

# CASE REPORT

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## TRAUMATIC GASTROPLEURAL FISTULA COMPLICATED BY EMPYEMA AND PNEUMOTHORAX

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**ABSTRACT:** We herein report a case of traumatic gastropleural fistula complicated by empyema and pneumothorax which is a rare entity. A 22 year old male was admitted with alleged history of stab injury to left lower chest. Patient was found to have left sided pneumothorax, for which intercostal drainage tube was inserted and the patient stabilised. Chest radiograph taken three days after the chest tube insertion showed persistent hydropneumothorax for which the patient underwent a contrast enhanced computed tomography of thorax (CECT). CECT of thorax revealed herniation of fundus of stomach through a defect in the left dome of diaphragm into the left thoracic cavity with leakage of oral contrast into the left pleural cavity. Preoperative diagnosis of gastropleural fistula was made and the same was confirmed in the intraoperative findings. The patient underwent laparotomy with repair of the diaphragmatic defect and closure of the gastric perforation. The patient made an uneventful recovery.

**KEYWORDS:** Computed tomography scan, Gastropleural fistula, Traumatic.

**INTRODUCTION:** A 22 year old male was admitted with alleged history of stab injury to left lower chest. On examination, airway was patent and he was breathing rapidly at a rate of 30 breaths per minute. Pulse was 96 beats per minute and blood pressure was 110/70 mmHg. Patient was found to have left sided pneumothorax, for which intercostal drainage tube was inserted and the patient stabilised.

Chest radiograph (Fig. 1) confirmed the position of the tube.

Chest radiograph taken three days after the chest tube insertion showed persistent hydropneumothorax (Fig. 2), for which the patient underwent a contrast enhanced computed tomography of thorax (CECT).

Contrast enhanced computed tomography of thorax revealed herniation of fundus of stomach through a defect measuring ~ 3cm in the left dome of diaphragm into the left thoracic cavity with leakage of oral contrast into the left pleural cavity suggestive of gastric perforation with formation of gastropleural fistula. (Fig. 3)

The presence of food particles in the intercostal drainage tube confirmed our diagnosis.

The patient underwent laparotomy with repair of the diaphragmatic defect and closure of the gastric perforation. The patient had an uneventful recovery and taking orals normally.

**DISCUSSION:** Markowitz and Herter first described gastropleural fistula in 1960. They described causes of gastropleural fistula as intrathoracic perforation of stomach in hiatal hernia, traumatic diaphragmatic hernia with perforation of stomach and intraperitoneal gastric perforation with erosion of subphrenic abscess via diaphragm.<sup>(1)(2)</sup>

## CASE REPORT

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Other causes have been subsequently described as complications of pulmonary surgery, oesophageal surgery<sup>(3),(4),(5)</sup> and gastric bypass operations for morbid obesity. Later it was also recognized that these fistulas might occur in late postoperative phase of esophagogastrectomy, with or without presence of recurrent tumour or radiation therapy.<sup>(5),(6),(7),(8)</sup>

Performing triple contrast CT, after intravenous injection and oral and rectal administration of soluble contrast, ideally with MDCT has been advocated for demonstration of digestive tract perforation in penetrating torso trauma and hence determining the need for laparotomy even when clinical signs of peritonitis and radiographic findings of pneumoperitoneum are absent.<sup>(9)</sup>

Gastropleural fistula demands early diagnosis and treatment. Diagnosis of gastropleural fistula can be achieved preoperatively by examination of pleural fluid for pH and food residues, contrast radiology after oral administration of barium or water soluble iodinated contrast and meticulous upper gastrointestinal endoscopy.<sup>(10,11)</sup>

MDCT with high resolution multiplanar reformations allows demonstration of fistulous tract across the diaphragmatic discontinuity, all along from stomach up to pleural cavity. Surgical repair is the definitive treatment of gastropleural fistula and should be performed without any delay.<sup>(11)</sup>

**CONCLUSION:** In conclusion, although gastropleural fistulas are relatively uncommon, the prognosis of fistulas from the upper GI tract to the pleura seems to depend upon the delay from diagnosis to surgical intervention. It is important, therefore, to consider this diagnosis early in the patient's management.<sup>(12)</sup> Cross-sectional imaging, particularly CT provide information that allows comprehensive evaluation of most acquired GI fistulas.



**Fig. 1: Chest radiograph showing a left sided hydropneumothorax with intercostal drainage tube insitu**

## CASE REPORT



**Fig. 2: Chest radiograph taken three days after intercostal drainage tube insertion showing persistent left hydropneumothorax**



**Fig. 3: Axial(a), coronal(b) and sagittal (c) reformatted contrast enhanced CT showing herniation of fundus of stomach into the left thoracic cavity( black arrows) with leakage of oral contrast(white arrow) in the left pleural cavity suggestive of gastric perforation with formation of gastro-pleural fistula.**

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# CASE REPORT

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