

## Delayed diagnosis of isolated spontaneous bladder rupture following vaginal childbirth

Seyedeh Shabnam Hashemizadegan Manshadi<sup>1,2</sup>; Fatemeh Darsareh<sup>1\*</sup>; Vahid Mehrnoush<sup>3</sup>; Ahmed Kotb<sup>3</sup>; Mahbobeh Shahmoradi<sup>2,1</sup>

<sup>1</sup>Mother and Child Welfare Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.

<sup>2</sup>Medical Chancellor of Social Security Organization, Hormozgan, Iran.

<sup>3</sup>Urology Department, Northern Ontario School of Medicine, Thunder Bay, Ontario, Canada.

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**\*Corresponding Author:** Fatemeh Darsareh, Mother and Child Welfare Research Center, Hormozgan University of Medical Sciences, Bandar Abbas, Iran.  
Email: famadarsareh@yahoo.com

### Abstract

**Background:** Spontaneous rupture of the urinary bladder, which occurs in patients with no history of trauma nor underlying bladder pathology, is a very rare condition after vaginal childbirth.

**Case presentation:** We present a case of isolated bladder rupture after vaginal childbirth in a 28-year-old primigravida with a history of chronic cystitis. The patient developed urinary retention, edema, bacteriuria, and microscopic hematuria a week after childbirth. The patient was initially diagnosed with a urinary tract infection, but treatment for her condition was ineffective. After further examination, the patient was diagnosed with an intraperitoneal bladder rupture. The patient was treated surgically and made a recovery.

**Conclusion:** A ruptured bladder after childbirth is a serious obstetric emergency. During the postpartum period, urinary retention and incontinence can be a sign of bladder rupture. A high index of suspicion, prompt diagnosis, and treatment can all help to reduce morbidity and mortality.

**Keywords:** Bladder rupture; childbirth; normal vaginal delivery; case report.

### Introduction

Isolated spontaneous rupture of the bladder is an extremely rare urological emergency. It is often initially misdiagnosed, even with the aid of imaging modalities [1]. Spontaneous bladder rupture following vaginal childbirth has been reported in the literature [2, 3]. Here we present a case of delayed diagnosis of an isolated spontaneous bladder rupture following vaginal childbirth.

### Case presentation

A 28-year-old, underweight (BMI=19.5 Kg/m<sup>2</sup>), primigravida woman with a known case of minor thalassemia and a history of chronic cystitis prior to her pregnancy vaginally delivered a healthy newborn weighing 2700 grams at term. The labor course went smoothly. The vaginal wall was discovered to be fragile during the episiotomy repair. She was unable to urinate for three hours after giving birth, necessitating catheteriza-

tion. She was able to urinate normally after that and was discharged 24 hours later.

She presented to the ambulatory clinic one week later (8 days after childbirth) with bilateral lower extremity edema. It started three days after the birth and was getting worse by the day. A normal episiotomy wound was discovered during a vaginal examination. Her vital signs were within normal limits. An abdominal examination revealed no tenderness, guarding, or rigidity. Her legs were swollen with pitting edema. With a negative urine culture, the urine analysis revealed bacteriuria, hematuria, and proteinuria. The Doppler ultrasound examination of the extremities revealed no abnormalities. The pelvic and abdominal sonography could not be performed first due to bladder over distention. Following bladder catheterization and the drainage of 2 liters of urine, an ultrasound examination was performed, and the results revealed multiple tiny echogenic floating particles (debris) in the bladder, which

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could be the result of a urinary tract infection. The patient was sent home with 400 mg of cefixime daily for 10 days.

