



Sponataneous Gall Bladder Perforation - An Unusual Cause of Acute Abdomen

M. Pravin^{1*}, R. Kannan¹ and Ashiq Ahamed¹

¹Institute of General Surgery, Madras Medical College, Chennai, India.

Authors' contributions

This work was carried out in collaboration among all authors. Author MP wrote the first draft of the manuscript. Authors RK and AA managed the analyses of the study. Author AA managed the literature searches. All the authors were involved in managing the case, read and approved the final manuscript.

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Case Study

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ABSTRACT

Aim: To emphasise the importance of having a lower threshold for gall bladder perforation as a differential diagnosis in patients presenting with peritonitis of unknown etiology.

Case Report: A 66 yr old gentleman presented with abdominal pain and distension for 2 days after a binge drink of alcohol. Clinically patient was in peritonitis. Imaging studies were not significant except for free fluid in the abdomen. Laparotomy revealed 2 litres of bile in the peritoneal cavity with a perforation in the fundus of gall bladder. Cholecystectomy was done.

Conclusion: Due to high mortality and morbidity associated with gall bladder perforation, early diagnosis and surgical management is essential.

Keywords: Gall bladder; perforation; peritonitis; cholecystitis; laparotomy.

1. INTRODUCTION

Abdomen, being a Pandora's box, poses a lot of diagnostic dilemma when it comes for an

emergency. With the support of imaging, many conclusions are made. When imaging is inconclusive, surgery is both diagnostic and therapeutic as well. Gall bladder perforation is

*Corresponding author: E-mail: bean.sundar@gmail.com;

one such entity. Perforations of gall bladder are usually complications of cholecystitis, calculus or acalculous. Diagnosis gets delayed when there are no predisposing causes or clinical features suggestive of cholecystitis. We report here a case of spontaneous gall bladder with unusual presentation.

2. CASE REPORT

A 66 year old male was brought to the emergency with a background of abdominal pain and distension for 2 days. He was a regular consumer of alcohol and had a binge one day before the onset of pain. He had no known comorbid illnesses. The pain initially started in the epigastrium, then radiated all over the abdomen. There was an intermittent pain in the back (lower interscapular region). On arrival pulse rate was 110/min and blood pressure was 110/80 mmHg, respiratory rate 22/min and saturation 100% in room air.

Abdomen showed minimal distension, diffusely tender and voluntary guarding was present over all quadrants. Digital rectal examination showed normal fecal staining and tone.

Blood investigations showed total leukocyte counts to be 13800/mm³ with neutrophilic predominance. Urea and creatinine were elevated (Urea=88 mg/dl and creatinine=2.6 mg/dl).

Liver functions, coagulation profile, serum amylase and lipase were all within normal limits.

X-ray chest and X-ray abdomen (both erect and supine) showed no air fluid levels or air under the diaphragm. Ultrasonography indicated the presence of free fluid in the abdomen. Plain CT was significant for free fluid in the abdomen, with all normal viscera. Contrast imaging could not be done in view of raised renal parameters.

In order to obtain a diagnosis, ultrasound guided aspiration of the peritoneal free fluid was attempted. Aspirate was frankly bilious. It appeared neither to be altered nor infected. Hence the patient was taken up for an emergency laparotomy through a midline incision.

On laparotomy, about 2 litres of frank bile was sucked out from the abdomen. Thorough search of all regions of the abdomen was undertaken. Stomach, duodenum and rest of all small bowel, large bowel were normal. A perforation of size 2*1 cm was seen on the fundus of the gall bladder extending onto the body. Common bile duct appeared to be normal in diameter and no palpable stones. Cholecystectomy was duct via fundus first approach. Thorough peritoneal lavage was given. There was no trace of retained stone in the peritoneal cavity. Sub hepatic drain was kept and Abdomen was closed.

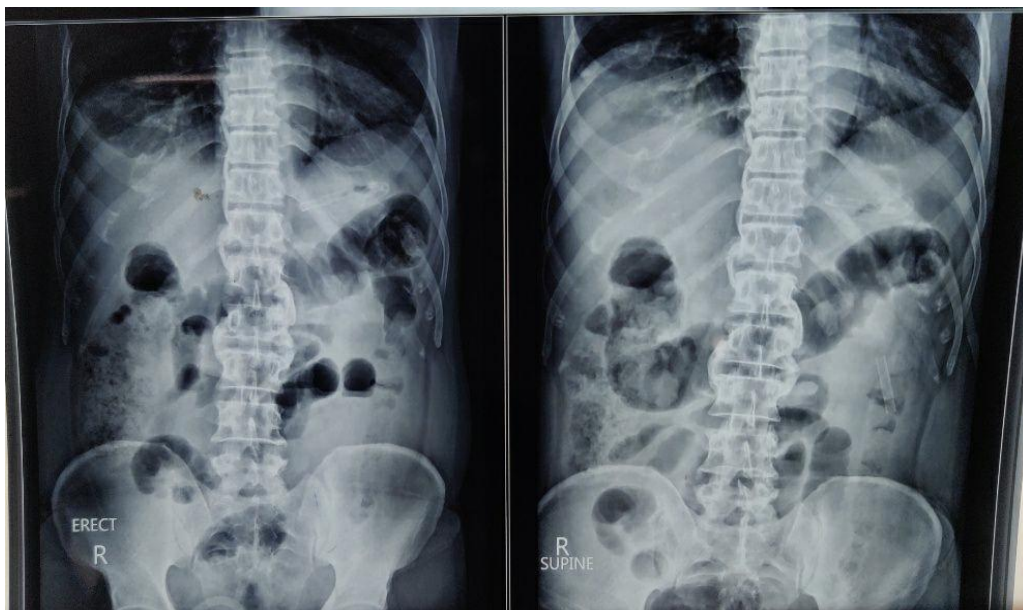


Fig. 1. X-ray chest and abdomen of the patient showing a few dilated bowel loops



Fig. 2. Plain computed Tomograph showing the presence of free fluid



Fig. 3. Cholecystectomy specimen showing a perforation close to the fundus of the gall bladder

Gall bladder surface showed focal regions of wall thickening. No necrotic patches were found. Biopsy was reported as chronic cholecystitis.

