Case Report

Atypical Complications of Anti-Reflux Surgery; Post-Surgical Paraesophageal Hematoma: Two Case Reports

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ABSTRACT

Background: The laparoscopic approach is the current standard for the surgical treatment of gastroesophageal reflux disease refractory to medical treatment and symptomatic hiatal hernia. Although it is a safe surgery, its potential complications are frequently underestimated. The most common postoperative complication is the dysphagia, but less common and severe complications such as pneumothorax or paraesophageal hematoma may occur.

Case presentation: We present two cases of patients with a different profile who develop paraesophageal hematoma in the postoperative period of antireflux surgery. In both cases, this complication can be treated conservatively, without the need for reintervention.

Conclusions: It is a rare complication of anti-reflux surgery but of great relevance, especially in patients with risk factors. Conservative management should be attempted as long as the patient's situation permits.

INTRODUCTION

The laparoscopic approach is currently the standard for the surgical treatment of Gastro-Esophageal Reflux Disease (GERD) refractory to medical treatment and symptomatic Hiatal Hernia (HH) [1,2]. The most widespread technique is based on performing a generally posterior hiatoplasty and associating a total or partial fundoplication. Nissen fundoplication consists of a total wrap (360°) of the esophagogastric junction and is the most frequently performed anti-reflux intervention, with a 10-year effectiveness of more than 90% [3,4]. To reduce the incidence of postoperative dysphagia associated with Nissen fundoplication, partial fundoplication has been proposed [5]. These include the 270° posterior or Toupet partial fundoplication and the 180° anterior or Dor partial fundoplication. These two techniques have shown similar results in terms of efficacy in controlling reflux symptoms and patient satisfaction. However, they present a higher risk of recurrence and need for reoperation [6]. The indication of associating prosthetic material to cruroplasty in cases of large HH remains controversial [7]. Although its use has shown benefits with respect to the incidence of hernia recurrence, it may add complications such as esophagogastric junction stenosis or esophageal erosion. However, although improvements in the quality of prosthetic materials have minimised these complications, there is insufficient evidence to standardise the use of mesh in HH [8].

Despite the safety of the technique, it is not without complications. There is initial morbidity based on difficulty swallowing in the immediate postoperative period, early satiety, dysphagia and difficulty vomiting. Other less frequent but more serious complications are pneumothorax, visceral perforation (usually esophageal), vascular lesions, esophageal wall haematoma or rarely para-esophageal haematoma [9]. We present two cases of patients who underwent antireflux surgery by laparoscopic approach with and without prosthetic material and Nissen fundoplication, who developed symptomatic para-oesophageal haematoma postoperatively.

CASE PRESENTATION

First case report

75-year-old woman with a history of heterozygosis for factor XII and MTHFR gene and bilateral massive pulmonary thromboembolism in December 2014, anticoagulated with acenocoumarol since then. She was referred for clinical manifestations of dysphagia, pain radiating to the left shoulder and dyspnoea. Upper gastrointestinal endoscopy, esophagogastric transit with barium and thoracoabdominal Computed Tomography (CT) were requested, concluding the diagnosis with para-oesophageal HH containing the entire stomach with stomach volvulus. Preferred surgical intervention by laparoscopic approach was decided. Intraoperative findings showed an HH containing the entire stomach forming an organoaxial volvulus, with no signs of vascular distress. Complete reduction of the hernial sac was performed, starting its dissection at the level of the right diaphragmatic pillar. Subsequently, the mediastinal oesophagus was dissected until a sufficient length of intra-abdominal oesophagus was achieved. Due to the size of the hiatal orifice (6-7 cm) and the condition of the diaphragmatic pillars after approximation with non-absorbable stitches, a preformed Polyvinylidene Fluoride (PVDF) hiatal mesh was placed and fixed with resorbable tackers. Finally, a loose Nissen fundoplication was performed by tutoring the esophagus with a 38fr Foucher tube. A 19 fr transhiatal aspiration drain was placed.