The patient presented to the emergency room three days later (11 days after childbirth) with urinary retention, abdominal pain, and distension. She stated that she had difficulty urinating and had episodes of urinary incontinence for the previous three days. Vital signs revealed a pulse rate of 120 beats per minute, a blood pressure of 110/70 mmHg, a respiratory rate of 19, and a temperature of 37.4°C. There was generalized abdominal tenderness. Three liters of urine were drained from the patient after she was catheterized. An ultrasound examination showed an empty bladder, no hydronephrosis, an enlarged postpartum uterus, normal ovaries, but plenty of fluid within the abdomen and pelvic cavities. The blood work up revealed neutrophilia and hypoalbuminemia. Enterobacter spp. was found in the urine culture. Her liver and renal function tests were normal. Following a consultation with a gastroenterologist and urologist, an aspiration of abdominal fluid was performed under the guidance of sonography, and 20 cc of purulent fluid was drained. Hence, due to peritonitis with acute abdomen syndrome, an emergent laparotomy was performed by a multidisciplinary team including an obstetrician, a general surgeon, and an urologist, and more than 2 liters of muddy, fibropurulent content with fibrin deposits on the intestines were removed and the peritoneal cavity was washed with a warm saline solution. Adhesiolysis was performed. No sign of gastrointestinal perforation, uterine injury, or gross bladder defect was detected. However, injection of methylene blue revealed a 20 mm-rupture at the dome of the bladder, which was repaired in two layers. The bladder's integrity was confirmed by instilling 250 mL of saline solution. A peritoneal drain was placed posterior to the bladder and the skin incision was closed in layers.

The patient was started on antibiotic treatment with gentamicin, and ceftriaxone, which was switched to clindamycin and meropenem due to the fever. Drainage tubes and antibiotic treatment were maintained for 5 days until remission of fever. Otherwise, the postoperative period was uneventful. Finally, the patient was discharged on post-operative day seven. The urologist ordered the removal of the foley catheter 14 days after surgery. The ultrasound examination on day 14 after surgery revealed normal results, so the catheter was removed per the urologist's order, and the patient was discharged without complications.

## Discussion

There are frequently underlying causes for spontaneous bladder rupture, the most common of which are malignancy, diverticulum, chronic cystitis, neurogenic bladder, alcoholism, and post radiation [4]. It has been proposed that obstructed labor and the fetal head's prolonged pressure on the pelvic soft tissues affect the pelvic nerve plexus, resulting in urinary dysfunction [4]. We believe that bladder atony, followed by bladder distension and urine retention, resulted in the blad-

der rupture in our case. Furthermore, a history of chronic cystitis prior to pregnancy, as well as hypoxic tissue due to chronic anemia (thalassemia), may have contributed to the bladder wall's fragility. Given the nonspecific clinical features of bladder rupture, the diagnosis should be made with a high index of suspicion. A history of urinary retention and sudden pain relief or worsening, accompanied by small amounts of infected or blood-stained urine, raises the possibility of bladder rupture. To avoid irreversible bladder damage, early detection and intervention are required. In such cases, a retrograde cystogram, in conjunction with a voiding cystogram, is considered the preferred procedure [5]. In cases of emergencies (unavailability of sophisticated imaging modalities, acute abdomen or unstable patient), an exploratory laparotomy could be lifesaving.

In our case, the diagnosis of bladder rupture was delayed. The history of post-delivery urinary retention, prominent lower extremity edema, and positive urine analysis for hematuria, bacteriuria, and proteinuria may have raised the possibility of bladder rupture, which would have led to further investigation. In every patient with a history of urinary retention after childbirth, it is prudent to broaden the differential diagnosis and raise the possibility of bladder rupture during post-delivery follow-up visits. To that end, a thorough physical examination and detailed inquiry about lower urinary tract symptoms are deemed necessary.

## Conclusion

A ruptured bladder after childbirth is a serious obstetric emergency. During the postpartum period, urinary retention and incontinence can be a sign of bladder rupture. A high index of suspicion, prompt diagnosis, and treatment can all help to reduce morbidity and mortality.

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## References

1. Peters PC. Intraperitoneal rupture of the bladder. *Urol Clin North Am.* 1989; 16(2):279-82.
2. Modina P, Vidal L, David CI, Leal C, Escowich R, Bergero MA. Spontaneous bladder rupture: Laparoscopic management of rare complications after nontraumatic vaginal delivery. *Urol Case Reports* [Internet]. 2020; 33:101377. Available from:

<https://doi.org/10.1016/j.eucr.2020.101377>

3. Png KS, Chong YL, Ng CK. Two cases of intraperitoneal bladder rupture following vaginal delivery. *Singapore Med J.* 2008; 49(11):1-3.

4. Bastable JR, De jode LR, Warren RP. Spontaneous rupture of the bladder. *Br J Urol.* 1959; 31(1):78-86.

5. Mahat Y, Leong JY, Chung PH. A contemporary review of adult bladder trauma. *J Inj Violence Res.* 2019; 11(2):101-6.