

Case Report

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Gallbladder Perforation: An Uncommon Complication of Acute Cholecystitis

Marwan Rasheed Mohammed^{1*} and Sabah Taha Zaki²

1. Consultant General Surgeon, General Surgery, Al Qassimi Hospital, Sharjah, United Arab Emirates

2. General Practitioner, General Surgery, Al Kuwait Hospital, Sharjah, United Arab Emirates

Abstract

Acute Cholecystitis is a common condition that may present with unusual complications like gallbladder perforation. Such an uncommon complication usually presents a challenge to surgeons to diagnose and provide the necessary management on as early as possible. The mortality rates are directly related to early surgical intervention. Therefore, it is crucial to keep in mind such a complication and know when to further investigate such patients. In this report we will describe a case of acute perforated cholecystitis which was almost missed due to the unspecific clinical presentation.

Corresponding author: Marwan Rasheed Mohammed, Consultant General Surgeon, General Surgery, Al Qassimi Hospital, Sharjah, United Arab Emirates. Fax: 00971522619446; Tel: 00971562540202; E-mail: Marwanrm1976@gmail.com.

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Introduction

Acute gallbladder perforation (GBP) is one of the complications that can occur in patients with acute cholecystitis. GBP can be classified into three types as per the Niemeier classification: type I is the acute perforation into the free peritoneal cavity; type II is the subacute perforation with abscess formation; and type III is the chronic perforation with the formation of fistula between the gallbladder and the another viscus [1].

GBP is a life-threatening complication with a reported mortality rate of 12-42%, despite not being a common complication [2]. The exact etiology of GBP is not well established yet. Surgeons are often facing challenges diagnosing and managing these cases [3].

It has been shown that when comparing GBP and acute cholecystitis without perforation, patients with GBP had longer lasting surgeries, higher rates of conversion,

higher bile duct injuries, higher re-intervention and a higher mortality rate [4]. Therefore, it is of high significance to highlight cases of GBP, their diagnosis and management.

Case Report

A 40 year-old female patient came to the Accident and Emergency Department complaining of sudden, sharp, constant abdominal pain that started 2 hours ago. The pain was in the epigastric region and was radiating to the back. It was associated with nausea and fever. The patient denied any other symptoms. She had a milder attack of the pain two days ago and was treated with painkillers in a clinic. The pain then came back and was not controlled by the oral analgesics anymore. The patient had no significant past medical or surgical history. On physical examination the patient had the following

vitals: Temperature 38.4 C°, Heart Rate 100 bpm, Blood Pressure 136/74 mmHg, Respiratory Rate 22 bpm, Oxygen Saturation 100% on room air. She was conscious and oriented but ill-looking. She was mildly dehydrated, and not jaundiced. Her chest had good bilateral air entry with no added sounds. Her abdomen was distended, there was guarding all over the abdomen, severe tenderness in the upper abdomen; bowel sounds were absent, intact hernia orifices. Per rectal examination did not show any blood stain or melena.

Blood workup showed White Blood Cell count 28,000/ml, Hemoglobin 13.8 gm/dL, Neutrophils 85%, Amylase 40 IU/L. Chest X-ray was done and it showed no signs of pneumoperitoneum. Abdominal ultrasound was then done; it showed distended gallbladder with multiple small calculi of varying size, increased gallbladder wall thickness (5mm) and the presence of pericholecystic fluid collection.

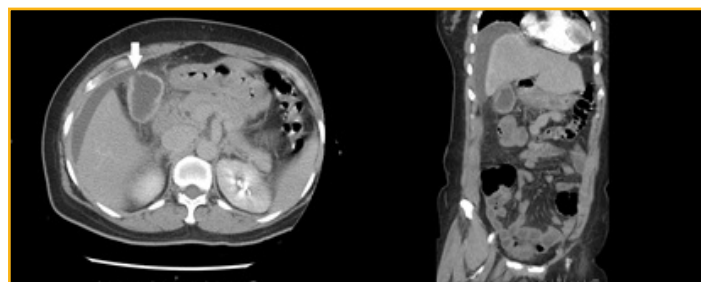
As such, the patient was diagnosed as a case of acute cholecystitis and was admitted to the ward and treated conservatively. Her vitals were monitored and six hours later it was noted that she was still febrile, and that she became tachycardic. Then, she was clinically reassessed by the doctor on call. Her clinical condition had deteriorated and the pain was not improving despite adequate analgesia. Suspicion arose about the accuracy of the diagnosis. She was sent to do an abdominal CT with contrast.

