Case Report

Spontaneous Gallbladder Perforation Occurring at Neck in an 8-Year Old Boy

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Abstract

Spontaneous gallbladder perforation (GBP) is a rare condition. Most of these perforations occur at the fundal region of the gallbladder. Perforation occurring at the neck of the gallbladder seems to be the rarest phenomenon. We herein describe a case of spontaneous GBP occurring at the neck of gallbladder in an 8-year-old boy, which was managed satisfactorily by surgical exploration and cholecystectomy.

Keywords: Acute cholecystitis, cholecystectomy, gallbladder perforation, spontaneous

Introduction

Spontaneous gallbladder perforation (GBP) is a relatively rare entity and its occurrence is usually described as a sequela of acute cholecystitis. Due to its rarity and lack of characteristic clinical features, prompt diagnosis of this condition is not always possible. Diagnostic delay in such scenario can appreciably increase the extent of associated morbidity and mortality.[1-3] Spontaneous perforation of the gallbladder is an uncommon entity; nonetheless, perforation occurring at the neck of the gallbladder seems to be even an more infrequent event. We herein describe a case of spontaneous GBP occurring at the neck of the gallbladder in an 8-year-old boy, which was mimicking clinically as a case of duodenal perforation peritonitis. This case was managed satisfactorily by surgical exploration and cholecystectomy.

Case Report

An 8-year-old boy came to surgical emergency with complaints of generalised abdominal pain, abdominal distension and obstipation for last 1 day. Pain suddenly started in the right upper abdomen, which later on became diffuse involving whole of the abdomen. There was no history suggestive of any other pre-existing illnesses or haemolytic disease. Physical examination revealed diffusely tender and distended abdomen. Guarding and rebound tenderness were present in all the quadrant of the abdomen. Laboratory investigations were essentially within normal limit except raised total leukocyte count. Chest and abdominal X-rays were also unremarkable. Based on the history and clinical profile of the patient, diagnosis of duodenal perforation peritonitis was rendered, and following this, urgent exploratory laparotomy was scheduled. Abdominal exploration was done through midline incision, and around 700 ml of biliopurulent fluid was aspirated. Intraoperatively, 1 cm × 1 cm perforation at the neck of the gallbladder was noticed, and this region was surrounded by the pus flakes [Figure 1]. The gallbladder wall appeared thickened and it had no stones. Cholecystectomy was done after ligating the cystic duct and the artery [Figure 2]. Rest of the abdominal viscera was found normal. The abdomen was closed after adequate lavage and placement of the right subhepatic drain. Resected specimen was sent for histopathological examination.

Histopathological examination showed focally denuded lining epithelium with marked edema and congestion just below the epithelium. Muscle fibres appeared to be separated due to inflammatory infiltrate, oedema and congestion. There was dense acute on chronic inflammatory infiltrate extending from mucosa to serosa suggestive of acute on chronic

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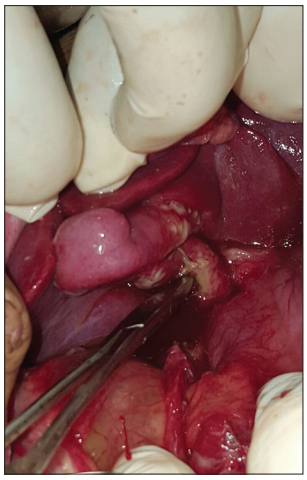

Figure 1: Intraoperative picture showing perforation at the neck of the gallbladder

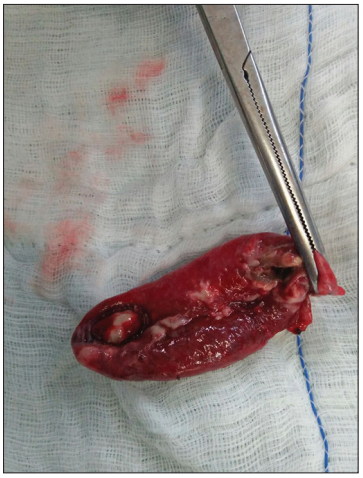

Figure 2: Resected gallbladder showing perforation at the neck of the gallbladder