The surgery and immediate postoperative period were uneventful. The patient was discharged on the second postoperative day with ambulatory control of the drainage as she maintained a daily debit of more than 50 cc per day. The drain was removed on the seventh postoperative day as the patient had maintained a nil debit in the previous 48 hours. Ten days after the operation, the patient attended the emergency department for severe dysphagia, chest pain, dyspnoea and asthenia. The patient was haemodynamically and eupnoeically stable, and did not require oxygen supplementation. Blood tests showed haemoglobin levels of 10.3 g/dL (prior to surgery 12 g/dL), LDH 327, CRP 199, INR 3.92, prothrombin time 16% (the patient had resumed treatment with her usual anticoagulant) and D-dimer 3100 ng/mL. Chest X-ray and thoracoabdominal CT scan with oral water-soluble and intravenous contrast were requested, with findings of an encapsulated collection of heterogeneous density and hyperdense content compatible with a haematoma measuring 8 x 7.5 x 9 cm in diameter. Its location was intrathoracic and adjacent to the left lateral margin of the oesophagus, completely occupying the space where the HH was previously lodged. No signs of pulmonary thromboembolism were evident, nor extravasation of intravenous contrast as a sign of active bleeding. After oral contrast administration, no contrast leakage was observed, with filiform passage at the level of the esophagogastric junction (Figure 1).

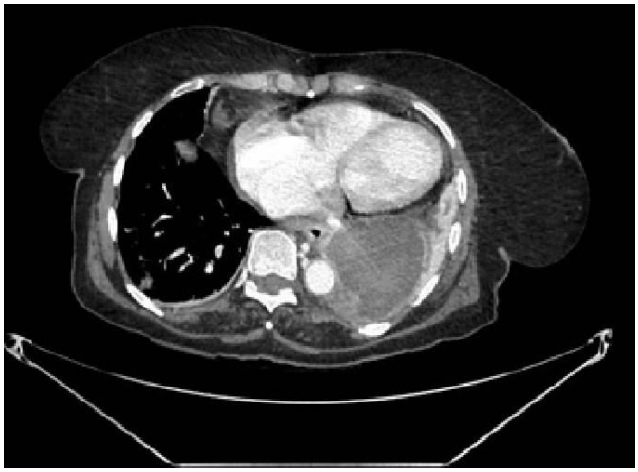

Figure 1. Axial section of the para-esophageal haematoma of the first case.

Given the patient's stability and the absence of active bleeding, it was decided to admit her to hospital for conservative management with prophylactic antibiotic therapy, corticosteroid treatment, streptokinase-streptodornase and close clinical and laboratory monitoring. Low molecular weight heparin was initially prescribed at prophylactic doses due to the risk of haemorrhage, and after the first 4 days it was

escalated to therapeutic doses. During her stay in the hospital ward, the patient evolved satisfactorily with progressive remission of symptoms, reintroduction of oral tolerance and analytical stability, and was discharged after 7 days. Outpatient follow-up by CT scan was carried out with practically complete resolution of the haematoma 4 months later. One year after surgery, the patient remains asymptomatic and without radiological hernia recurrence.

Second case report

A 36-year-old man with no history of interest consulted for heartburn and irritable cough that did not improve with dietary hygiene measures and treatment with full-dose proton pump inhibitors. The study was completed with barium oesophagogastric transit, Upper gastrointestinal endoscopy, manometry and pHmetry, concluding with a diagnosis of GERD with small axial HH and grade B esophagitis according to the Los Angeles classification [10]. Due to the intensity of the symptoms and refractoriness to medical treatment, it was decided to perform surgery using a laparoscopic approach.

