

Case Report

Urinary and Hemorrhagic Ascites Following Emergency Subtotal Hysterectomy for Uterine Rupture

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Abstract

Objective: To describe a rare case of combined urinary and hemorrhagic ascites following emergency subtotal hysterectomy for uterine rupture and to highlight the diagnostic challenges associated with this condition.

Methods: Case report

Case: A 33-year-old G5P4A1 woman presented to the emergency department with severe abdominal pain and distension four days after a subtotal hysterectomy for uterine rupture following a c-section. ultrasound showed massive ascites, yet the patient's hemoglobin remained relatively stable, and laboratory tests showed elevated renal markers, a sign of urinary reabsorption through the peritoneum. Ultrasound and urinary catheterization, which resulted in 3000 cc of urine, confirmed a combined etiology of urinary ascites and hemoperitoneum. Exploratory laparotomy found a 4 cm superior bladder defect and active bleeding from the right infundibulopelvic ligament.

Discussion: This case highlights a rare diagnostic challenge where urinary and hemorrhagic ascites coexisted. Literature indicates that a history of multiple cesarean sections increases tissue adhesion risks five-fold, significantly complicating emergency hysterectomies and increasing the risk of multi-organ injury. A key finding in this case is the "mimicking" effect: the massive intraperitoneal fluid collection initially suggested massive hemorrhage, yet the relatively stable hemoglobin levels proved otherwise. This discrepancy is a vital diagnostic clue that clinicians must recognize to differentiate urinary leakage from isolated hemorrhage.

Conclusion: Combined urinary and hemorrhagic ascites after subtotal hysterectomy is a rare but significant complication. Early recognition through clinical, laboratory correlation and imaging are important for improving patient outcomes in complex obstetric cases.

Keywords: bladder rupture, hemoperitoneum, hemorrhage, post-operative ascites subtotal hysterectomy.

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INTRODUCTION

Urinary ascites and hemoperitoneum are rare but significant complications that are primarily associated with unrecognized lower urinary tract and vascular injuries during major gynecologic and obstetric surgeries. Subtotal hysterectomy, particularly when performed under emergency conditions or in patients with distorted pelvic anatomy resulting from previous surgeries or

pregnancies, carries an inherent risk of visceral injury. The incidence of bladder injury during major gynecologic procedures ranges from 0.2% to 1%, and this risk increases significantly in patients with a history of multiparity or previous uterine scars because of dense pelvic adhesions.^{1,2} When bladder injury remains undetected intraoperatively, urine may continuously leak into the peritoneal cavity, resulting in urinary ascites.^{2,3}

The simultaneous occurrence of urinary and

hemorrhagic ascites represents an even rarer clinical entity and usually suggests concomitant vascular injury or severe local tissue damage.⁴ Diagnosing this dual complication in the postoperative period poses a significant clinical challenge. Symptoms such as progressive abdominal distension, diffuse abdominal pain, and oliguria are nonspecific and frequently overlap with normal postoperative discomfort or postoperative ileus, often leading to delayed diagnosis or misinterpretation.^{4,5} If left untreated, intraperitoneal reabsorption of urinary constituents, including urea and creatinine, may result in serious metabolic complications such as pseudorenal failure, electrolyte disturbances, and peritonitis.⁶

In this report, we present a rare case of concurrent urinary and hemorrhagic ascites in a 33-year-old woman (G5P4A1) who developed progressive abdominal distension following an emergency subtotal hysterectomy for uterine rupture. This case highlights the importance of maintaining a high index of suspicion for occult urinary tract injury, utilizing biochemical and imaging evaluations for early diagnosis, and pursuing timely surgical intervention to prevent severe morbidity.

CASE

Patient Identification and History

A 33-year-old multiparous woman (G5P4A1) presented to the emergency department with a 24-hour history of worsening lower abdominal pain accompanied by a single episode of nausea and vomiting. Four days earlier, she had undergone an emergency cesarean section followed by a subtotal hysterectomy at another hospital because of uterine rupture. The initial surgery lasted approximately five hours and required transfusion of nine units of packed red blood cells. Anesthesia was initially administered via spinal block and was subsequently converted to general anesthesia following delivery. The patient denied fever, bowel dysfunction, or dysuria. Her past medical history was otherwise unremarkable. Menarche occurred at 12 years of age, with regular 28-day menstrual cycles lasting 5–6 days and no history of dysmenorrhea. Her obstetric history included three previous deliveries: two repeat cesarean sections and one successful vaginal birth after cesarean (VBAC).

