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Gastropleural fistula after single anastomosis gastric bypass. A case report and review of the literature

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ABSTRACT

INTRODUCTION: Pulmonary complications after bariatric surgeries are rare but usually serious. They often occur early after surgery but the presentation might be delayed for several months. Gastropleural fistula after bariatric surgery is extremely rare and has been reported in a very small number of patients post sleeve gastrectomy and gastric bypass.
CASE PRESENTATION: A 37-year-old lady presented with left sided pleural effusion and empyema 2 years post single anastomosis gastric bypass surgery. She was found to have a large gastropleural fistula and was managed by surgical repair of the fistula with conversion to gastric bypass and decortication of the affected pleura. That resulted in significant clinical improvement and resolution of the empyema.
CONCLUSION: Gastropleural fistula is a very rare complication of bariatric surgeries and should be considered in patients who present with chronic or recurrent pulmonary infections.

1. Introduction

Bariatric surgeries are very popular procedures for weight reduction in obese population and increasingly done in different parts of the world [1,2]. Their efficacy in weight reduction and improvement of obesity associated metabolic diseases is well established [3,4]. Early surgical complications and late dietary disturbances are not uncommon among bariatric surgery patients [5]. Pulmonary complications, however, are rare but they are often serious and occasionally life threatening [6]. These surgeries share the early postoperative pulmonary complications such as pulmonary embolism and atelectasis with other types of abdominal surgeries. Several late complications are related to gastroesophageal reflux due to gastric restrictive nature of some of these surgeries [7]. More specific complications related to bariatric surgeries include gastrobronchial (GBF) and gastropleural fistulae (GPF). Gastrobronchial fistula is an acquired tract between stomach (or gastric pouch) and tracheobronchial tree that can result in recurrent lung infections and abscesses formation [8]. This complication has been reported with all bariatric surgeries but more frequently after sleeve gastrectomy [9]. In a recent systematic review of case reports and case series, 36 patients with GBFs were identified and the mean period until diagnosis was 7.2 months. Half of the patients were treated endoscopically while others required surgical treatment [10]. Similarly, GPF is an acquired communication between stomach and the pleural cavity. This complication is much less frequently reported than GBF and was never reported post single anastomosis gastric bypass (SAGB) or Minigastric bypass (MGB) surgeries.

This report describes the presentation and the management of GPF in a young lady who presented with respiratory symptoms two years after SAGB and the review of literature on GPF particularly in the setting of bariatric surgeries. The case has been reported in line with SCARE criteria [11].

2. Case presentation

A 37-year-old lady presented with dry cough, left sided chest pain and shortness of breath for 2 days. She had no hemoptysis, fever or night sweating and the review of other systems was unrevealing. She had undergone laparoscopic Vertical Band Gastroplasty (VBG) at age of 24 years with body mass index (BMI) of 35 kg/m2, then she had laparoscopic conversion of VBG to Single Anastomosis Gastric Bypass (SAGB) with excision of the gastric Fundus 9 years after VBG due to weight regain with BMI of 38.7 kg/m2. At time of SAGB, there was no evidence of fistulation between

Abbreviation: GPF, Gastropleural fistula; GBF, Gastrobronchial fistula; SAGB, Single Anastomosis Gastric Bypass (Minigastric Bypass).

