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A case of concomitant diaphragmatic and ventral eventration mimicking a high intestinal obstruction

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Abstract

Diaphragmatic-abdominal eventration is a rare cause of respiratory and digestive disorders. We report the case of a 75-year-old patient with other comorbidities and risk factors explaining the etiology of his symptoms. The thoraco-abdominal scanner was the key diagnostic examination while guiding the choice of the operating strategy. He underwent a cure for eventration by the placement of a large bifacial intraperitoneal plate associated with an aponeurotic plasty.

Keywords: Diaphragmatic eventration - abdominal eventration - dyspnea - vomiting - CT scan - surgery - bifacial intraperitoneal plate.

Introduction

Any dehiscence behind a surgical scar should be considered as an eventration, even in the absence of swelling. Therefore, abdominal eventrations are the dehiscences of musculo-aponeurotic plane of the abdominal wall and diaphragmatic eventrations are defined by a permanent elevation of a thinned or degenerated hemidiaphragm without solution of continuity [3,4]. This postoperative complication is easy to diagnose, especially with the progress of imaging. The treatment is based essentially on prosthetic reinforcement to obtain the best results by restoring the anatomy of the abdominal wall. We report the case of a patient who presents with concomitant symptomatic diaphragmatic and abdominal eventration of postoperative origin.

Case report

Mr. RO, 75 years old, with antecedents of hypertension, type II dibetes and coronary artery disease (stenosis of the right coronary, the circumflex and anterior interventricular artery) for which he was treated by coronary quadripontage in 1999 with thoraco-phreno-laparotomy as the surgical approach (figure 1). For the past 3 months he has had intermittent episodes of postprandial vomiting accompanied by tolerable dyspnea. The physical examination revealed on the abdominal surgical scar that extends over the thorax, a reducible swelling having expansile impulse on coughing with a muscle orifice measuring 2 cm.

A thoraco-abdominal CT with injection of iodinated contrast agent was requested showing an ascension of the omentum in retro-costoxiphoid without diaphragmatic interruption (figure 2) with a median parietal defect of 20 mm in the subxiphoid (figure 3).

The surgical indication was established. He underwent a cure for eventration by the placement of a large bifacial intraperitoneal plate. After releasing the ventral sac and its resection, an organ reduction was performed with verification of their vitality (Figure 4). A detachment of the pre-aponeurotic plane and its plasty at the end of the operation were performed. The plate was fixed to the abdominal wall and to the diaphragm circumferentially by many separate stitches of nonabsorbable suture thread (figures 5 and 6).

The postoperative surveillance was without abnormalities. Ten months after the surgery, the patient presented no complications and no signs of recurrence.

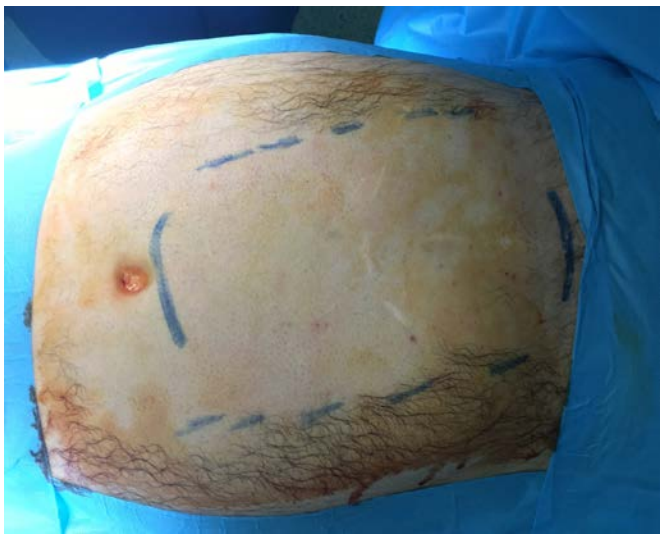

Figure 1 : image showing thoraco-laparotomy scar with aponeurotic detachment boundary tracing.

Figure 2 : frontal CT view showing the ascension of the omentum in retro-costoxiphoid without diaphragmatic interruption

Figure 3 : transverse CT scan showing the median parietal defect with omental content

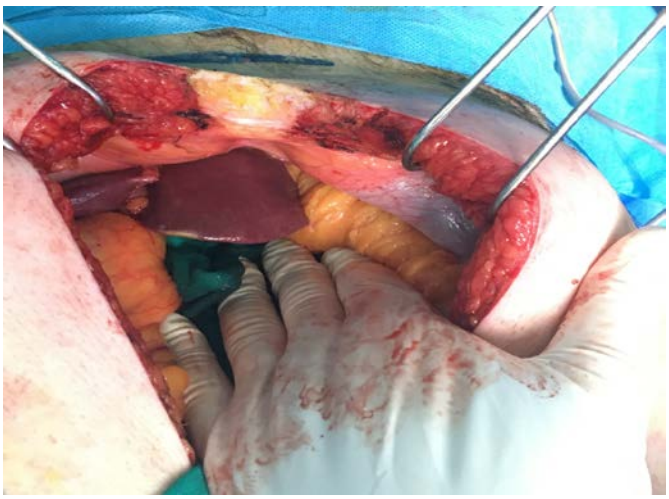

Figure 4 : intraoperative image after resection of the hernial sac and reduction of intra-abdominal organs

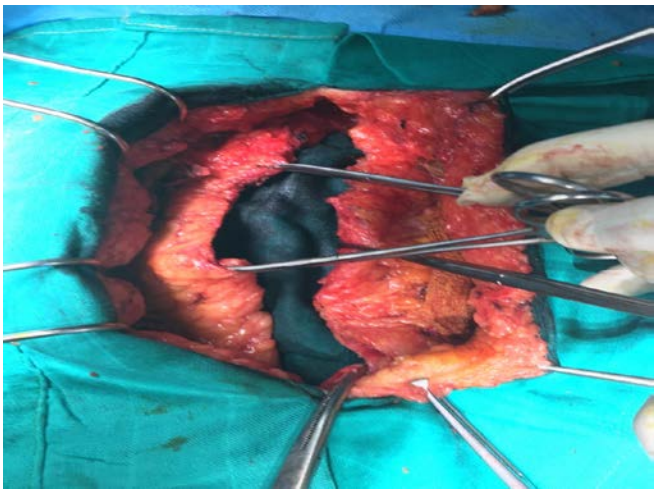

Figure 5: intraoperative image showing the aponeurotic detachment.