Physical Examination

On presentation, the patient appeared moderately ill. Vital signs revealed moderate tachycardia (heart rate >100 beats/min), while all other parameters were within normal limits. General examination demonstrated conjunctival pallor. Abdominal examination revealed marked distension with diffuse tenderness in all quadrants. Pelvic examination demonstrated cervical motion tenderness and a prominent fluctuant mass within the pouch of Douglas.

Investigations

Initial laboratory investigations demonstrated mild anemia, leukocytosis, and hypoalbuminemia. Notably, serum creatinine and Blood urea nitrogen (BUN) levels were elevated, suggesting acute kidney injury (pseudorenal failure) secondary to intraperitoneal urine reabsorption. Transabdominal and transvaginal ultrasonography revealed a large volume of dense free fluid within the peritoneal cavity, including the subhepatic space (Figure 1A). Furthermore, transvaginal imaging demonstrated extensive fluid accumulation within the pouch of Douglas and identified a structural defect at the level of the uterine isthmus extending toward the superior wall of the urinary bladder (Figure 1B).

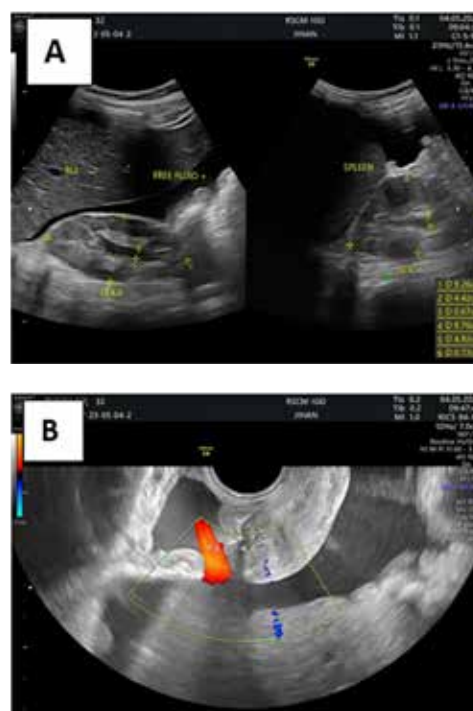


Figure 1. Ultrasonographic findings: (a) transabdominal ultrasound; (b) transvaginal ultrasound

Diagnosis

Based on the clinical presentation of progressive abdominal distension, biochemical evidence of acute kidney injury, and sonographic findings suggestive of a vesicouterine tract defect, the patient was diagnosed with postoperative urinary ascites and hemoperitoneum secondary to an unrecognized intraoperative bladder injury involving the superior bladder wall, resulting in pseudorenal failure.

Management

The patient was immediately resuscitated with crystalloid fluids administered through two large-bore intravenous lines, and emergency exploratory laparotomy was planned. Following insertion of an indwelling urinary catheter, approximately 3,000 mL of yellowish-brown urine was drained immediately, resulting in significant abdominal decompression and suggesting evacuation of the urinary ascites.

During exploratory laparotomy, a massive hemoperitoneum mixed with approximately 200 mL of residual urine was evacuated (Figure 2A). Comprehensive abdominal and pelvic exploration revealed a complex hematoma involving the right adnexa and active bleeding originating from the right infundibulopelvic (IP) ligament (Figure 2B). To achieve definitive hemostasis, a right salpingo-oophorectomy was performed (Figure 2D). The right ureter was carefully identified and preserved. Subsequently, the right IP ligament was clamped, transected, and securely ligated.

A retrograde bladder filling test was then performed, demonstrating active extravasation of fluid through a 4-cm defect located on the superior bladder wall (Figure 2C). The bladder defect was repaired by a consulting urologist using a standard two-layer closure technique (Figure 2E).

