

# CASE REPORT

## ENTEROHEPATIC FISTULA ASSOCIATED WITH LIVER ABSCESS - AN EXTREMELY RARE PRESENTATION

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**ABSTRACT:** Gastrointestinal (GI) fistulas represent abnormal duct like communications between the gut and another epithelial-lined surface, such as another organ system, the skin surface, or elsewhere along the GI tract itself.<sup>(1)</sup> The development of a GI fistula can markedly increase patient morbidity and mortality, rendering detection of the fistula critical. Imaging often plays a pivotal role in the diagnosis and management of GI fistula. The emergence of cross-sectional imaging techniques, however, has modified the radiologic approach to GI fistulas.<sup>(1)</sup> Here, we present an interesting and extremely rare form of acquired gastrointestinal internal fistula, an enter hepatic fistula following rupture of liver abscess into adjacent colon.

**CASE PRESENTATION:** A 38 year old male, a chronic alcoholic presented with complaints of right upper abdominal pain, fever and nausea since 10 days. On examination he was febrile and had mild pallor, his right hypochondrium was tender and bowel sounds were normal.

Investigations showed haemoglobin 9.4 g/dl (reference range 12.0–16.0), total lymphocyte count 14600 cells/cu.mm (4, 000-11, 000), differential leucocyte count polymorphs 87%, leucocytes 10%, and eosinophils 3%, platelets 2.4 lakhs/cu.mm, blood urea concentration 32mg/dl (15-40), serum creatinine 1.1(0.5-1.2), total bilirubin 0.8mg/dl (0.1-1.2), alkaline phosphatase 192 IU/l (53-128), alanine aminotransferase 11 IU/l (<45), total protein 6.8g/dl(6.6-8.8)and albumin globulin ratio of 1.6(1.5-2.5).

X-ray abdomen-erect showed a large irregular pocket of air lucency in the right upper quadrant overlying the liver shadow (Fig. 1).

Ultrasound of the abdomen revealed an enlarged liver with a well-defined abscess involving segments V and VIII of liver with multiple air foci within (Fig. 2a) and another abscess in segment VII of right lobe of liver (Fig. 2b).

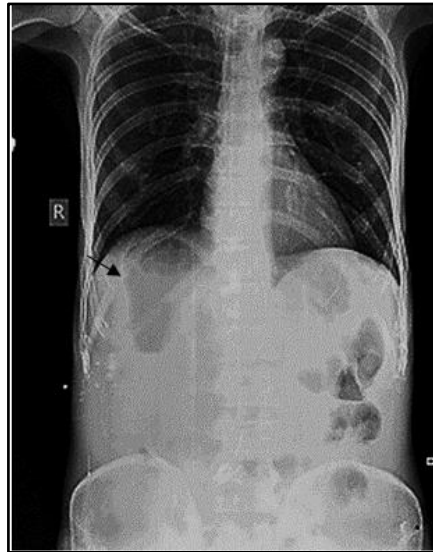
CECT with oral contrast revealed an abscess with air fluid level in segments V and VIII of liver and another abscess in segment VII of liver. A linear opacified tract measuring ~ 1.4cm was noted extending from the lumen of hepatic flexure of colon to the wall of abscess in segment V of with pooling of oral contrast in the abscess cavity. (Fig. 3)

MRI of the abdomen (Fig. 4) confirmed the presence of the fistulous tract.

The above findings suggested the presence of an enterohepatic fistula. This fistulous track was caused by rupture of liver abscess in segment V/VIII with erosion of adjacent colonic wall. To the best of our knowledge, only three documented cases of enterohepatic fistula with liver abscess have been reported in world literature.

