Egyptian Journal of Chest Diseases and Tuberculosis (2016) 65, 451–454

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Egyptian Journal of Chest Diseases and Tuberculosis

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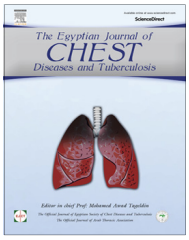

CASE REPORT

Post tubercular gastropulmonary fistula: A rare complication

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Received 18 August 2015; accepted 14 December 2015
Available online 5 January 2016

KEYWORDS

Gastropulmonary fistula;
Thoracotomy;
Subphrenic abscess;
Pulmonary resection;
Complication

Abstract Gastropulmonary fistulas are themselves a very rare clinical entity and very less has been written about them in literature. Most of the cases listed in literature till now show that most of the gastropleural fistulas have been reported after intrathoracic gastric perforation in hiatal hernia, traumatic diaphragmatic hernia with later gastric perforation, perforated malignant gastric ulcer at fundus, extension of subphrenic abscess with gastric perforation, pulmonary resection and gastric bypass operations and only a single case has been documented till now regarding post intercostal chest tube drainage gastropulmonary fistula in tubercular patient.

Here we present a first of its kind case where a middle aged female developed gastropulmonary fistula on the left side after multiple pleural aspirations for tubercular pleural effusion. The patient was operated and left lower lobectomy was done with the resection of involved part of stomach and fistulous tract from the left posterolateral thoracotomy.

Introduction

Gastropulmonary fistula is a communication between the stomach and lung. As a complication of it aspiration pneumonitis develops and evolves into lung abscess formation with the attendant risk of life-threatening massive hemoptysis, bronchiectasis and recurrent local infection, pyopneumothorax and empyema.

This complication is difficult to manage and requires multiple radiological, endoscopic, and surgical procedures.

Case report

We present a case of a 32 year old female who was referred to our institute with chief complaints of foul smell in breath, coughing out food particles after lying in right lateral position after having meals and progressive cough for last 12 months with intermittent fever. To address these complaints the patient used to lie in a propped up position. There was no history of trauma to chest, no history of any gastric, esophageal, pulmonary surgery in the past, no history of any radiation to chest and abdomen for malignancy or no history of chemotherapy for acid peptic disease.

The patient had been diagnosed to have pulmonary tuberculosis 2 years back when she had developed tubercular pleural effusion on the left side and had undergone multiple needle aspirations. She took antitubercular treatment for 9 months

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Peer review under responsibility of The Egyptian Society of Chest Diseases and Tuberculosis.

http://dx.doi.org/10.1016/j.ejcdt.2015.12.009

and after that she was declared cured. Patient was diagnosed to have infertility due to tubal strictures for which she underwent invitro fertilization (IVF), and was on corticosteroid supplementation before she delivered live fullterm baby by cesarean operation.

On general examination the patient was hemodynamically stable and having very foul smell in breath. Air entry was slightly reduced on the lower part of the left lung. Rest of the physical examination was normal.

In blood investigation the only abnormality was raised ESR (32 mm/h) and raised lymphocyte count in Differential leukocyte count ($P_{38}L_{52}M_7E_3B_0$). Rest all blood investigations like liver function tests, and renal function tests are within normal range. Patient was negative for hepatitis B and HIV.

Upper GI endoscopy showed a hole with puckering of surrounding tissue in fundus of stomach suggestive of fistula. Chest X-ray was suggestive of consolidation of the left lower lobe (Fig. 1).

Contrast enhanced CT scan of abdomen and chest (Figs. 2–5) showed a rent of size 6 mm in fundus of stomach through which oral contrast agent reached the lower lobe of the left lung suggesting fistulous connection between fundus of stomach and the lower lobe of the left lung. Part of the lower lobe of the left lung is necrotic and fistulous tract of area about 29×17 mm was seen in the lower lobe of the left lung. Parenchyma of the lower lobe of the left lung was filled with contrast agent and contrast reached the segmental bronchus. ECG and echocardiography were normal.