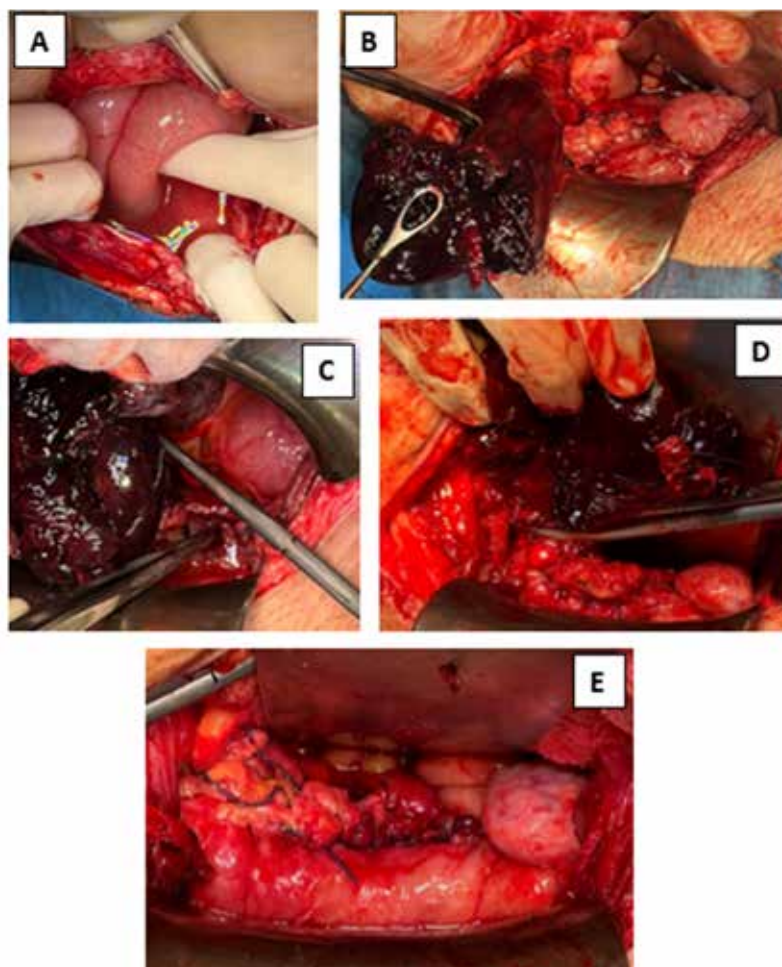


Figure 2. Intraoperative findings showed: (a) hemoperitoneum and urine leakage of approximately 200 cc; (b) hematoma complex in the right fallopian tube and active bleeding from the right infundibulopelvic ligament; (c) bladder patency impairment in superior bladder wall; (d) salpingo-oophorectomy; (e) Bladder repair with 2-layer suture and abdominal drain insertion.

Outcome and Follow-up

A pelvic drain was placed to monitor for recurrent bleeding or urinary leakage, and the patient was transferred to the Intensive Care Unit (ICU) for close postoperative observation. Following surgical repair and successful bladder closure, urine output normalized and serum

creatinine and BUN levels rapidly declined toward baseline values, confirming resolution of the pseudorenal failure. The postoperative course was uneventful. The patient was subsequently discharged in stable condition with an indwelling urinary catheter maintained for bladder decompression and postoperative healing.

