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Case Report

Acute paraoesophageal hiatal hernia following laparoscopic sleeve gastrectomy

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ABSTRACT

Anti-obesity surgery is the most effective therapy available for significant weight loss in patients with morbid obesity. Obesity in consider a major independent risk factor for Hiatal hernia (HH) and it is present in about 37%-50% of morbidly obese patients undergoing bariatric surgery.1,2,3 It might be overlooked or under looked especially if the patient was asymptomatic and no pre-operative endoscopy or radiological workup. Denovo closure of the hiatal defect in case of an intraoperative finding of HH strongly recommended preventing such acute postoperative complications. Herein we report a rare and acute post laparoscopic sleeve gastrectomy with gastric herniation were uneventfully diagnosed and interfered early to prevent a catastrophic outcome.

Keywords: Laparoscopy, Obesity, Bariatric surgery, Sleeve gastrectomy, Para esophageal hiatal hernia, Acute herniation

INTRODUCTION

Anti-bariatric surgery generally and sleeve gastrectomy (SG) for morbid obesity specifically is gaining increasing popularity among both surgeons as well as patients. obesity is considered an independent risk factor for hiatal hernia (HH).[1-3] The HH is characterized by migration of organs into the thoracic cavity, has four subtypes; sliding, paraoesophageal, combined and type V, the entire stomach and additional organs are migrated. As the stomach rolls up into the chest, there is always an element of rotation (volvulus).[4]

CASE REPORT

A 40-year-old female patient suffering from morbid obesity with body mass index of (BMI)=38.2 kg/m^2. She presented to our emergency department with diffuse abdominal pain mainly in the epigastric area and vomiting since the surgery which was one-week ago. She is status post laparoscopic sleeve gastrectomy which was done outside our hospital.

A detailed history was taken from the patient, revealing no significant comorbidities, dysphagia, hematemesis, melena, gastros-esophageal reflux symptoms, or change in bowel habit. She denied any history of trauma and was discharged 2nd day post her surgery. The pain and vomiting were progressive so, she reported to our emergency department. Systemic review was unremarkable.

On examination

Generally, she looks conscious, oriented alert, mildly dehydrated, not on respiratory distress, not jaundiced not pallor neither cyanosis. Vital signs were unremarkable apart from a mild tachycardia. The abdomen was soft lax with diffuse tenderness and recent scar marks. She is no guarding or rigidity. There is neither organomegaly nor palpable masses. No ascites and intact hernial orifices.

Her initial lab workup showed white blood cell count (WBC) of 11.5×10^9/l, hemoglobin (Hb) of 14.9 g/dl, platelet (PLT) of 311×10^9/l, electrolyte, chemistry, kidney and liver function test was unremarkable.

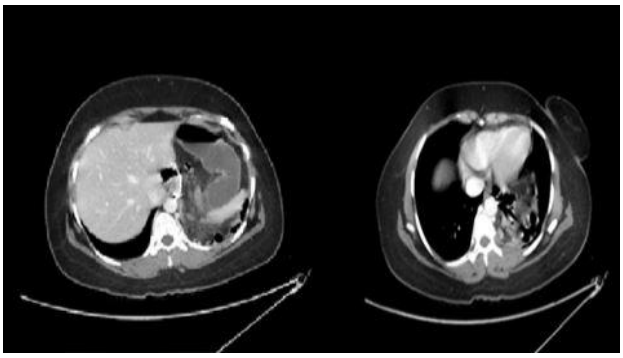

Figure 1: Axial cross-sectional CT view. There is left diaphragmatic large defect (3.7 cm) with sizeable hernia into the left hemithorax.

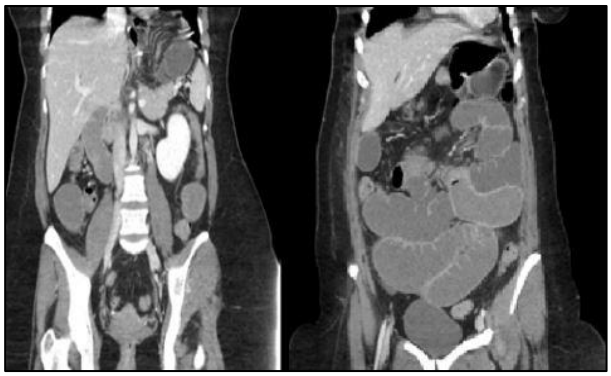

Figure 2: Coronal CT view showing high-grade small bowel obstruction with transition zone at the neck of left diaphragmatic hernia. No evidence of bowel ischemia. There is no evidence of major arterial or venous occlusive thrombus.

Computed tomography (CT) showed left diaphragmatic defect 3.7 cm with a sizable hernia in the left hemithorax associated with high-grade small bowel dilatation with transition zone seen at the neck of the left diaphragmatic hernia in the distal ileal loop. The transition zone is closely related to the gastric sleeve sutures. The small bowel loops and colon distal to the transition zone are collapsed.