On the basis of the above investigations the patient was planned for surgical intervention and informed consent was taken. The patient was operated and left lower lobectomy was done through the left posterolateral thoracotomy after precisely identifying the fistulous tract between stomach and the left lung through the diaphragm. There were adhesions in pleural cavity for which adhesiolysis and hemostasis were done. Fistulous tract was explored from chest incision and through an incision in diaphragm the involved part of stomach with fistula was resected followed by closure of stomach in a single layer. Diaphragm was repaired with omentum interposed between the stomach and diaphragm. The bronchial stump was secured and reinforced with sutures so that there was no active bleeding and airleak. Two chest tubes were placed in chest cavity and thoracotomy was closed in 3 layers. Resected lobe of lung with surrounding lymphnodes and part of stomach were sent for biopsy.

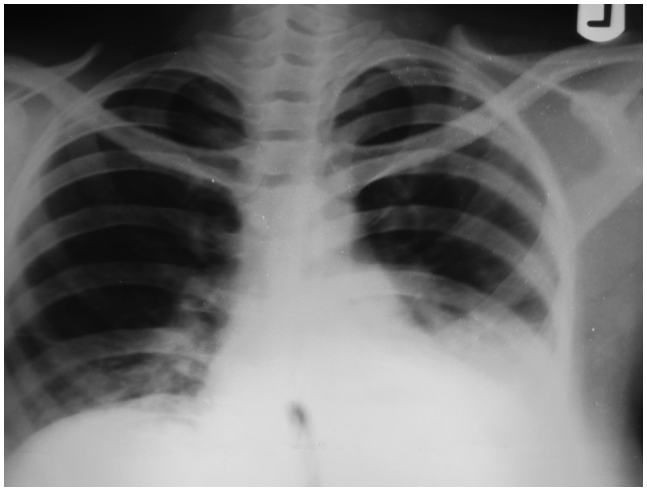

Figure 1 Chest X-ray PA view showing consolidation of the lower lobe of the left lung.

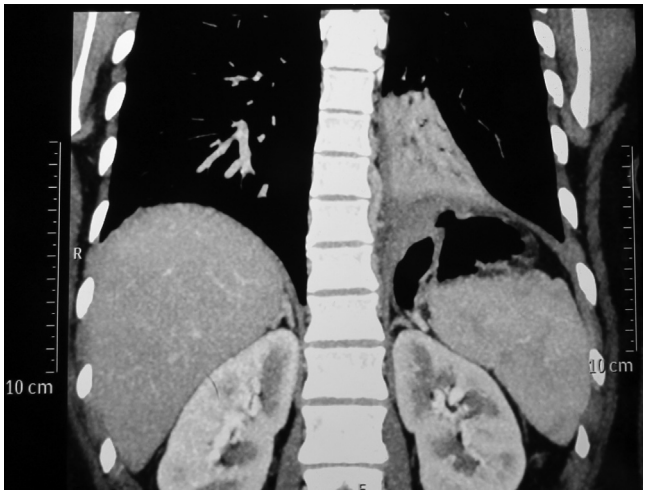

Figure 2 Contrast enhanced CT scan (coronal section) showing gastropulmonary fistula and consolidation of the lower lobe of the left lung.

