

**RUPTURED LIVER ABSCESS: AN UNUSUAL CAUSE OF PNEUMOPERITONEUM**Sathyakrishna B. R<sup>1</sup>, Prasenjit Sutradhar<sup>2</sup>, Sunil Sudarshan H<sup>3</sup>**HOW TO CITE THIS ARTICLE:**

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**ABSTRACT:** Pneumoperitoneum is a common presentation in surgical practice which is taken to be pathognomonic of hollow viscus perforation. Other lesions may also present as pneumoperitoneum. We present a case where a lady presented with upper abdominal pain of 5 days duration and vomiting. CT abdomen showed pneumoperitoneum with a ruptured left lobe liver abscess. Patient was taken up for laparotomy and lavage. Patient recovered well after surgery. This is a rare presentation and is one of the causes that should be considered. Early surgical intervention is mandated.

**KEYWORDS:** Pneumoperitoneum, Liver, Abscess.

**INTRODUCTION:** Acute abdomen is one of the common presentations in any surgical facility. A radiographic imaging study in the form of an abdominal radiograph or CT abdomen revealing free peritoneal air in these cases is taken to be pathognomonic of a hollow viscus perforation. It is a documented fact that a variety of other lesions may on occasion present itself as pneumoperitoneum and a laparotomy may often lead to a different findings intraoperatively.<sup>1</sup> We present a case wherein a ruptured liver abscess presented as pneumoperitoneum.

**CASE REPORT:** A 32 year old housewife presented with history of epigastric and left hypochondrium pain, continuous in nature for 5 days with increase in intensity of pain since 2 days. There was history of radiation of pain to the back and history of one episode of vomiting the previous evening before presentation to our emergency department. Patient had been treated on inpatient basis for two days at a primary centre but there was no relief of symptoms. An ultrasound abdomen done the previous day was reported to be normal.

The patient had significant past surgical history having undergone a cholecystectomy with a hepaticojejunostomy 10 years back and a caesarean section 4 years back.

The patient was found to be febrile on examination with a temperature of 99°F and tachycardic with a pulse rate of 120/min. She was dehydrated and anxious. Her abdomen was tender in the epigastric region, left hypochondrium and left renal angle. Rest of the abdomen was soft and bowel sounds were present. An erect chest and abdomen radiographic films (Fig. 1) showed what appeared to be bowel gas in the left hypochondrium with no other contributory findings.

The patient was admitted with a working diagnosis of pancreatitis and planned for CECT study of the abdomen and pelvis.

Laboratory investigations revealed an Hb of 11.6g%, total WBC count of 25,700/mm<sup>3</sup>, platelet count of 1.09 lakh/mm<sup>3</sup>, Random blood sugar 313 and HbA1c 9.2. Renal function tests were normal. Liver function tests were deranged with total bilirubin 9.8, direct bilirubin 8.4, total protein 5.4, albumin 2.7, SGOT 1430, SGPT 550, alkaline phosphatase 900, GGT 320. Patient was taken up for

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CECT abdomen (Fig. 2) which revealed hepatomegaly with a large ruptured abscess in segment II and III of liver with significant pneumoperitoneum, paralytic ileus, pneumobilia and mild splenomegaly.

The patient was taken up for emergency laparotomy and intraoperatively the peritoneal cavity was found to contain altered blood mixed with pus mainly in the splenic flexure region with necrotic tissue. There was no evidence of any bowel pathology. A thorough lavage was done with placement of drains and abdomen was closed. In the post-operative period patient developed pneumonia with bilateral consolidation which was treated conservatively. Drains were removed postoperative day 8. Patient was put on an insulin regimen for diabetes. Patient has been on regular follow up and has reported no problems post-surgery.

**DISCUSSION:** Pneumoperitoneum is one of the common causes for emergency explorative laparotomy in any surgical practice. Although a variety of causes (Table 1) like pneumothorax, gynecological examinations and procedures, pneumatosis cystoides intestinalis may present as pneumoperitoneum,<sup>2,3</sup> hollow viscus perforation remains the leading cause of pneumoperitoneum in upto 90 percent of cases.<sup>4,5</sup> Our patient presented with pneumoperitoneum resulting from a ruptured left lobe liver abscess which a rare presentation amongst these cases.

