CASE REPORT

Spontaneous gallbladder perforation in a patient of situs inversus totalis, misdiagnosed as perforation peritonitis due to gas under the right dome of the diaphragm

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SUMMARY

Acute biliary tract disease is a common condition in adults. Apart from bile duct perforation, spontaneous perforation of the gallbladder itself is very rare in all age groups; to date, all recorded cases are secondary to coexistent disease. We present the case report of a 60-year-old adult having an idiopathic gallbladder perforation. In our case, an unusual presentation was situs inversus totalis and fundal gas shadow was considered as free air under the right dome of the diaphragm by mistake. The patient underwent laparotomy and emergency cholecystectomy was performed in the perforated gallbladder. To date, no case has been described in the literature.

BACKGROUND

Acute abdomen with signs of generalised peritonitis and free gas under the right dome in an X-ray of the abdomen is suggestive of a hollow viscus perforation. An idiopathic gallbladder perforation is a very rare complication of acute cholecystitis that is associated with coexisting systemic disease. Emergency laparotomy is indicated in such cases. A gallbladder perforation was found on laparotomy in our patient who underwent surgery under a presumptive diagnosis of hollow viscus perforation.

CASE PRESENTATION

A 60-year-old man was admitted with a 4-day history of vomiting and abdominal pain. The patient did not have any known systemic illness prior to admission. Axillary temperature was 38°C and the abdomen was painful and tender. Complete blood count revealed leucocytosis, mainly polymorphs and increased blood sugar level (280 mg/dL). Emergency ultrasonography (USG) abdomen revealed mild to moderate collection in the pelvis and mid-abdomen and there was a lot of gaseous distension obscuring clear visualisation of the rest of the peritoneal cavity. In the X-ray of the abdomen, gas under the right dome of the diaphragm was seen ([figure 1](#)). Emergency laparotomy was performed under a presumptive diagnosis of peritonitis due to perforation of the hollow viscus. On laparotomy, there was approximately 1500 mL bile in the peritoneal cavity. Exploration of the abdominal cavity revealed the stomach and spleen on the right side ([figure 2](#)), gallbladder and a large lobe of the liver and duodenum on the left side ([figure 3](#)). The stomach, duodenum, small bowel and large

Figure 1 Gas under the right dome of the diaphragm.

bowel were examined. No pathology was detected except their anatomical position. A perforation was detected in the gallbladder ([figure 4](#)) through which bile was leaking. There were no gallstones or bile duct dilation.

INVESTIGATIONS

USG abdomen revealed mild to moderate collection in the pelvis and mid-abdomen and there was a lot of gaseous distension obscuring clear visualisation of the rest of the peritoneal cavity. So, find details could not be achieved by ultrasonography.

In the X-ray of the abdomen, gas under the right dome of the diaphragm was seen.

TREATMENT

Cholecystectomy was performed ([figure 5](#)). The patient experienced an uneventful recovery. Histological examination revealed an inflammatory infiltrate with localised necrosis of the gallbladder wall and no evidence of malignancy.

OUTCOME AND FOLLOW-UP

The postoperative period was uneventful and the patient was discharged on the sixth postoperative

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Figure 2 Spleen and stomach on the right side.

day of surgery. As the patient had diabetes mellitus, the physician's opinion was taken and insulin was started in the intraoperative and postoperative periods. The patient was referred to

Figure 3 Large lobe of the liver, gallbladder and duodenum on the left side in the peritoneal cavity.

Figure 4 Perforation in the gallbladder is identified.

our outpatients department for thorough systemic check up. The patient is doing well and on oral hypoglycemic drug on three month followup.

DISCUSSION

Neimeir¹ was the first to describe acute perforation of the gallbladder in 1934; he concluded that this was a rare condition demanding eternal vigilance and that its prompt recognition and treatment might lower the mortality rate significantly. Later on, despite his recommendation, this disease continues to be misdiagnosed and the mortality rate remains high. A mortality rate of 11% reflects the seriousness of this condition. An isolated gallbladder perforation is a very rare occurrence. Our patient probably developed a spontaneous gallbladder perforation due to ischaemia of the gallbladder wall with acalculous

Figure 5 Cholecystectomy specimen showing perforation in the gallbladder wall.

cholecystitis. Infections, malignancy, trauma, drugs (eg, corticosteroids) and systemic diseases such as diabetes mellitus and atherosclerotic heart disease are common predisposing factors.²

Body of the gall bladder has poorer vascular supply than neck of gall bladder and is more prone to ischemia and necrosis as compared to neck of gall bladder.³ Often, it is difficult to predict the diagnosis of gallbladder perforation. Clinically, it is assumed to be bowel perforation when a patient presents with features suggestive of perforation peritonitis as in our case. Gallbladder perforation may be missed on an abdominal X-ray. We misdiagnosed our case as our patient has situs inversus totalis and fundal gas under the right dome was considered as free intraperitoneal gas. Details of USG were not obtained considering the presumptive diagnosis of perforation peritonitis. USG, CT scan and a radionuclide scan are used for confirmation of the diagnosis.³ Management includes cholecystectomy with peritoneal lavage.⁴ Despite our mistake in diagnosis which was hollow viscous perforation made by us we managed the patient disease adequately which is cholecystectomy for gall bladder perforation.

This case was unusual because our patient was present with situs inversus totalis, with no history suggestive of gallbladder disease; he had no known medical comorbidity and showed absence of gall stones on surgery. The patient had diabetes which was diagnosed only after admission for peritonitis.

Only a few cases of gallbladder perforation have been reported in the literature. To date, no case has been reported similar to ours. Histopathological examination of the specimen showed features of acute on chronic cholecystitis giving an indication that the prior episodes of cholecystitis were clinically

silent. To conclude, such cases should be properly investigated and the underlying cause ascertained.

Learning points

- ▶ Gallbladder perforation in a patient of situs inversus totalis is an extremely rare cause of peritonitis.
- ▶ A thorough investigation is recommended so that a definitive diagnosis can be reached.
- ▶ Emergency cholecystectomy is standard management for gallbladder perforation.

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