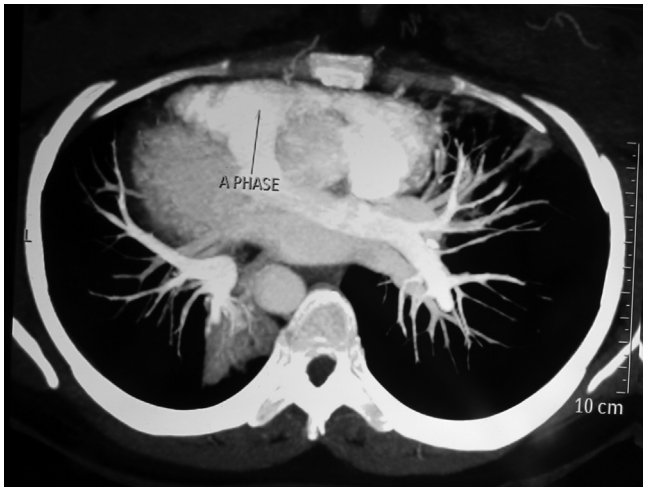

Figure 3 Contrast enhanced CT scan of thorax (axial view) showing pulmonary artery and veins.

Patient was extubated in the operating room and the postoperative period was uneventful. Tubes were removed on the 3rd and 5th postoperative days and patient was put on liquid meals on the 3rd postoperative day. Patient was discharged on the 7th postoperative day and stitches were removed on the first follow up visit on the 12th postoperative day. After 6 months of follow up,

biopsy report of part of stomach revealed features of chronic active gastritis with increased lymphocyte infiltration of lamina propria with lymphoid follicle formation.

Biopsy report of resected lobe of left lung showed dilated bronchi lined by hyperplastic respiratory epithelium with diffuse infiltration of lymphocytes, alveoli were congested and

Figure 4 Contrast enhanced CT scan of thorax and abdomen showing gastropulmonary fistula with discontinuity of the left hemidiaphragm.

Figure 5 Contrast enhanced CT scan of thorax and abdomen showing gastropulmonary fistula and consolidation of the lower lobe of the left lung with breach in the left hemidiaphragm.

lymph node showed no evidence of granulomatous lesions but only reactive changes.

Discussion

Pulmonary tuberculosis is endemic in Southeast Asia and the presentation of disease is quite variable and sometimes presents with unusual complications. 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 [1,2]. Other causes have been subsequently described as complications of pulmonary surgery, esophageal surgery [3,4,7] 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 tumor or radiation therapy [5–8]. The diagnosis is usually made with contrast radiology, upper GI endoscopy. For surgical approaches, both laparotomy and thoracotomy have been described depending on factors as etiology and site of fistula [3,4,7,8]. Previous reports favor laparotomy [3,4,6–8] but we opted for initial thoracotomy, because of the infected pleural space.

Therapeutic strategies depend on the severity of patient's condition. Various therapeutic methods for a fistula between the gastric tube and the airway have been described, such as conservation [4], endoscopic intervention [10,18] and surgery [9–17]. In particular, many operative approaches using the interposition of vital tissues such as a pedicled pleural, pericardial [11] or muscle flap [9,12,14–16] for the reinforcement and isolation of the suture line of pulmonary and gastric tube defects have been demonstrated. The muscle flaps included the latissimus dorsi, pectoralis major, and the intercostal muscle flaps. Making a good choice for appropriate surgical management might be difficult. Operative strategies depend on the size and location of the fistula, and accompanying conditions such as the severity of intrathoracic and mediastinal infection. For an airway too large to be closed directly, indirect closure using muscle flap transposition may be a useful approach [9]. Usually, repaired suture lines are at risk of dehiscence because of local infection and the poor general condition of the patient; however, if local infection is well controlled with a good general condition, direct closure without the interposition of vital tissues may be a choice as a surgical option. Our case was successfully treated with only the direct closure of pulmonary and gastric tube defects.

Our case is one of the rare diagnoses. Fistula developed likely due to multiple inadvertent forceful insertion of needle for purpose of aspirating pleural fluid. This case emphasizes that not only subphrenic infection or below-diaphragmatic pathology can erode and lead to gastropleural fistula, but supradiaphragmatic infection, intrathoracic surgery and inadvertent positioning of needle for aspiration of pleural fluid can also result in this condition.

Conflict of interest

There is no conflict of interest between authors.

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