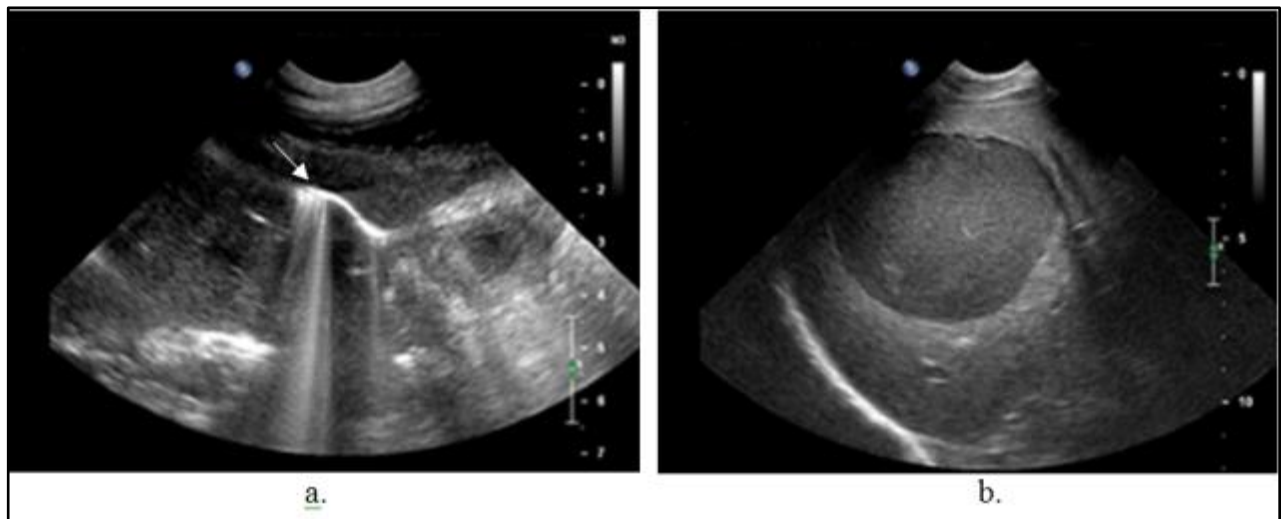
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Colonoscopy could not reveal any defect in the colon either due to mucosal edema or because of small opening of the fistulous track. The patient did not heal on conservative management and surgical intervention was later required.



**FIGURE 1**

Figure 1: X-ray abdomen- erect showing a large irregular pocket of air shadow (arrow) in the right upper quadrant.



**FIGURE 2**

Figure 2 (a) Sagittal US image showing an ill-defined abscess with air foci (arrow) in segment V/VIII of liver. (b) Sagittal US image showing another abscess in segment VII of liver.

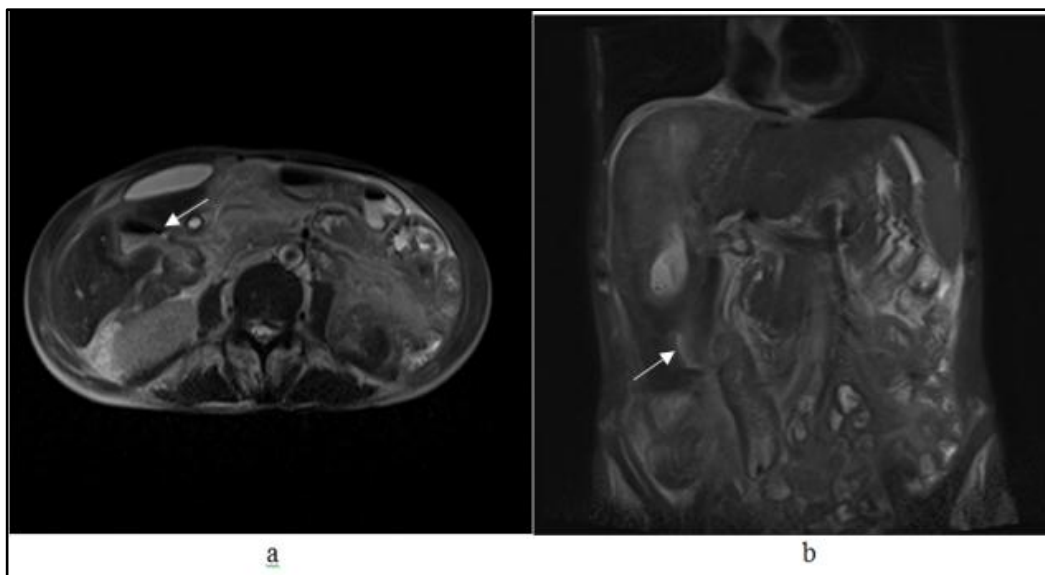
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**FIGURE 3**

Figure 3(a) Axial and (b) Coronal re formatted contrast enhanced CT showing a linear opacified tract (arrows) from the ascending colon to the abscess cavity.



