

## Bladder Rupture Presented with Acute Abdominal Pain and Renal Dysfunction: A Postpartum Emergency Case Report

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ARTICLE INFO	ABSTRACT
<i>Article type:</i> Case report	<b>Background:</b> Spontaneous bladder rupture is a rare condition, and almost all the reported cases in the world have been preceded by bladder dysfunction, radiotherapy, urinary tract obstruction, pelvic surgery, inflammation, and malignancy.
<i>Article History:</i> Received: 24-Jul-2017 Accepted: 03-Oct-2018	<b>Case report:</b> In this study, we present the case of a 39-year-old woman (G: 4, P: 1, Ab: 2) who was in week 38 of pregnancy and attended our hospital with the onset of labor pain. She gave birth to a 3200 g infant through normal vaginal delivery. The patient attended with severe abdominal pain and oliguria four days after delivery. Ultrasonography showed massive abdominal fluid and bladder rupture.
<i>Key words:</i> Bladder rupture Vaginal delivery Abdominal pain Renal dysfunction	<b>Conclusion:</b> Regarding the rareness of bladder rupture during vaginal delivery, we introduced a case of bladder rupture following delivery. This case is important for midwives and gynecologists to gain more information about normal vaginal delivery complications to accelerate diagnostic and therapeutic interventions.

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### Introduction

Spontaneous bladder rupture is an extremely rare event, and almost all the reported cases in the world have been preceded by bladder dysfunction, radiotherapy, urinary tract obstruction, pelvic surgery, inflammation, or malignancy (1). The diagnostic keys include clinical manifestations, acute renal failure, onset of acute abdominal pain, inability to pass gas or stool, ascites, and intestinal ileus (2). Isolated intraperitoneal bladder rupture after vaginal delivery is a rare urological emergency (3). We presented this case regarding the rarity of bladder rupture during vaginal delivery. This case is important for midwives and gynecologists to gain more information about normal vaginal delivery complications to accelerate diagnostic and therapeutic interventions.

### Case report

A 39-year-old woman (G:4, P:1, Ab:2) in

week 38 of pregnancy was referred to the Obstetrics and Gynecology ward of Imam Hospital of Sari city, Iran, in August 2016 with the onset of labor pain. She gave birth to a 3200 g infant through normal vaginal delivery. The bladder was emptied with a catheter prior to delivery. Mediolateral episiotomy was performed during delivery. The patient was discharged 24 hours postpartum in a satisfactory condition. Four days after delivery she attended with severe abdominal pain and oliguria and history of non-localized mild abdominal pain and polyuria two days after delivery.

On admission, she had moderate dehydration and shortness of breath. Her blood pressure was 110/70 with 120 pulses and her axillary temperature was 38°C. Edema was observed in the lower limbs. Her abdomen was distended with generalized tenderness and guarding. The bladder was drained with a catheter.

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Ultrasonography showed massive abdominal fluid. After hydration, she was taken to operation room for emergency laparotomy.

In the exploration of the abdomen, 4 liters of serous fluid was found in the peritoneal cavity and a loop of ileum adhering to the upper surface of the bladder. Two layers of the bladder were restored after the freshening of the edges. There was no evidence of uterine or cervical canal laceration. The bladder was drained by suprapubic catheters. After 24 hours, the patient had a normal urinary output and was discharged after 48 hours. There were no problems on follow-up.

## Discussion

Bladder rupture with no history of recent trauma or manipulation with measuring instruments is uncommon (4-6). The word "spontaneous bladder rupture" is used in cases where there is no history of previous trauma and underlying pathology (6). An intravesical occlusion with a sudden increase in the intravesical pressure during the second stage of labor is commonly a cause of tearing (1, 5, 6). So far, there have been few reports of bladder rupture with evidence of sudden acute pain after normal vaginal delivery. According to our experience, intraperitoneal bladder rupture should be the first differential diagnosis in these cases. Furthermore, various studies have recommended retrograde computed tomography (CT) cystography or cystoscopy to confirm this diagnosis (4-6).

Effective early intervention for temporary bladder closure and long bladder drainage with suprapubic and urethral catheters can be used to minimize urinary leakage and reduce the complications caused by this condition. Emptying the bladder should be routinely performed in each patient before the patient progresses to the second stage of labor (7). Usually, rupture of the bladder during the postpartum period is associated with rupture of the uterus, and isolated intraperitoneal bladder rupture in a vaginal delivery is extremely rare (8).

The first case of bladder rupture was reported in 1995. In this case, the primary diagnosis was sepsis secondary to uterine rupture with renal failure in the background of sepsis and the use of nonsteroidal anti-

inflammatory drugs (6). CT scan without contrast was not helpful in detecting the perforation and diagnosis was reached based on cystography results (4). The pressure protecting the fetus head against the intraperitoneal part of the urinary bladder may cause necrosis of the dome of the bladder secondary to increased force and pressure during labor contractions; and if proper catheterization is not performed, the chances of a distended bladder during delivery are high. Other predisposing factors are prolonged second stage of labor and a newborn with a high birth weight (9). Thus, we recommend emptying of the bladder prior to labor. There is no clear implication as to what exactly can predispose patients to this condition. In our case, this condition occurred with catheterization during the 3rd stage of labor, an infant weighing 3200 g, and a delivery without intervention (10).

In the study of Saleem et al., a case of bladder rupture was reported in a 38-year-old woman with back pain after waking and no history of trauma or alcohol abuse. The study concluded that patients may experience pyrexia, abdominal pain, abdominal distention, dysuria, or oliguria, with a sudden onset of acute renal failure (3). It should be pointed out that surgical intervention is always based on clinical findings rather than radiological evidence (9). Making the decision for a laparotomy in cases presenting with symptoms of peritonitis should not be delayed. Imaging is only used in ambiguous cases, and laparotomy is necessary to perform a peritoneal lavage, excise the necrotic tissue, and primarily repair the bladder perforation. Cystogram is used 10 days after surgical reconstruction to confirm the repair. If the cystogram shows no leakage, the suprapubic catheter is removed. All patients diagnosed with an intraperitoneal bladder rupture must undergo a complete surgical repair; however, an extraperitoneal rupture may be treated using a drainage catheter only if the hematuria is quickly resolved, the catheter is properly draining, and the neck of the bladder is not injured. Otherwise, formal repair is mandatory (11).

In case of bladder rupture, treatment includes the closure of the tear using sutures, setting an appropriate drainage tool, and catheterization for 10 days (12). Recovery is

always without complications or sequelae. Suprapubic catheter has not been shown to cause any long-term morbidities (13). A biopsy specimen of the bladder during surgery may disclose an underlying pathology that would not be discovered by observing the bladder during the surgery (14). In our case, a pathological study was not performed.

### Conclusion

Spontaneous bladder rupture is one of the most uncommon complications of normal vaginal delivery and few cases of this condition have been reported in the world. In most cases, the patient refers with acute abdominal pain and renal dysfunction symptoms 24 to 48 hours postpartum. We recommend considering bladder rupture as the initial differential diagnosis in these patients to prevent further complications.

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### Conflicts of Interest

None declared.

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