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Exploring the Uncharted Territory: Hepatoduodenal fistula secondary to Amoebic Liver Abscess

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Abstract

Background: Complications of amoebic liver abscess include rupture into various cavities such as pleural, peritoneal, and pericardial. Hepatoenteric fistula secondary to liver abscess is rare, with hepatoduodenal fistula being exceptionally uncommon. Here, we present a case report of this rare occurrence. *Case Report*: A 38-year-old alcoholic male presented to the outpatient department with right upper quadrant abdominal pain for the past 10 days, accompanied by fever and vomiting. Laboratory investigations revealed leucocytosis and deranged liver function tests. Radiological investigations confirmed hepatoduodenal fistula secondary to amoebic liver abscess with peritoneal rupture. The patient underwent drainage of the abscess, fistula takedown, primary suturing with tube duodenostomy, and feeding jejunostomy. *Conclusion*: Management of hepatoduodenal fistulas lacks clear-cut guidelines. Surgical intervention becomes necessary in cases of persistent fistula, lack of response to medical management, sepsis, and rupture into the peritoneal cavity.

Keywords: Amoebic Liver Abscess, Complications, Hepatoduodenal fistula, Hepatoenteric Fistula.

Introduction

Amoebic liver abscess (ALA) represents a common extra-intestinal manifestation of amoebiasis. Treatment typically involves a combination of medical therapy and percutaneous abscess drainage. While complications such as rupture into the peritoneal, pleural, and pericardial cavities have been documented, the occurrence of abscess rupture into the gastrointestinal tract is infrequent [1]. The stomach and colon are the primary sites of abscess rupture, while rupture into the duodenum, leading to the formation of a hepatoduodenal fistula, is exceedingly rare. In this case report, we present a unique instance of an amoebic liver abscess that ruptured into the peritoneal cavity and the duodenum, resulting in the formation of a hepatoduodenal fistula.

Case Report

A 38-year-old alcoholic male presented to the outpatient department with a 10-day history of continuous, dull, moderately severe right upper quadrant abdominal pain, associated with fever for the past 5 days and brown coloured vomiting for the past 3 days. On examination, he had tachycardia with a blood pressure of 110/70 mmHg. Abdominal examination revealed tenderness in the right upper quadrant with guarding. Blood investigations showed a total leukocyte count of 34,500/mm^3 with 93% neutrophils. Liver function tests were elevated with total bilirubin: 2.60 mg/dL, direct bilirubin: 2.15 mg/dL, SGOT: 67, SGPT: 70, ALP: 283 (Normal: 80-306 U/L), total protein: 6.56 g/dL, and serum albumin: 2.0 g/dL.

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Abdominal ultrasonography revealed a ruptured liver abscess with fluid accumulation in Morrison's pouch. Further characterization through contrast-enhanced computed tomography (CECT) showed hepatomegaly with a large, well-defined, heterogeneous hypodense lesion mainly in segments V and VI of the right liver lobe. The lesion had non-enhancing iso to hyperdense contents, multiple air foci in its inferior aspect, and a thick irregular enhancing wall with thick enhancing radiating septa. A defect in the right lateral aspect of the duodenal segment (D2) was identified, communicating with the liver lesion, suggesting a hepatoduodenal fistula. Oral contrast confirmed the communication between the liver lesion and the duodenum.

Due to rupture into the peritoneal cavity with the hepatoduodenal fistula, the patient underwent surgical intervention. Intraoperatively, a liver abscess measuring 12×10 cm was found in segments 5 and 6 of the liver, with a fistulous communication to the second part of the duodenum. Dense adhesions were present between the gallbladder, liver, and duodenum, and pus flakes were observed in the peritoneal cavity. The abscess cavity was drained, fistula was taken down, and the opening in the second part of the duodenum was repaired using a tube duodenostomy and feeding jejunostomy.

Discussion

Amoebic liver abscess (ALA) is the most common form of extraintestinal amoebiasis [2]. While most cases are managed conservatively, complications such as rupture into various cavities including the pleural, peritoneal, and pericardial spaces can occur, albeit rarely [3]. Rupture into the gastrointestinal tract is even less common, with documented cases of hepatogastric and hepatocolic fistulas reported in the literature. Hepatoduodenal fistula resulting from ALA is an extremely rare presentation, with only nine documented case reports to date. In 1983, Charles Loprinzi published a case report providing

