant disease or neurogenic bladder.

Three days after labor, already with anuria since discharge, the patient experienced sudden abdominal pain and vomiting. She was first

admitted in a local maternity then referred to our service with an abdominal ultrasound report and blood tests. On examination, she presented abdominal pain with important distension. The patient was already with a Foley's catheter showing a urine debt of zero. She was afebrile, tachycardic with pulse of 119 beats per minute, blood pressure of 125/88 mmHg and oxygen saturation of 99%.

Laboratory tests done the day before admission revealed normal white blood cells (WBC) and hemoglobin. Although, the urea and serum creatinine values (113.0 mg/dL and 5.85 mg/dL, respectively) were elevated. The abdominal ultrasound report showed abundant free fluid in the peritoneal cavity, a bulky uterus and empty bladder with indwelling urinary catheter. It was performed a computed tomography (CT) scan of her abdomen and pelvis that revealed large amounts of free fluid in the peritoneal cavity, as well normal kidneys, a bulky uterus and thickening of the bladder wall which was empty due to the Foley's catheter (Fig. 1). The CT also revealed bilateral pleural effusion, probably caused by the inflammatory response (Fig. 2). A CT cystography was not performed due to the absence of hematuria. The initial diagnosis was acute abdomen and the patient was booked for surgery.

At exploratory laparotomy, there was a great amount of free yellow colored liquid in the peritoneal cavity. A small pointy perforation about 3 mm of diameter was found on the dome of the bladder and also

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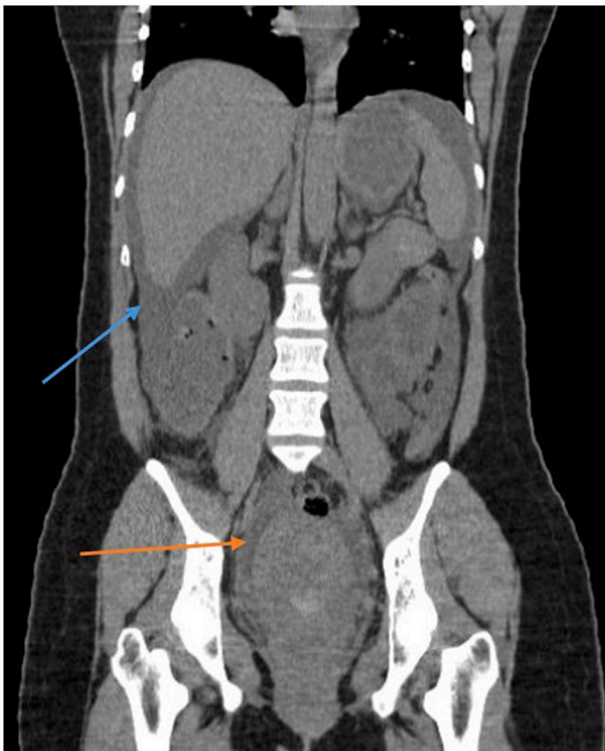


Fig. 1. Coronal view of CT showing intra-abdominal free fluid (blue arrow) and free fluid around bulky uterus (orange arrow). (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)



Fig. 2. Axial view of CT showing presence of free fluid around the liver (green arrow) and pleural effusion is also seen more evidently in the right lung (red arrow). (For interpretation of the references to color in this figure legend, the reader is referred to the Web version of this article.)

necrotic tissue on the bladder's posterior wall. The intra-abdominal cavity was lavaged and the free fluid drained. The perforation was repaired in one layer with vicryl 2-0 and the area of necrosis on the posterior wall was excised. The bladder remained continuously drained by a Foley catheter for 14 days in the postoperative.

New blood tests result in the second postoperative day revealed a considerably improvement of the renal function. The urea and creatinine values normalized to 54 mg/dL and 0.93 mg/dL, respectively. The patient was discharged 48 hours after surgery due to new coronavirus pandemic and she was advised to return in 14 days for a CT cystography and removal of Foley's catheter. The CT cystography showed no



Fig. 3. CT cystography showing no evidence of contrast overflow.

evidence of contrast overflow (Fig. 3) and the indwelling catheter was removed.

Discussion

Spontaneous rupture of the urinary bladder (SRUB) is defined as those cases presented without any history of trauma or underlying bladder pathology.³ The etiology of this condition is multifactorial.⁴ In the literature, alcoholism, radiotherapy, neurogenic bladder and obstructed labor have been pointed as some of the causes of SRUB.²⁻⁴ Bladder rupture in the post-partum is an extremely rare occurrence and the few cases reported have been, in majority, surgically managed.

In labor, it is cautious to empty the bladder during the second stage to avoid its rupture. Post-partum patients who have had episiotomy or perineal repair frequently experience voiding difficulties which may lead to urinary retention.⁵ Both situations may be related with spontaneous rupture of the urinary bladder.

In our case, the patient reported a small perineal laceration during labor repaired with six stitches suture. She also reported no emptying of the bladder or urethral catheterization after labor. Our patient presented at the emergency with acute abdomen and compromised renal function, which is the usual presentation in spontaneous bladder rupture.

Rupture of bladder in puerperium without predisposing factors is a post-partum emergency.² In this case report, the challenging diagnosis of intraperitoneal bladder rupture was made during laparotomy, consistent with most of the cases reported in the literature.

The patient follow-up is difficult, but it is essential to recommend to seek medical care in case of SRUB symptoms and also further specialized investigation with a urologist.

Conclusion

SRUB should be considered a differential diagnosis for acute abdomen in patients with elevated urea and creatinine values and a similar clinical feature. Post-partum rupture of the bladder requires a deeper review and the diagnosis of this urological emergency should not be delayed.

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Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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