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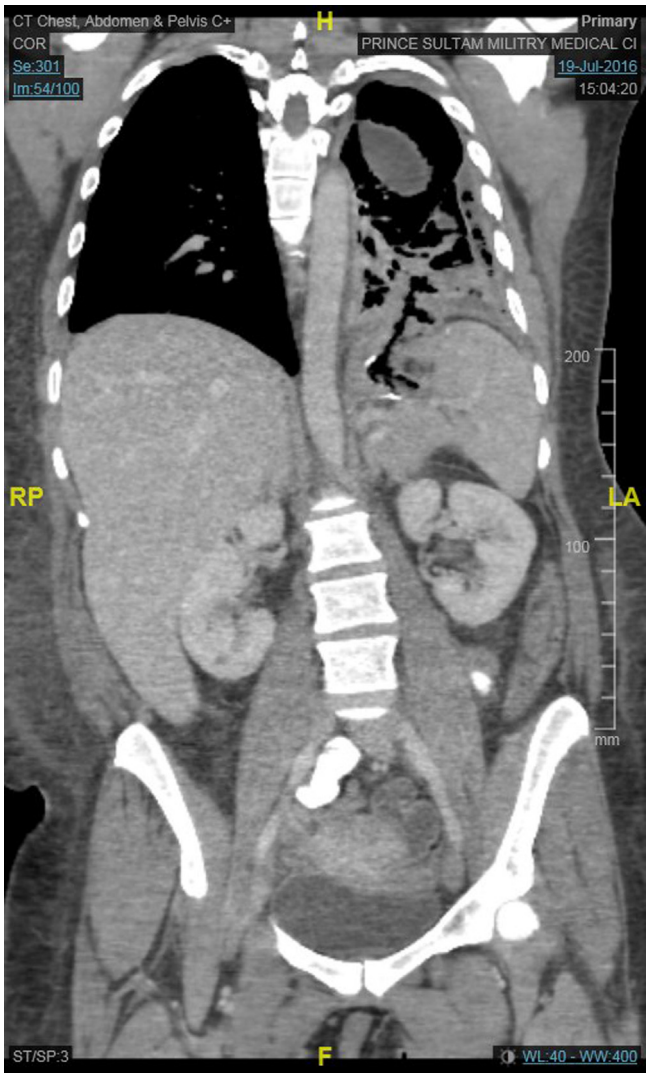

Fig. 1. CT scan for chest and abdomen showing air filled tract extending from gastric pouch to left pleural cavity.

Fig. 2. Gastrografin study showing the leakage of orally administered contrast media from the upper part of stomach to the adjacent part of the left sub-phrenic collection.

stomach and adjacent structure neither on pre-operative imaging nor intra-operatively. Six months prior to this presentation she developed left upper quadrant pain and was found to have left sub-phrenic collection that required ultrasound guided catheter drainage. Upper GI gastrografin study, Upper GI endoscopy and abdominal CT Scan did not show leakage or fistula at that time.

On examination, she looked unwell and was in mild pain. She had reduced breath sound on left side of the chest with stony-dull percussion note. Abdomen was soft with no tenderness and no palpable masses. Laboratory tests were as following: WBC: 13 10^9/L, Hb 11 g/dl, Plt: 315 10^9/L, Alb 33 g/L, INR: 1.5, C-reactive protein (CRP): 399 mg/L, erythrocyte sedimentation rate (ESR): 40 mm/hr while electrolytes were normal. Chest x-ray showed obliterated left costophrenic angle and that was interpreted as possible left side small effusion. CT scan of the chest showed a loculated left pleural effusion with air foci causing passive atelectasis and minimal mediastinal shift to the right side. Patient underwent drainage of pleural collection via chest tube and fluid analysis was highly suggestive of left side empyema since it was very turbid with high WBC count, very high fluid LDH (2466 U/L) compared to serum LDH (249 U/L), low glucose (0.2 mmol/L), high protein content (39 gm/dl) and low pH while fluid amylase level was low (30 U/L). Cultures were negative as well as the stain for acid-fast bacilli (AFB) and cytology did not show any malignant cells. Bronchoscopy with bronchoalveolar lavage was done and it showed collapsed left lung with mucus plug. Follow up CT scan for chest and abdomen showed air-filled tract extending from gastric pouch to left pleural cavity in keeping with GPF and interval development of mild right side pleural effusion (Fig. 1). Patient was started on total parentral nutrition (TPN) and was kept null per mouth. Gastrografin study confirmed the leak of orally administered contrast media from the upper part of stomach to the adjacent part of the left sub-phrenic collection but the communication between stomach and pleural cavity that was reported on CT scan could not be clearly seen (Fig. 2). Upper GI Endoscopy showed a normal esophagus however there was a fistula opening below gastroesophageal junction near to the anastomosis site (Fig. 3).

Laparoscopic exploration showed extensive adhesions and complex fistulation between the gastric pouch, left sub-phrenic collection and left diaphragm (Fig. 4). The adhesions were released, the collection was drained and the GPF together with the gastric pouch were excised and gastro-jejunal anastomosis was performed. Additionally, excision of esophago-gastric junction and creation of esophago-jejunal and jejuno-jejunal anastomosis were carried out. Drainage of the left pleural collection was attempted with pigtail catheter but the left lung was entrapped and failed