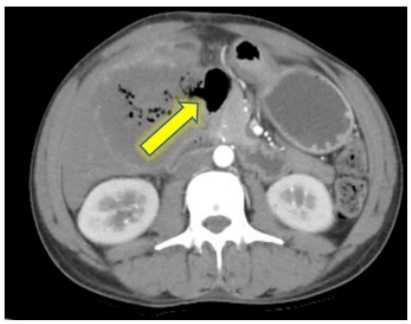

Fig.1: *Hepatoduodenal fistula with air in abscess cavity.*

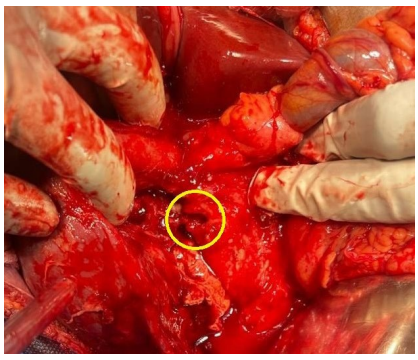

Fig.2: *Opening of fistula in second part of duodenum.*

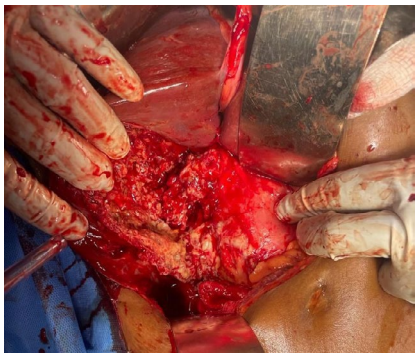

Fig.3: *Ruptured liver abscess.*

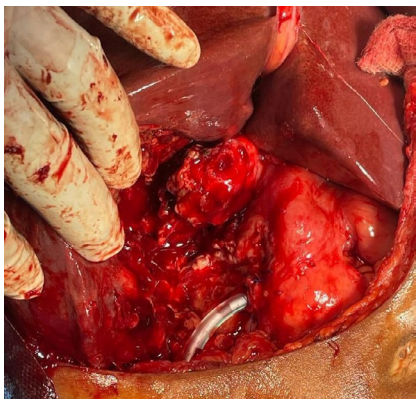

Fig.4: *Tube duodenostomy.*

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documented evidence of a hepatoduodenal fistula following amoebic liver abscess using a barium study [4].

Typical symptoms of hepatoduodenal fistula include vomiting with a color resembling anchovy sauce, along with abdominal pain, fever, jaundice, malaise, and dyspnea. Clinical examination may reveal signs of abdominal guarding and rigidity if there is concomitant peritoneal rupture. If gas is detected within the abscess cavity during an ultrasound examination, it should raise suspicion of a hepatobronchial fistula, hepatoenteric fistula, or secondary infection of the abscess [1]. Instable patients, an upper gastrointestinal (GI) endoscopy can reveal the presence of a fistulous opening in the duodenum. In the past, barium studies were commonly employed to confirm the existence of a hepatoduodenal fistula. However, due to advancements in radiology, contrast-enhanced computed tomography (CECT) scan with oral contrast has become the preferred diagnostic tool for identifying these fistulas. A CECT scan in the portal venous phase will clearly demonstrate communication between the duodenum and the abscess cavity. When oral contrast is administered alongside the scan, the presence of contrast material within the abscess cavity confirms the diagnosis of a hepatoduodenal fistula. If pigtail drainage of abscess is already done, Injecting contrast into the drain can provide visual confirmation of contrast material within the duodenum, indicating the presence of a hepatoduodenal fistula.

Currently, there are no established guidelines specifically addressing the management of these fistulas. Previous case reports have mentioned medical management involving antibiotics and pigtail drainage in seven instances. Spontaneous closure of these fistulas has been observed within approximately five weeks with conservative treatment [5], although limited data is available regarding their timeline. Surgical options may include abscess drainage with primary repair, tube duodenostomy, or pyloric exclusion with gastrojejunostomy, depending on factors such as the extent of infection, nutritional status, and intra-operative condition of the patient. Nevertheless, surgical intervention is considered the definitive approach. A report by B.R. Duus *et al*. emphasized the importance of surgical management to prevent the development of persistent fistulas and secondary pyogenic infections [6]. There is no one-size-fits-all therapeutic approach for managing these patients. Surgical management is strongly indicated in cases of persistent fistula, worsening symptoms despite conservative treatment, sepsis, or rupture of the abscess into the peritoneal cavity.

Conclusion

In cases of persistent fistula, lack of response to medical management, sepsis, or rupture into the peritoneal cavity, surgical intervention is the treatment of choice. However, due to the rarity of hepatoduodenal fistulas secondary to ALA, there are no established guidelines, and each case must be carefully evaluated to determine the most appropriate management approach.

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