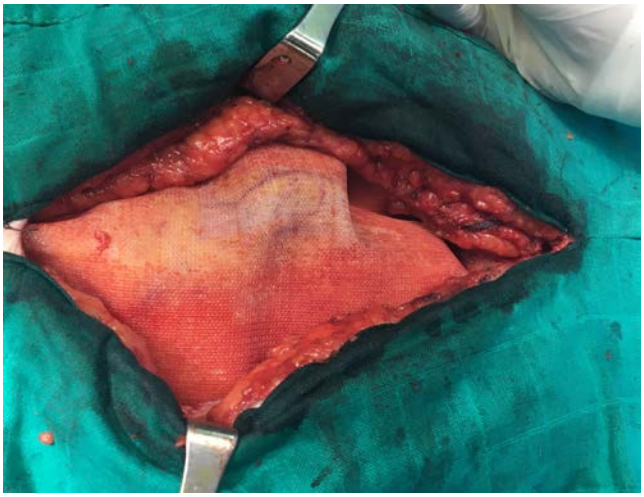

Figure 6 : intraoperative image showing the spreading and fixation of the bifacial intraperitoneal plate

Discussion

Abdominal eventration is due to a rupture of the musculo-aponeurotic plane in most cases after a surgical incision [1-4]. As for the diaphragmatic eventration means essentially an abnormal elevation of the diaphragm. It can be congenital or acquired. For the latter, also called diaphragmatic paralysis or paresis, often results from thoracic surgery [1-2-3].

Diaphragmatic eventration in our context is due to partial paralysis of the diaphragm secondary to iatrogenic damage of the phrenic nerve. Other etiologies of phrenic nerve involvement are described: neurogenic diseases such as myelitis, viral encephalitis as well as the special case of amyotrophic neuralgia or Parsonage and Turner syndrome. It is an idiopathic inflammatory disease affecting several cervical nerve roots; it generally does not require surgical treatment given its usually favorable evolution [12].

The diaphragmatic-abdominal eventration association is favored by undernutrition, obesity, parietal infection or ischemia, iterative interventions on the same site as well as abdominal hyperpressure which occurs during coughing, vomiting and meteorism [4].

Diaphragmatic eventration can be complete or partial, anterior or more rarely posterior, mainly affecting the right dome. It can be asymptomatic or responsible for respiratory or digestive disorders [5] as in the case of our patient.

In chest radiography, diaphragmatic eventration is manifested by an ascension of a diaphragmatic dome associated in fluoroscopy with a decrease in the kinetics of the raised dome [5]. The CT scan is indicated in the etiological investigation thanks to multiplanar reconstructions which allow a precise study of the diaphragm in search of a discontinuity signing the rupture [6-7]. Partial, anterior or posterior eventrations

justify an ultrasound exploration in order to eliminate a subdiaphragmatic mass [6]. These localized eventrations can pose diagnostic problems with anterior or posterior diaphragmatic hernias, which are most often resolved by CT scan (search for the diaphragmatic defect) [8]. In our case, the imaging is in favor of an ascension of the omentum in retro-costoxiphoid without diaphragmatic interruption with a median parietal defect. MRI may be proposed in questionable forms after CT scan [9-10].

In the anterior retro-costoxiphoidal forms, the differential diagnosis arises essentially with Morgagni-Larrey hernia [11] as well as tumors or pseudotumors of the cardiophrenic angle including: pleuropericardial cyst, lipoma, hypertrophy of the fringes pericardium, pleural fibroma or ectopic thymoma [12].

Complications are rare in retro-costo-xiphoid eventrations except if there is an associated abdominal eventration, the case of our patient. They mainly occur when the eventrations contain a hollow viscus [13], and this risk of complications is increased in certain situations such as obesity or pregnancy. The types of complications are the same as those seen in eventrations of the abdominal wall: strangulation of a digestive loop, bowel obstruction, and organ perforation [14].

The surgical indication is established to treat the impact of diaphragmatic eventration and abdominal association. The laparotomic approch is recommended for the concomitant retro-costoxiphoid and abdominal form [1-15]. The main advantage of the abdominal approach is the direct visualization of the contents of the sac after reduction and the evaluation of organs vitality [1-16-17]. The repair of the diaphragmatic defect is accomplished either by direct suturing where tension-free closure is possible, or by interposing a large nonabsorbable polyester mesh plate secured to the abdominal wall and to the diaphragm circumferentially by many separate stitches of nonabsorbable suture thread [1-18], as in our case.

The surgical outcomes of this surgical intervention are usually simple and the postoperative recurrence rate is extremely low [16].

Conclusion

The concomitant diaphragmatic and abdominal eventration is a rare cause of respiratory and digestive symptoms. It is diagnosed essentially by thoraco-abdominal CT scan. Surgical treatment with the placement of a large bifacial intraperitoneal plate covering the diaphragm and the entire abdominal cavity is the most effective therapeutic means.

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