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DUODENO-PLEURAL FISTULA: A RARE COMPLICATION OF PEPTIC ULCER PERFORATION

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ABSTRACT

Duodenopleural fistula is a very uncommon complication of peptic ulcer perforation and usually follows empyema after a subdiaphragmatic abscess rupture. We present a rare case of duodenopleural fistula following subdiaphragmatic abscess, which resulted in thoracic empyema after gastric perforation.

Keywords: Duodenopleural fistula, peptic ulcer perforation, subdiaphragmatic abscess.

INTRODUCTION:

Fistulous communications between the abdominal organs and the pleural cavity and lungs are not common. They usually implicate perforation and an intra-abdominal sepsis. The commonly observed organs include the stomach and colon but rarely the duodenum. We present a rare case of duodenopleural fistula following subdiaphragmatic abscess which resulted in thoracic empyema after gastric perforation. This report emphasizes that duodenopleural fistulas, although uncommon, should be considered in differential diagnosis of thoracic empyema, especially when there is a longstanding history of peptic ulceration. Duodeno-pleural fistulas can be both a diagnostic and therapeutic challenge as illustrated by this case report.

Case Presentation:

A 32-year old male patient presented with chronic cough of 2-year duration. Cough was worse on lying down, on eating food and following drinking. Past medical history revealed a 6-year history of peptic ulcer disease with perforation following NSAID ingestion, 2 year prior to presentation. A 3-cm perforation was located in the prepyloric area of the stomach and was associated with massive intraabdominal collection of abscess in the subdaphragmatic spaces. These were drained at laparotomy with closure of the perforation. Postoperatively, his cough persisted with production of purulent material, which later became whitish. Upper GI endoscopy and upper GI contrast studies using gastrografin one month after surgery was normal.

Cough persisted especially on taking liquid diet despite antibiotics treatment based on sputum culture results. He was referred to us 2 years after the surgery because of persistence of symptoms. Examination revealed an afebrile young man, anicteric, not pale, but with marked weight loss. There was good air entry into both lungs with mild crepitations on the right lung base. Chest X-ray showed a triangular patch of airspace opacity in the right lung base above the diaphragm which filled easily with contrast on barium meal. (Fig 1) Contrast study revealed a long tract of contrast medium arising from the apex of the duodenal bulb and extending upwards across the diaphragm into the thoracic cavity and terminating in the right pleural cavity at the base of the lung. (Fig 2) The later harbours air-fluid levels and its outline suggest mucosal lining. An impression of pneumonitis secondary to a duodenal fistula was made. No abnormality was observed in the laboratory investigations. HIV was negative and Helicobacter Pylori was positive.

Patient had laparotomy and the findings at operation include a long fistulous tract arising from the duodenal cap passing behind the liver and across the diaphragm into the right pleural cavity. This tract was completely excised and the duodenal ostium closed. The cough completely subsided and patient tolerated all meals without discomfort or cough. There has been no recurrence and patient has gained weight after 6 months of follow up.

Figure 1 **Chest X-ray showing a triangular patch of airspace opacity in the right lung base outlined by contrast on barium meal.**

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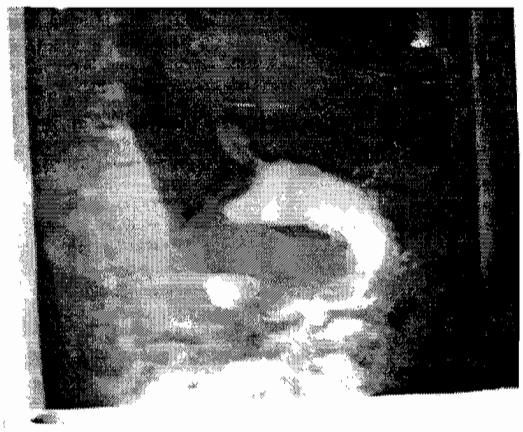
Figure 2 **Contrast study showing a long tract of contrast medium arising from the apex of the duodenal bulb extending to the right pleural cavity**



DISCUSSION:

Intestinal fistulas are said to be rare and often complicate surgical procedures, anastomotic breakdown, enterotomy repair, trauma, underlying disease and rarely congenital.[1] Duodenal fistulas are usually high output fistulas and cause loss of electrolytes and nutrients with a lot of physiological changes within a short time. Treatment is therefore urgent and tasking. For lateral duodenal fistula, treatment consists in identifying the fistula excising it and closing the duodenal defect appropriately after stabilising the patient. A jejunal serosal patch may be necessary while a diverting gastrostomy, cholecystostomy and feeding jejunostomy should also be considered depending on the patients' symptoms.[2]

This unusual fistula in our patient followed a successful surgical treatment of a peptic ulcer perforation with subdiaphragmatic abscess and thoracic empyema. This complication is not surprising as empyema thoracis are known to result from subdiaphragmatic abscess.[3,4] This initial impression of gastro-pleural fistula was based on the fact that the perforation noted at the previous surgery was in the prepyloric region of the stomach and gastropleural fistula is a known complication of gastric perforation.[5-7] Based on our current diagnosis, the patient probably had a duodenal perforation in addition to the gastric perforation but was missed probably due to the massive intra-abdominal abscess reported at surgery or the duodenal perforation may have been a later event following the operation. This perforation, which was posterior, was consequently walled off without abdominal symptoms leaving a persistent lateral fistulous tract. The reactive pulmonary infiltrate was as a consequence of the persistent fistula. Markowitz and Herter[4] suggested erosion of an intraabdominal abscess through the diaphragm which resulted from perforation of the intraperitoneal stomach as a cause of gastropleural fistulas. This patient was predisposed to fistula formation because of a history of peptic ulcer perforation and subdiaphragmatic abscess. The diagnosis of a duodeno-pleural fistula was made by contrast study, which is the diagnostic test of choice.[6]

No case of duodenopleural fistula following peptic ulcer perforation and subdiaphragmatic abscess has been described in the available literature. Communication between the gastrointestinal tract and the pleural cavity has been described with the stomach and colon. Gastropleural fistula has been reported following perforation of gastric ulcer,[5] gastric lymphoma,[7] hiatal hernia,[8] and thoracic surgery.[9]

CONCLUSION:

The presence of a prepyloric perforation was a confounding variable in the initial surgery making the duodenal perforation go undetected. A persistent search of the duodenum should always be undertaken in patients with peptic ulcer perforation. The identification and treatment of this duodenopleural fistula was a diagnostic challenge in view of the small ostium.

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