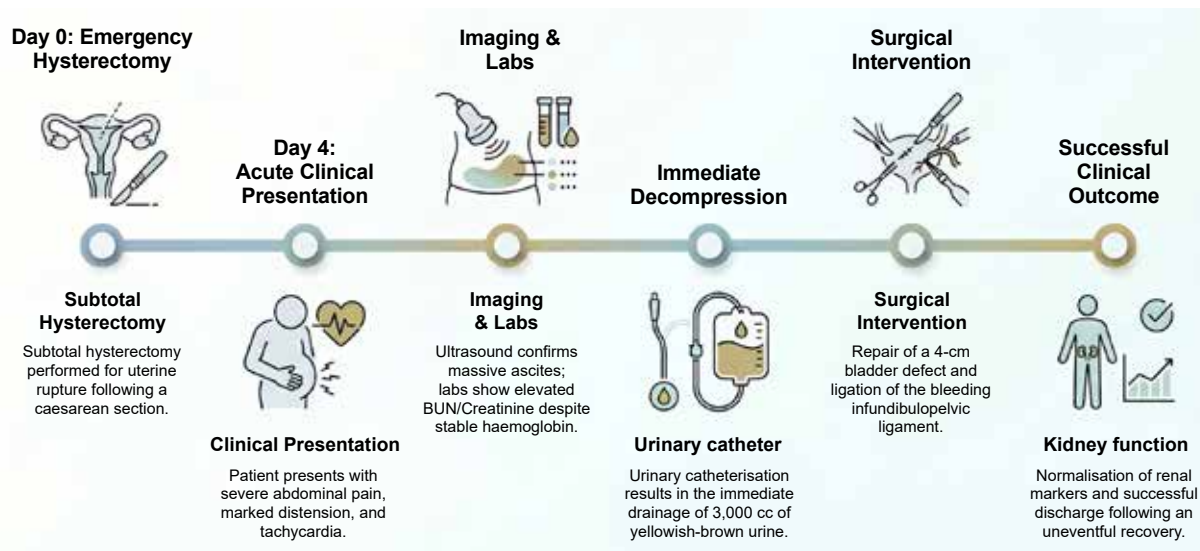


Figure 3. Timeline of clinical events and management from initial management to patient recovery

DISCUSSION

Postoperative abdominal distension and pain following major obstetric surgery require a broad differential diagnosis. Although postoperative ascites is more commonly associated with hepatic disease, malignancy, or infection, the rapid accumulation of intraperitoneal fluid after surgery should raise suspicion for iatrogenic visceral or vascular injury. Bladder injury occurs in approximately 0.08%–0.94% of cesarean deliveries, while hemorrhagic complications following emergency peripartum hysterectomy have been reported in 0.2%–2% of cases.^{1,2}

The present case is notable because urinary ascites and active hemoperitoneum occurred simultaneously following subtotal hysterectomy. While isolated urinary ascites or postoperative pelvic hematomas have been described in the literature, the coexistence of both conditions is exceptionally rare. A previous report described delayed uroperitoneum after a difficult hysterectomy; however, no concurrent vascular bleeding was identified.⁴

The delayed diagnosis of bladder injury in our patient is consistent with previous reports. Iatrogenic bladder injuries sustained during

cesarean section or hysterectomy may remain unrecognized intraoperatively and become clinically apparent several days later. Continuous bladder filling can worsen an occult defect, leading to progressive urine leakage into the peritoneal cavity and the development of urinary ascites.⁷ In this case, the large volume of ascites initially suggested massive hemorrhage. However, the relatively stable hemoglobin level was inconsistent with the amount of intraperitoneal fluid observed on ultrasonography, providing an important diagnostic clue.

Urinary ascites can also result in pseudorenal failure. When urine accumulates within the peritoneal cavity, the peritoneal membrane acts as an autodialysis surface, allowing reabsorption of urea and creatinine into the systemic circulation. Consequently, serum creatinine and BUN levels may rise despite normal renal function.⁸ This phenomenon is frequently mistaken for acute kidney injury, potentially delaying definitive surgical management.⁶ In our patient, drainage of approximately 3,000 mL of urine through catheterization, followed by rapid normalization of renal markers after bladder repair, confirmed the diagnosis of pseudorenal failure secondary to urinary ascites.

The patient's history of two previous cesarean deliveries likely contributed to the development of both bladder injury and hemorrhage. Repeat cesarean sections are associated with a five-fold increase in dense pelvic adhesions, resulting in distortion of normal pelvic anatomy and increased surgical complexity.⁹ During emergency hysterectomy for uterine rupture, these adhesions may obscure tissue planes, increase the risk of bladder injury, and complicate vascular dissection.¹⁰ The 4-cm bladder defect and active bleeding from the infundibulopelvic ligament observed in this case were likely consequences of these challenging operative conditions.

This case emphasizes the importance of considering urinary tract injury in patients presenting with postoperative abdominal distension, particularly when the degree of ascites appears disproportionate to the decline in hemoglobin levels. Early recognition of pseudorenal failure and prompt surgical intervention are essential to prevent significant morbidity.

CONCLUSIONS

The coexistence of urinary ascites and hemoperitoneum is a rare but potentially serious complication following emergency subtotal hysterectomy, particularly in patients with dense pelvic adhesions resulting from previous cesarean deliveries. This case demonstrates that intraperitoneal urine leakage may lead to pseudorenal failure through peritoneal reabsorption of urea and creatinine, thereby mimicking acute kidney injury and potentially delaying diagnosis. Clinicians should maintain a high index of suspicion when postoperative abdominal distension appears disproportionate to the degree of hemoglobin decline. Prompt urinary catheterization, accurate diagnostic evaluation, and a multidisciplinary approach are essential for timely surgical management and the prevention of significant morbidity.

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