

CASE REPORT

A Rare Case of Spontaneous Gallbladder Perforation in Pregnancy

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ABSTRACT

Spontaneous gallbladder perforation following childbirth is an uncommon disorder. Other problems of the puerperium, such as secondary postpartum hemorrhage, postpartum sepsis or pyrexia, and thromboembolic disease are commoner causes of obstetric emergencies leading to maternal mortality. We report an unusual case of a 30-year-old woman who presented to the emergency department with an acute abdomen and was subsequently found to have gallbladder perforation at laparotomy, for which no apparent cause was found. Acute intraabdominal infection secondary to hepatobiliary disease, pancreatic inflammation, or perforation within the gastrointestinal tract (i.e. perforated abdominal viscus) may lead to generalized peritonitis and subsequent fulminant sepsis. A prompt surgical intervention and immediate initiation of antimicrobial therapy according to best guess antibiotic sensitivity are very important to optimize the management in surgical patients with suspected specific site of surgical infection.

Key words: Gallbladder perforation, Pregnancy, Peritonitis

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ÖZET

Gebelikte Görülen Nadir Bir Olgu: Spontan Safra Kesesi Perforasyonu

Spontan safra kesesi perforasyonu doğumdan itibaren nadir görülen bir hastalıktır. Anne ölümüne yol açan postpartum kanamaya sekonder gelişen, postpartum sepsis veya ateş, tromboembolik hastalıklar, yaygın obstetrik acil nedenleridir. Biz hiçbir belirgin nedeni bulunmayan akut karın bulguları ile acil servise başvuran ve daha sonra laparotomi esnasında safra kesesi perforasyonu tespit edilen 30 yaşındaki bir kadının sıradışı bir olgusunu raporladık. Hepatobiliyer hastalık, pankreatik inflamasyon veya gastrointestinal trakt perforasyonuna (delinmiş bir iç organ) bağlı akut intraabdominal infeksiyonlar jeneralize peritonite ve daha sonra fulminan sepsise yol açabilir. Cerrahi infeksiyon şüphesi olan cerrahi hastalarda yönetimi optimize edebilmek için hızlı bir cerrahi girişim ve hemen başlayan antibiyotik duyarlılığına göre en iyi tahminle yapılmış, uygun bir antimikrobiyal terapi çok önemlidir.

Anahtar kelimeler: Safra kesesi perforasyonu, Gebelik, Peritonit

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INTRODUCTION

Spontaneous gallbladder perforation is an uncommon condition reported in pregnant women. This condition is considered a serious complication of cholecystitis and can lead to fulminant sepsis from community-acquired secondary peritonitis or tertiary peritonitis. Acute cholecystitis increases pressure within the gallbladder, and combined with invasive infection in the gallbladder wall, may lead to empyema, necrosis of the gallbladder wall, and perforation into the peritoneal cavity. Two different groups of microbiology infection can be anticipated: gram-positive cocci (*Enterococcus* spp.) and gram-negative bacilli (*Escherichia coli* and *Klebsiella* spp.). Infections are usually monomicrobial, and anaerobes in the biliary tree are found infrequently.

In Western countries, the majority of bacterial peritonitis from perforation of the alimentary tract is due to appendicitis, or the colon itself from diverticulitis or colon cancer^[1]. Compared to peritonitis arising from a perforated gallbladder, microorganisms inoculated from these infections, such as gram-negative bacilli (*E. coli*) and anaerobes (*Bacteroides fragilis*), are the main culprits. It is important to initiate an appropriate course of antibiotics on suspected organisms as soon as possible preoperatively. It has been shown that the mortality of patients is significantly lower when appropriate antibiotics are prescribed early in the course of the patient's illness.

Perforation of the gallbladder can present as an acute abdomen either during the gestational weeks of pregnancy or 'delayed' in the postpartum period. Cholecystectomy, therefore, may be performed before or after delivery^[2-4]. The signs and symptoms of a ruptured gallbladder may mimic appendicitis^[5]. A prompt recognition and early surgical intervention are the mainstays of therapy.

CASE REPORT

A 30-year-old female presented to the emergency department with pyrexia, wound infection, and abdominal pain 10 days after emergency lower segment cesarean section (EM LSCS). There was noticeable greenish bile content discharge from the Pfannenstiel wound. She had a previous history of laparoscopic appendectomy. There was no previous history of cholelithiasis. On examination, she was febrile (37.8°C), with a pulse rate of 88 beats per minute, blood pressure of 130/65 mmHg, and respiratory rate of 18. Her abdomen was tender and guarded. Enterocutaneous fistulae or small bowel perforation was suspected.