Intraoperatively, a small axial HH with significant signs of periesophagitis was visualised. Posterior pillar closure was performed with non-absorbable suture and a Nissen fundoplication calibrated on a 38Fr Foucher probe, which passed without incident. On the first postoperative day, the patient began to experience progressive dysphagia to both solids and liquids, sialorrhoea and chest discomfort. Blood tests were requested and showed no abnormalities, and a CT scan was performed with oral water-soluble and intravenous contrast, visualising a para-oesophageal haematoma in the lower mediastinum that caused some compression at oesophageal level, although with good passage of contrast to the stomach, without extravasation of oral or intravenous contrast (Figure 2). The patient remained haemodynamically and respiratory stable.

Conservative treatment with digestive rest, corticosteroids and streptokinase-streptodornase was decided. The patient was discharged after two days with remission of symptoms and good oral tolerance. Follow-up was performed by CT scan, showing resolution of the haematoma 6 months after surgery. Currently, two years after surgery, the patient remains asymptomatic, with good oral tolerance and no radiological recurrence.

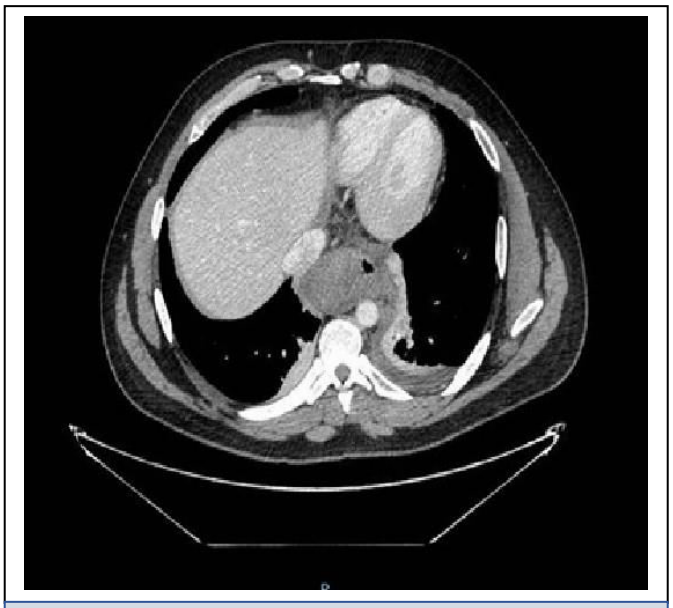

Figure 2. Axial section of the para-esophageal haematoma of the second case.

DISCUSSION

Anti-reflux surgery is based on the anatomical restoration of the esophagogastric junction and is an effective and safe therapeutic option for the treatment of GERD. Laparoscopic fundoplication is the standard technique with a minor complication rate of around 30%, predominantly dysphagia. Although perioperative mortality rates for this surgery are very low (0.1%), serious and life-threatening complications do occasionally occur [11]. Knowledge of the symptoms and warning signs helps to establish an early diagnosis of suspicion and to decide on the most optimal therapeutic management for the patient. The abdominal esophagus, involved in hiatal hernia surgery, is supplied by a multitude of small vessels originating from the inferior esophageal arteries (from the left inferior diaphragmatic and left gastric arteries). During antireflux surgery, the esophagus is freed from the hiatus and the adhesions it has to the hernia sac, in order to allow it to move freely into the abdomen and reduce the patient's reflux symptoms. During this release, blood vessels in the esophageal wall are sectioned and sealed using various instruments, including bipolar sealants and electrocoagulation instruments. One of the rare complications described in this article is the development of para-oesophageal haematomas secondary to this manipulation.