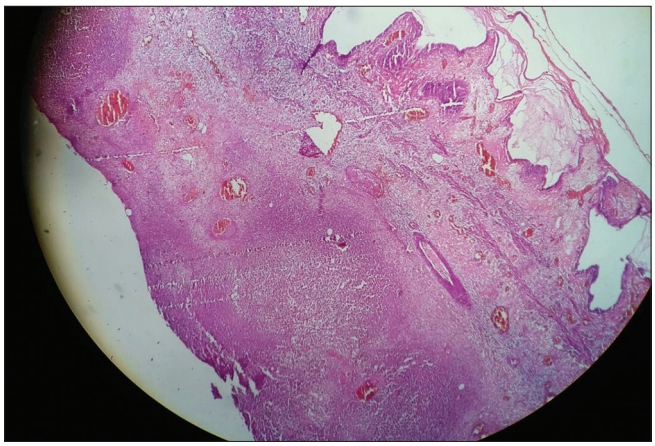

Figure 3: Photomicrograph showing gallbladder wall showing transmural acute on chronic inflammatory cell infiltrate, oedema and congestion (H and E, ×400)

cholecystitis [Figure 3]. In view of incidentally detected GBP, we further investigated this patient for associated enteric fever, dengue fever and haemolytic disease, and none of these illnesses could be established in this patient. Post-operative period was uneventful and he was discharged on the 4th day. During a follow-up of 2 months, he remains asymptomatic.

Discussion

In 1934, Neimier provided one of the earliest descriptions of GBP. He noticed that early recognition and timely intervention can significantly reduce the associated mortality associated with this rare condition. He classified GBP into three types and it remains useful even today. Type I refers to acute free perforation into the peritoneal cavity, Type II to subacute perforation with pericholecystic abscess and Type III to chronic perforation with cholecystoenteric fistula.[4] Based on the type of perforation; clinically, it can present with features of localised or generalised peritonitis. In our case, the patient had Type 1 GBP; however, this perforation occurred at the neck of the gallbladder, which seems to be one of the rarest sites of GBP. GBP commonly occurs at the fundus or body of the gallbladder as these areas have deficient blood supply in comparison to the neck.[5]

Incidence of GBP in acute cholecystitis is approximately 2%–15% and they commonly observed with concomitant gallstones.[6] Acalculous cholecystitis, enteric fever, haemolytic disease, malignancy, drugs, trauma and other systemic illnesses are the other predisposing factors which may cause GBP. Although episodes of acute cholecystitis are more commonly observed in females, GBP predominantly occurs in males and in elderly people (50).[1,7] Any inflammatory condition of the gallbladder may lead to perforation, but in clinical scenario, etiological factors which have more propensity to develop spontaneous GBP are difficult to predict with certainty even today. Moreover, this condition often poses diagnostic dilemma in the mind of treating physician. Delayed diagnosis and subsequently delay in instituting proper therapeutic measures are the main factor contributing to high morbidity and mortality in these cases. Therefore, it is not unusual to notice that even in the current era, mortality rate associated with this entity is approximately 11.4%.[8]

In addition to the clinical profile of the patient, certain radiological investigations can also be helpful in establishing the diagnosis of GBP. Although ultrasound is frequently employed as initial investigational modality, computed tomography scan seems to be preferred imaging modality for this purpose, as it can detect the defect in the wall of the gallbladder, and in addition, it can provide better anatomical details of other structures.

In our case, the patient had Type I GBP occurring at the neck of the gallbladder and he presented with the features of generalised peritonitis. We intervened urgently, considering it a case of duodenal perforation, and even, in this case, diagnosis of GBP could be established only intraoperatively.

Conclusion

This case highlights the fact that spontaneous GBP can occur at the neck of the gallbladder even in the paediatric age group and timely intervention in such cases can ensure favourable outcome.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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