Full blood count revealed an elevated white blood cell (WBC) of $20.00 \times 10^9/L$, hemoglobin (Hb) 9.9 g/dL, platelets $871 \times 10^9/L$, sodium (Na) 133 mmol/L, potassium (K) 4.6 mmol/L, urea 1.0 mmol/L, creatinine 65 $\mu\text{mol/L}$, bilirubin (total) 20 $\mu\text{mol/L}$, alkaline phosphatase (ALP) 88 IU/L, gamma-glutamyl transferase (GGT) 49 IU/L, alanine transaminase (ALT) 11 IU/L, amylase 23 IU/L, C-reactive protein (CRP) 284 mg/L, and erythrocyte sedimentation rate (ESR) 84 mm/hour. An urgent abdominal computed tomography revealed no definitive defect in the gallbladder. There was no evidence of intrahepatic duct dilatation. The liver, spleen, pancreas, and both kidneys appeared normal. There was evidence of inflammatory changes within the peritoneum, and abnormal fluid collection in the right lower quadrant adjacent to the gallbladder (Figure 1). The computed tomography findings raised the possibility of either a gallbladder or small bowel injury associated with the recent surgery.

She was unwell and septic clinically. Intravenous antibiotics (piperacillin 4 g/tazobactam 500 mg, metronidazole 500 mg) were administered to prevent septicemia secondary to infection arising from the biliary tree. An exploratory laparotomy was performed and the gallbladder was found to be perforated (Figure 2). Retrograde dissection of the gallbladder was carried out. Approximately 500 mL of greenish fluid drained from the right gutter of the abdomen. A thorough washout with warm saline and Betadine solution was carried out to prevent gross peritoneal contamination. A non-suction closed system Robinson drain was inserted. The abdominal incision was closed by a mass



Figure 1. Computed tomography scan demonstrating fluid collection in right lower quadrant adjacent to the gallbladder (white arrow). No definitive defect is seen in the gallbladder. The liver, spleen, pancreas, and both kidneys appear normal.

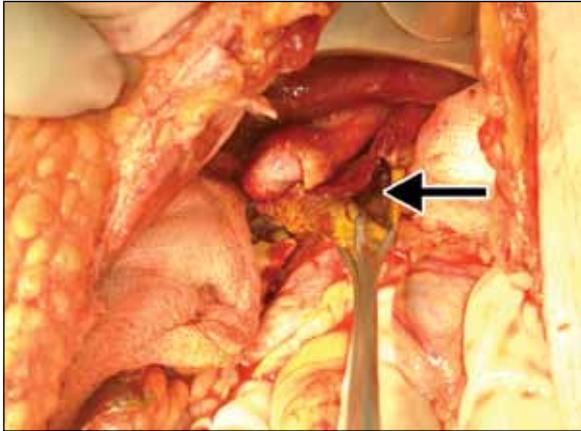


Figure 2. The body of the gallbladder was perforated longitudinally (black arrow).

closure technique using loop PDS 0/0 and staples to skin. She recovered well postoperatively. Endoscopic retrograde cholangiopancreatography (ERCP) revealed no evidence of bile leak. A pigtail stent (7 cm French, 7 cm length) was inserted. The surgical drain was removed post endoscopic procedure.

DISCUSSION

Gallbladder perforation is a rare but potentially fatal disease. It is an exceedingly rare condition among pregnant women. The diagnosis of perforated gallbladder is very difficult because it can mimic other acute surgical abdomens such as acute appendicitis, cholecystitis, and cholangitis. The majority of gallbladder perforations are associated with cholelithiasis^[6]. Other causes of perforated gallbladder may be related to blunt abdominal trauma, iatrogenic damage, and severe cholecystitis. Frequently, spontaneous perforation may have no apparent cause. Community-acquired secondary peritonitis arising from the biliary tract is uncommon; however, it may lead to abscess formation, fulminate sepsis, or death.

The most common causes of peritonitis usually result from postoperative complication, perforated appendix or peptic ulcer. Biliary peritonitis is a less common encounter and its presentation may mimic clinical presentation of perforation of the abdominal viscus. Prompt resuscitation is essential and urgent surgery (often laparotomy) is often indicated. Diagnosis is usually a clinical one, and investigation of peritonitis as for any other cause of acute abdomen should include full blood count, urea and electrolyte, serum amylase, and an erect chest X-ray to exclude visceral perforation. A computed tomography scan was found superior to ultrasound for diagnosis of gallbladder perforation^[7].

An early administration of antibiotics and surgical treatment may decrease overall morbidity and mortality associated with intraabdominal infection. In the recent guidelines published by the Surgical Infection Society of North America (SIS) and Infectious Disease Society of America (IDSA), antimicrobial therapy for secondary peritonitis should include an agent or a combination of agents with activity against both aerobic and anaerobic bacteria^[8,9]. The antimicrobial of choice should be against both gram-negative bacteria (e.g. *E. coli*) and anaerobic bacteria (e.g. *B. fragilis*). Either single-drug therapy with a broad-spectrum cephalosporin, or beta-lactam/beta-lactamase inhibitor combination, or combination therapy with agents against aerobes and anaerobes, have proven effective in treating community-acquired intra-abdominal infection of mild-to-moderate severity. The Surviving Sepsis Campaign (SSC) recommended that intravenous antibiotics should be started during the first six hours from onset of presentation to reduce mortality associated with severe sepsis.

The exact pathophysiology of spontaneous gallbladder perforation in pregnancy remains unknown. A high index of suspicion is necessary, and prompt surgical intervention is required when the source of peritonitis can be removed or closed.

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