Abdominal CT with contrast showed significant hepatic subcapsular fluid collection associated with thickening of the gallbladder wall with distorted shape and pericholecystic fluid collection. A hyperdense stone measuring 5 mm in diameter was identified impacted at the gallbladder neck. The picture was highly suggestive of GBP at the fundus.

Afterwards, the patient was taken to the Operation Theater for Laparoscopic Cholecystectomy. The operative findings were as follows: bile stained omentum wrapping the gallbladder with bile stained fluid superior to the liver; a perforation at the superior aspect of the gallbladder fundus was seen and was covered with fibrin flakes. A tube drain was inserted. The operation was completed laparoscopically.

Post-operatively, the patient stayed in the hospital for 4 days. She was kept on antibiotics during her stay. The

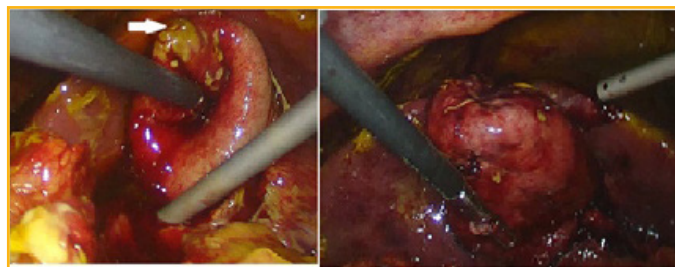
drain was removed after 48 hours. She was vitally stable throughout her post-operative period; it was uneventful. She was then discharged home with advice to follow up in the surgical clinic.



1 (a)

1 (b)

Figure 1(a) and 1(b): CT Abdomen with IV contrast showing the gallbladder perforation as pointed by the white arrow.



2(a)

2(b)

Figures 2a and 2b: Operative findings of the laparoscopic cholecystectomy. The gallbladder fundal perforation is pointed by the white arrow.

Discussion

GBP is an uncommon and a very difficult complication to diagnose preoperatively. This case report aims to shine a light on the importance of expanding the differential diagnoses that are kept in mind when managing patients with acute cholecystitis that do not improve and deteriorate in a short period of time. Although GBP is uncommon, physicians should be alert to the possibility of this acute cholecystitis complication.

During the first assessment in the emergency, the clinical signs and symptoms of the patient mimicked a perforated duodenal ulcer. However, there were no radiological findings of pneumoperitoneum on an erect chest x-ray. After an abdominal ultrasound was done, the diagnosis of acute cholecystitis was made. Due to the thorough follow up for the patient and re-assessments,

suspicion arose which lead to further radiological assessment and the diagnosis of perforated gallbladder was then established. Because of the high mortality of perforated gallbladder, it is important to note that early diagnosis and early surgical intervention are of high significance in its management and outcome [2].

Just like in our patient's case, the most common site for GBP is usually at the fundus as it is the most distal part of the GB and is the least vascularized. Ischemia plays an important role in causing the perforation [2]. The presence of the fundal perforation was not detected by the ultrasound and it was apparent only when a CT scan was done.

In addition to GBP, there other possible complications of acute cholecystitis like gangrenous cholecystitis or empyema. Risk factors of acute cholecystitis complications are male gender, advanced age, associated diseases, high temperature degrees and leukocytosis [5]. It is important to recognize these risk factors as the presentation of GBP is usually nonspecific and a successful outcome is based on early recognition [6].

Delayed diagnosis leads to delayed surgical intervention which is associated with increased morbidity, mortality, higher ICU admissions and longer hospital stay postoperatively [7]. For this patient, we were able to surgically intervene within 8 hours of admission which led to the uneventful postoperative stay.

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