

A rare case of gall bladder perforation in acute acalculous cholecystitis

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Introduction

Gall bladder perforation is a rare but life threatening complication of acute cholecystitis. It is rarely diagnosed preoperatively, although with a high index of suspicion, awareness, diagnostic procedures such as ultrasound and CT scan scan can help in preoperative diagnosis. However, final diagnosis is usually confirmed at laparotomy. Increase in morbidity and mortality is observed when a definitive diagnosis is delayed [1].

Case Report

An eighty year old male presented with eight days history of discomfort in the right hypochondrium, constipation and fever without chills and rigors for 2 days. His vitals at admission were BP: 130/70 mm Hg Pulse: 90 bpm Temperature: 100°F, Respiratory rate: 22/min. Abdominal examination revealed mild tenderness in the right hypochondrium. Rest of the systemic examination was unremarkable. Laboratory studies showed a white cell count of 9,700/mm³; haemoglobin of 14.1 gm/dl; serum K= 4.7 meq/L; serum amylase 26 U/L; serum lipase 8 U/L; SGPT 10 U/L. Initial sonographic examination of abdomen revealed grossly distended gall bladder (transverse diameter 6 cm) with diffuse irregular wall thickening predominantly in the fundal region. Superior surface of gall bladder shows indistinct wall with subcapsular and intra parenchymal multi loculated hepatic collection measuring 3.7x1 cm. Mild pericholecystic fluid was

seen suggestive of hydropic gall bladder with possibility of gall bladder perforation. Common bile duct [CBD] and rest of the scan was normal. No gall stones were seen.



Figure 1. Abdomen on inspection

CECT of the abdomen revealed evidence of hydropic and inflamed gall bladder with findings suggestive of likely sealed off gall bladder perforation with pericholystic and intrahepatic collection with adjacent inflammatory changes, basal lung consolidation and no gall stones. A nasogastric tube was placed, intravenous fluids, intravenous antibiotics and analgesia administered. Laparotomy was done - findings were of a distended gall bladder with multiple rents and gangrenous changes in its wall and adhesions with the omentum. Retrograde dissection of the acalculous gallbladder was carried out. Approximately 500 mL of greenish fluid (bile) drained from abdominal cavity. A thorough wash with warm saline was carried out. Two ADK-32 drain in subhepatic and pelvis were placed. Closure was done using loop polyamide and stapler. Bile culture revealed enterococcus species and antibiotics given as per culture and sensitivity report. Patient was discharged on 12th post operative day. Condition was satisfactory on follow up in the

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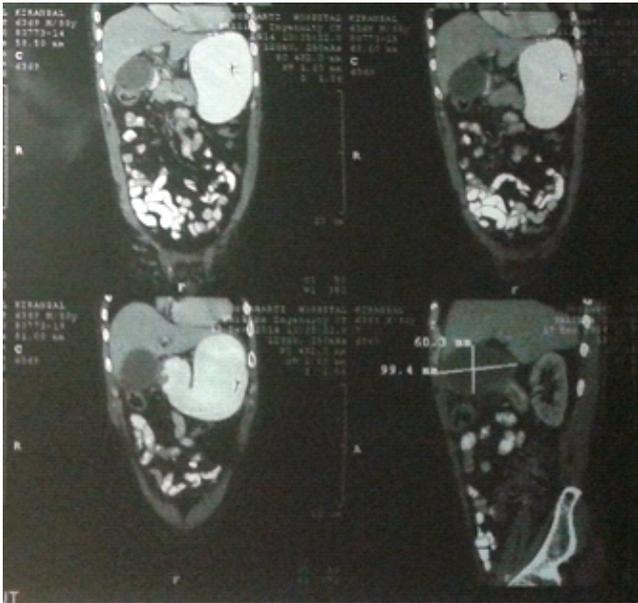


Figure 2. CECT showing distended gall bladder



Figure 3. Gangrenous gall bladder after removal

Discussion

Perforation of the gall bladder occurs in approximately 3% of cases of acute cholecystitis. The mortality rate is in the range of 12%-16% [1]. Niemeier classified gall bladder perforation as; generalized peritonitis as acute or type I, pericholecystic abscess and localized peritonitis as subacute or type II and cholecystoenteric fistula as chronic or type III [2]. Infections, malignancy, trauma and drugs (e.g. corticosteroids) and systemic diseases such as diabetes mellitus and atherosclerotic heart disease are predisposing factors [4]. The fundus is the most distal part with regards to blood supply and therefore this makes it the most common site for perforation which can occur as early as 2 weeks or several weeks after the onset of cholecystitis [5]. Acute

acalculous cholecystitis comprises 5 – 10 % of all cases of acute cholecystitis. This atypical form of cholecystitis is associated with morbidity and a higher mortality rate when compared to more common calculous cholecystitis. Acute acalculous cholecystitis is associated with patients on mechanical ventilation, those receiving total parenteral nutritional and patients with polytrauma [6-9]. Acute cholecystitis increases pressure within the gall bladder, and combined with invasive infection in the gall bladder wall, may lead to empyema, necrosis of the gall bladder wall, and perforation into the peritoneal cavity. Gall bladder perforation is a rare but potentially fatal disease. The diagnosis of perforated gall bladder is very difficult because it can mimic other acute surgical abdomens such as acute appendicitis, cholecystitis, and cholangitis. The majority of gall bladder perforations are associated with cholelithiasis [10]. Other causes of perforated gall bladder may be related to blunt abdominal trauma, iatrogenic damage, and severe cholecystitis.

A computed tomography scan was found superior to ultrasound for diagnosis of gall bladder perforation [11]. 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 [12,13]. 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 betalactam/ beta-lactamase inhibitor combination, or combination therapy with agents against aerobes and anaerobes, have proven effectiveness 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.

Conclusion

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. An early diagnosis and administration of antibiotics and surgical treatment may decrease overall morbidity and mortality associated with intraabdominal infection.

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Key Points:

- Diagnosis of perforated gall bladder is very difficult because it can mimic other acute surgical abdomens such as acute appendicitis, cholecystitis, and cholangitis
- A computed tomography scan is superior to ultrasound for diagnosis of gall bladder perforation
- Acute acalculous cholecystitis is associated with morbidity and a higher mortality rate when compared to more common calculous cholecystitis.
- Acute acalculous cholecystitis is associated with patients on mechanical ventilation, those receiving total parenteral nutritional and patients with polytrauma.
- Early diagnosis and administration of antibiotics and surgical treatment may decrease overall morbidity and mortality