Post operatively, patient had bile in the drain on the second day. An MRCP was done and was found to be normal. Gradually the drain output

settled and patients was discharged on 6th post operative day.

3. DISCUSSION

Gall bladder perforation is often a missed abdominal emergency. Preoperative diagnosis

is seldom achieved. Gall bladder perforations can be iatrogenic, traumatic or idiopathic. Many cases occur in the background of cholecystitis. It is a well known, but an unusual complication of cholecystitis.

Niemeier in 1934 classified gall bladder perforations into three types. A fourth type has been suggested by Anderson et al. [1].

- Type 1- Acute free gallbladder perforation with generalised biliary peritonitis
- Type 2- Subacute Pericholecystic abscess with localised peritonitis
- Type 3- Chronic cholecystoenteric fistulation
- Type 4- Cholecystobiliary fistula formation

Our case comes under Type 1 gall bladder perforation.

The pathophysiology behind perforation in cholecystitis is vascular impairment of the gallbladder wall due to distension of the viscous caused by an impacted stone. This is followed by ischemic necrosis and perforation of the gall bladder wall. Perforation usually occurs at the fundus as it has the least blood supply [2].

Fundus perforation is less likely to be sealed by one rum and it leads on to a type 1 acute free perforation. When perforation is not at fundus, it is easily sealed by omentum, bowel loops and pathology remains confined to right upper quadrant.

The diagnosis is often missed or delayed, in the absence of features pertinent to cholecystitis.

The presentation is usually of abdominal pain, vomiting, abdominal distension which can overlap many other abdominal pathologies like acute pancreatitis, hollow viscous perforation etc. Also the limited benefit of routine imaging studies like ultrasonography and CT abdomen add to the delay in diagnosis. The typical radiological findings such as a defect in the thickened gall bladder wall (hole sign) [3] are not seen in many cases like ours. Insensitivity of these imaging studies was attributed to the minimal inflammation usually confined to the region of perforation.

An intrahepatic perforation is suggested by the presence of a liver abscess with direct continuity into the gallbladder or containing echogenic stones in the absence of a pericholecystic abscess. Also the impossibility to visualize the

gallbladder in the presence of a liver abscess is highly suggestive of an intrahepatic perforation [4,5].

Gallbladder perforation has very high mortality ranging between 12 to 42% [6]. Missed diagnosis is one important reason. Prompt recognition of the condition and early surgery gives good clinical outcomes. In our case, the ultrasound guided aspiration of the peritoneal fluid provided an important clue to proceed with laparotomy. For acute abdomen with atypical findings, the diagnosis of gall bladder perforation should always be borne in mind. As delayed diagnosis will lead on to secondary bacterial peritonitis which has an even more higher mortality.

The best form of management is early surgery with cholecystectomy and abdominal lavage. In type 3 perforation, additional surgical produce for the repair of fistula should be undertaken. Laparoscopic cholecystectomy can be performed, but conversion may be mandated when visualisation of anatomy is poor.

4. CONCLUSION

Due to the high morbidity and mortality associated with gall bladder perforation, early diagnosis and appropriate surgical management is essential. Aggressive evaluation of those with risk factors also plays a major role. In elderly patients presenting with peritonitis with an unknown etiology, gall bladder perforation should be high in the list of differential diagnoses.

CONSENT

Consent has been taken from the patient and his relatives for the usage and publication of clinical details, images for educational purposes.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Niemeier OW. Acute free perforation of the gall-bladder. *Ann Surg.* 1934;99(6):922–924.
2. Derici H, Kara C, Bozdog AD, Nazli O, Tansug T, Akca E. Diagnosis and

- treatment of gallbladder perforation. World J Gastroenterol. 2006;12(48):7832-7836.
3. Sood BP, Kalra N, Gupta S, Sidhu R, Gulati M, Khandelwal N, Suri S: Role of sonography in the diagnosis of gallbladder perforation. J Clin Ultrasound. 2002;30: 270-274.
DOI: 10.1002/jcu.10071.
 4. Chiapponi C, Wirth S, Siebeck M. Acute gallbladder perforation with gallstones spillage in a cirrhotic patient. World J Emerg Surg. 2010;5:11.
 5. Sing Singh K, Vidyarthi A, Jindal SH, Thounaojam S, CK. Spontaneous Intrahepatic Type II gallbladder perforation: A rare cause of liver abscess – Case report. 2013;7(9):2012-2014.
 6. Ravindra Date S, Sri Thrumurthy G, Sigrud Whiteside, Mohammed A, Umer Kishore G, et al. Gallbladder perforation: Case series and systematic review. International Journal of Surgery. 2012;10(2).

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