1. THORACIC	Barotrauma
	Positive Pressure Ventilation
	Pulmonary Tuberculosis
	Blunt Trauma
	Bronchopulmonary Fistula
2. ABDOMINAL	Pneumatosis Cystoides Intestinalis
	Endoscopic Procedures
	Peritoneal Dialysis
	Collagen Vascular Disease
	Pneumocholecystitis
	Jejunal And Sigmoid Diverticulosis
	Distended Hollow Viscus
	Hollow viscus perforation
3. GYNAECOLOGICAL	Vaginal Insufflation
	Knee-Chest Exercises
	Pelvic Inflammatory Disease
	Sexual Intercourse
	Gynecologic Examination
	Vaginal Douching
4. SURGICAL	Post laparoscopy/ laparotomy

Table 1: Causes of Pneumoperitoneum<sup>2- 5</sup>

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A pyogenic liver abscess has an incidence of 22/100, 000 hospital admissions with about 20% originating in the left lobe.<sup>6</sup> The potential routes of hepatic exposure to bacteria being the biliary tree, portal vein, hepatic artery, direct extension of a nearby nidus of infection, and trauma<sup>6</sup>. Other factors associated with increased risk include Caroli's disease, biliary ascariasis, and biliary tract surgery.<sup>6</sup> Prior biliary-enteric anastomosis has also been associated with hepatic abscess formation,<sup>6</sup> likely because of unimpeded exposure of the biliary tree to enteric organisms which is the likely cause in our patient.

A literature search revealed few case reports citing similar pneumoperitoneum secondary to a ruptured hepatic abscess.<sup>8-13</sup> A common finding in these patients were that almost all cases including ours were diabetic. Ultrasound and CT abdomen are the main modalities of diagnosis.<sup>6,7</sup>

The sensitivity of ultrasound in diagnosing hepatic abscess is 80% to 95% but it is an operator dependent modality and sometimes as in this case, may not yield the diagnosis.<sup>6,7</sup> The sensitivity of CT in diagnosing hepatic abscess is 95% to 100%<sup>6</sup> and is a superior modality and in almost all the cases reported a CT study was done prior to surgery. Cultures were found to be growing anaerobic bacteria like klebsiella or E coli<sup>8-13</sup> in those cases unlike ours where a culture turned out to be negative.

An uncontrolled diabetic status in these patients may be cause for disease progression and presentation with such complications.

Early laparotomy and lavage was done in all cases which led to confirmation of diagnosis.

**CONCLUSION:** Pneumoperitoneum secondary to a ruptured liver abscess is a rare presentation which must be considered in the differential diagnosis when a hollow viscous perforation is ruled out. CECT abdomen is an effective tool for diagnosis. Early surgical intervention is important for early control and resolution of disease.

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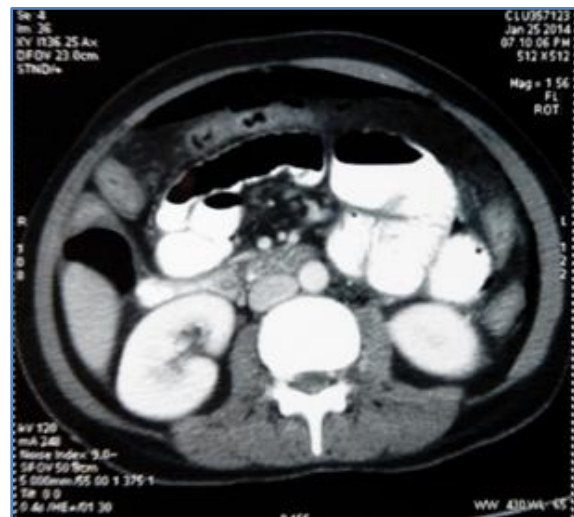
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**Fig. 1: Erect chest and abdomen radiograph**



**Fig. 2: Abscess cavity with pneumoperitoneum**

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