**FIGURE 4**

Figure 4(a): T2 weighted axial and (b) coronal image showing the fistulous tract (arrows) between the hepatic flexure and the abscess cavity.

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**DISCUSSION:** GI fistulas are generally named according to their participating anatomic components, and virtually every imaginable combination has been reported in the medical literature.<sup>(1)</sup>

Gastrointestinal fistulas are classified as congenital or acquired. Acquired GI fistulas can be categorized as external if they communicate with the skin surface or internal if they connect to another internal organ system or space, including elsewhere along the GI tract itself.<sup>(1)</sup> The underlying causes of acquired GI fistulas are diverse. Intestinal fistulas refer to a gut-to-gut connection and may consist of any combination of stomach, small bowel, and colon.<sup>(2)</sup> Extra intestinal internal fistulas imply communication of the GI tract with another organ system such as the genitourinary system, biliary tree, or respiratory tract.

Enterohepatic fistula is an acquired type of GI internal fistula which in our case was caused by rupture of liver abscess with erosion of adjacent colonic wall. Alcoholic related pyogenic liver abscess is the postulated cause in our case.

Endoscopy may reveal gastric openings of the fistulous tract, but this modality has rarely been reported as a diagnostic modality for GI fistulas. Identification of the intraluminal orifice of the fistula by endoscopy is difficult without the help of other imaging modalities.<sup>(3)</sup> In our case, colonoscopy failed to demonstrate opening of the fistulous tract in the colon either due to mucosal edema of small opening. However, cross sectional imaging i.e., CECT and MRI demonstrated the communication easily. Suspicion was raised on conventional radiographic study and ultrasonography because of detection of air in the right upper quadrant and in the abscess cavity.

Liver abscess is a major tropical disease of the gastrointestinal system.<sup>(4, 5)</sup> It is mainly classified into amoebic and pyogenic.

Pyogenic liver abscess which used to be mainly tropical in location is now more common due to increased biliary interventions, stenting, cholecystitis, cholangitis etc. It is 3 to 10 times more common in men.<sup>(6)</sup> Liver abscesses can rupture intraperitoneally leading to peritonitis. They can also fistulate superiorly, either into the pleural or pericardial cavities, depending on which lobe of the liver is mainly affected.<sup>(7)</sup> The current case is a rare case of rupture of abscess into the adjacent colon leading to enterohepatic fistula. However, culture from abscess in segment V/VIII came back negative because of early instillation of antibiotic therapy.

In cases of pyogenic liver abscesses like ours, Klebsiella and E.coli are most common infective etiologies.<sup>(8, 9)</sup> Similar other case reported by Singh M, Kumar L shows rupture of liver abscess into the stomach leading to hepatogastric fistula.<sup>(10)</sup>

Several other intestinal complications have been described including rectovaginal, enterohepatic<sup>(11)</sup> enteroduodenal<sup>(12, 13)</sup> and cholecystocolonic<sup>(14)</sup> colonic strictures.<sup>(15)</sup>

Other manifestations of the disease include cerebral abscesses, genitourinary involvement, and cutaneous disease.

**CONCLUSION:** Acquired GI fistulas comprise a fascinating spectrum of clinical entities that remain a serious diagnostic challenge. An understanding of the various types of GI fistulas and their causes is important for appropriate patient care. Cross-sectional imaging, particularly CT,

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and conventional contrast-enhanced studies provide complementary information that allows comprehensive evaluation of most acquired GI fistulas.

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