So, we decided to admit the patient emergently as a case of acute paraoesophageal hernia and prepared for operative laparoscopic exploration. The intraoperative finding was intact both crura with mid part of the sleeved stomach had herniated to the chest cavity with mild organo-axial rotation but well vascularized stomach. The stomach was reduced inside the abdominal cavity. The sleeve stomach was fixed to the left crus with monofilament permanent sutures as well gastro-omentopexy to stabilize the stomach not only to reduce the chance of failure of fixation but to maintain the alignment of the organ. Procedure was well tolerated and uneventfully done. Post-operative, the patient was extubated and shifted to intensive care unit (ICU) for monitoring.

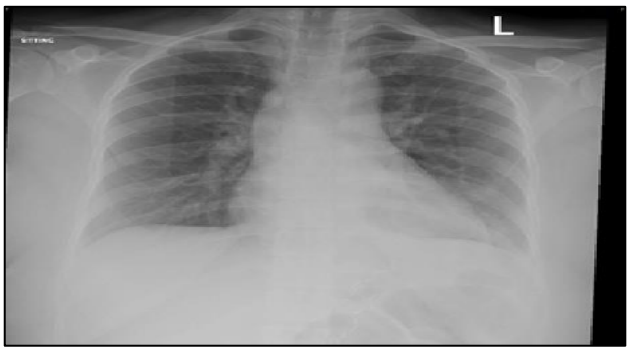

Figure 3: Chest x-ray AP view showing complete resolution of left-sided pneumothorax.

Day 1 post-operative, the patient was seen doing fine, the pain was controlled, no nausea or vomiting, kept NPO, didn't pass a bowel motion, vitally stable, the abdomen was a soft lax and tender epigastric area, her labs were within a normal range, X-ray chest showed fully expand lung, and she was shifted out from ICU to the general ward.

Day 2 post-operative, we started her on sips of water to clear liquid until day 4 we advanced her to full liquid diet and patient was discharged in good condition with follow-up in the clinic. Patient was seen 1 week, 3 weeks post discharge in the clinic and was doing fine and was recovering well.

DISCUSSION

Obesity has been an increasing issue in Saudi Arabia, which led to a rising demand for bariatric procedures. Laparoscopic sleeve gastrectomy (LSG) attracted more demand due to its simplicity and efficiency and it became one of the most common bariatric procedures performed worldwide.[5]

Most obese patients are at risk to have gastroesophageal reflux diseases (GERD), HH, and some retrospective analysis showed that 35%-40% of patients who undergo bariatric surgery are diagnosed with a HH, and the majority of them are diagnosed during surgery.

Many other risk factors such as laparoscopy, sleeve gastrectomy, respiratory diseases, smoking, multiple pregnancies are all could be a risk factor for HH. A surgical technique during performing a standard laparoscopic sleeve gastrectomy might contribute to weakening or widening the hiatus. The angle of His and the phreno-esophageal membrane is regularly dissected during and the left crus is exposed to make sure no returned or large gastric fundus is missed. All these techniques could insult the protective anatomical and physiological of

the high-pressure zone (HPZ) of the lower esophageal sphincter.

Interestingly, in 2011 a study published by Baumann et al in which patients underwent laparoscopic sleeve gastrectomy (LSG) were followed by computed tomography (CT) scan. They showed a 37% migration rate of the gastric sleeve into the posterior mediastinum between 1-10 months after the operation.[6]

The most common complications among patients are post-operative complications, which currently include emboli, hemorrhage, chest infections, abscess, incisional hernia, re-laparoscopy for retained drain, anatomic leakage, wound infections, and GERD.[7,8] Usually, dumping would occur almost an hour after eating and it is accompanied by symptoms of bloating, flushing, diarrhea, and light-headedness.[9]

After conducting a literature review, we found three similar cases of acute intra-thoracic sleeve migration. The first one was reported in the form of an abstract during the obesity week of the American Society for Metabolic and Bariatric Surgery in Boston by Dr. Steve Chang. In this case, the patient, a 60-year-old female had a hiatal hernia defect which was closed, and the stomach was tacked to the omentum.

The second case was from Jerusalem. The patient had a hiatal hernia through which the stomach incarcerated, and the treatment involved a re-exploration and placement of the patient on total parenteral nutrition suggesting a more complicated postoperative course.[10]

The third one from Saudi Arabia. The patient has paraoesophageal hernia and the treatment was a re-exploration and the fundus was fixed to the left crus with non-absorbable stitches to reduce the chance of recurrence and the antrum was fixed with a single stitch to the base of the falciform ligament for extra security since no clear defect was noted and the thought was to reduce the mobility of the long sleeve.[11]

CONCLUSION

Obese patients found to have HH identified pre-operative and intra-operatively should be considered for repair to avoid a catastrophic peri-operative complication. A high index of suspicion is the key to decrease morbidity and to achieve the best outcome. Combination LSG with HHR is feasible and safe and provides good outcomes for patients with morbid obesity.

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