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The published incidence of post-surgical para-oesophageal haematoma is less than 1% [12]. It is associated with large HH, laborious surgery with periesophageal adhesions secondary to severe esophagitis, obesity, underlying coagulopathy and the use of anticoagulants and/or antiplatelet drugs [13]. In our first case, the patient met several risk factors for the development of this complication, such as large hernia size and taking anticoagulants. In contrast, the second patient had no history of interest and the HH was small in size. Unlike intramural haematomas that may present as upper gastrointestinal bleeding [14], para-esophageal haematomas usually present as abdominal or chest pain and progressive dysphagia due to extrinsic compression, depending on the size of the haematoma. All these symptoms were detected early in our two patients, alerting us to this possible complication. It is important to maintain a high index of suspicion in order to make an early diagnosis with aggressive correction of coagulation (if altered), as there is a high risk of haematoma rupture with haemorrhage and hypovolemic shock, especially in the first few hours. In our first case, it was not possible to suspend heparin due to the patient's thrombotic risk, so it was de-escalated to prophylactic doses until the period of greatest haemorrhagic risk had elapsed.

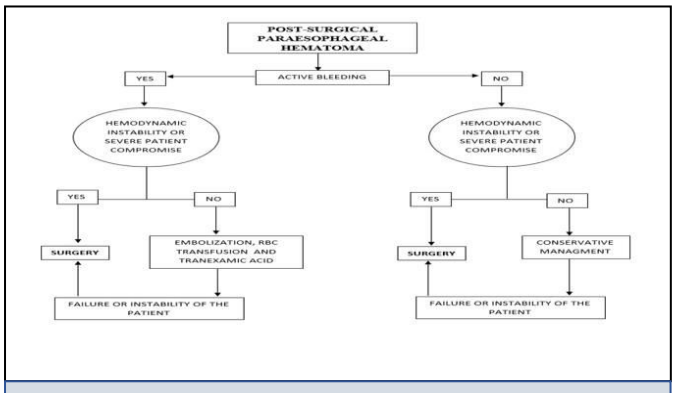

Figure 3. Management Flowchart.

With regard to imaging tests that can aid diagnosis, chest X-ray may show a widened mediastinal shadow, depending on the volume of the haematoma [15]. Esophagogastric transit is not involved in the diagnosis of para-esophageal haematomas, however, in intramural haematomas it may show a characteristic filling defect [16]. The diagnostic imaging test par excellence is CT angiography, as in addition to excluding other mediastinal and aortic pathologies from the differential diagnosis, it allows the dimensions of the haematoma to be characterised and the presence of active bleeding to be ruled out [15].

Conservative management based on close clinical and analytical follow-up is the norm, as long as the patient maintains haemodynamic stability and there is no respiratory compromise [17]. In case of initial instability or failure of conservative treatment, more invasive alternatives should be considered (Figure 3). The possibility of embolization by endovascular techniques in patients with active bleeding should be considered before establishing the indication for surgical revision. Surgery should be reserved for cases in which bleeding cannot be controlled by the previously described therapies, or surgical drainage is required to evacuate the haematoma due to severe symptoms of extrinsic compression. In neither of our two patients was reoperation or any other invasive measure necessary to control the haematoma, and they were discharged with outpatient follow-up. In addition to corticosteroid treatment for inflammation, oral streptokinase-streptodornase was used in our two cases. In addition to its anti-inflammatory effect, this active ingredient has shown benefits in the dissolution of haematoma, especially in the acute phase and less so in the subacute and chronic phase [18,19]. Although there is no unanimity regarding follow-up imaging tests [15], in our case it was performed with CT and barium esophagogastric transit without requiring endoscopy. Dissolution of the haematoma usually occurs between 3 and 6 months after surgery, depending on the volume of the haematoma and the patient's baseline characteristics [12].

CONCLUSIONS

In conclusion, although the development of a symptomatic paraesophageal haematoma is rare, it should be taken into account in the differential diagnosis of possible postoperative complications in patients undergoing antireflux surgery, both with and without risk factors. Unless the patient is unstable, conservative management with close initial and subsequent outpatient follow-up should always be chosen until resolution.

Ethics approval and consent to participate

Informed consent was obtained from the patients included in the study as well as from the ethics committee of the Virgen de las Nieves University Hospital.

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CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

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