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Case Report

Gastric migration: a dreaded complication of Nissen fundoplication

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ABSTRACT

Gastric migration after laparoscopic Nissen fundoplication is one of the most feared and least expected complications, due to the fact that it overshadows the patient's prognosis, increases the surgical risk of reoperation, as well as the anatomical difficulty of recurrence in previously manipulated tissues. Objectives to carry out a bibliographic review of the surgical management, the present evidence and the projected course in the approach to this complication, based on a case report. A 68-year-old female who presented on a scheduled basis with a history of multiple episodes of vomiting, with reports of several conclusive endoscopies with moderate erosive gastropathy and hiatal hernia of 4 cm as well as pylorus, non-assessable manometry and proposed surgical event of Nissen type fundus pylorus. Gastric migration is a potentially lethal complication where the only history of Nissen type fundoplication as an antecedent in the patient should arouse sufficient suspicion to direct an approach with potential surgical outcome as the only option for a patient that even if identified early, necrosis, pneumonia and comorbidities prevent a better prognosis.

Keywords: Nissen fundoplication complication, Gastric migration, Laparoscopic Nissen fundoplication

INTRODUCTION

Laparoscopic Nissen fundoplication is the gold standard in the treatment of hiatal hernia, both because of the reduction of costs and complications and because of a faster recovery, resulting in shorter hospital stay. However, within the approach to possible complications, both early and structural, esophageal migration is a complication that requires a high index of suspicion both for surgical resolution and for its reapproach in a modified anatomy and with pre-existing inflammation.[1,2] The diagnosis must therefore jump to the directed anamnesis once the surgery performed on the patient has been taken into account.[1] The morbidity even in early stages is high due to potential extra complications such as stomach necrosis, pneumonia, mediastinitis among others, and patient is candidate for intensive therapy.[2-4]

CASE REPORT

A 68-year-old female, with a history of thyroid cancer 16 years ago, in disease-free period as well as substitutive treatment with levothyroxine, anxiety disorder and depression in treatment as well as bilateral gonarthrosis. She has previous surgeries with appendectomy, salpingoclasia, open cholecystectomy and total open hysterectomy, all of them more than 20 years ago.

Patient who began her current condition with intermittent vomiting of gastric contents, for more than 2 years of evolution, which subsided with pharmacological treatment without disappearing completely. In the first level unit she was approached by endoscopy where hiatal hernia with a diameter of 4 cm, diaphragmatic impression with a diameter of 4 cm, erosive alkaline hemorrhagic gastropathy and incompetent pylorus were found. Patient that during multiple endoscopic controls no clinical improvement is achieved. In these controls hiatal hernia by sliding is reported with biopsies that corroborate chronic erosive gastritis.

During the most recent controls the patient with more frequent vomiting without varying volume or characteristics is protocolized again by endoscopy reporting the previous year with gastric volvulus as well

as moderate erosive gastropatia. Hiatal hernia with 50% of the stomach in the mediastinum and the rest of the endoscopic protocol without alterations. At that time already counting with inconclusive manometry due to impossibility of passage of the catheter by gastric volvulus, distal esophageal spasm and frequent failed peristalsis, normal upper esophageal sphincter. For this reasons it is proposed for surgery where a laparoscopic fundoplication is performed.

During the surgical event with trocar approach without complications, diaphragmatic hiatus is visualized and proceed to dissect right pillar, mediastinal stomach is reduced with findings of hiatal hernia of 6 cm with 50% at the expense of fundus and gastric body in mediastinum, The rest of adhesions of the lower third of the esophagus were resected, achieving complete mobility, both diaphragmatic pillars were plasticized and the stomach was fixed to these pillars, ending the surgical event without inadvertent lesions of any other intra-abdominal or intra-thoracic organ, without significant bleeding.

During the immediate postoperative period, the patient had an adequate evolution, without pain that required double analgesia, with no early data of peritoneal irritation other than those of the skin port incisions. During the first day, due to the absence of alarm data, the patient was started on a liquid diet. During this hospital shift, the patient reported for the first time an occasional nonproductive non-dyspneic cough and intolerance to the liquid diet, for which reason it was suspended. On his second day of stay, the patient was restarted, due to being hemodynamically stable, with no data of peritoneal irritation, assisted ambulation was indicated, during the night shift he presented again intolerance to the oral route with multiple vomiting that by the third day of stay was accompanied by diffuse pain in the chest and shoulders as well as severe dyspnea requiring oxygen with a 10 liters per minute with reservoir mask, an urgent chest X-ray was taken (Figure 1).

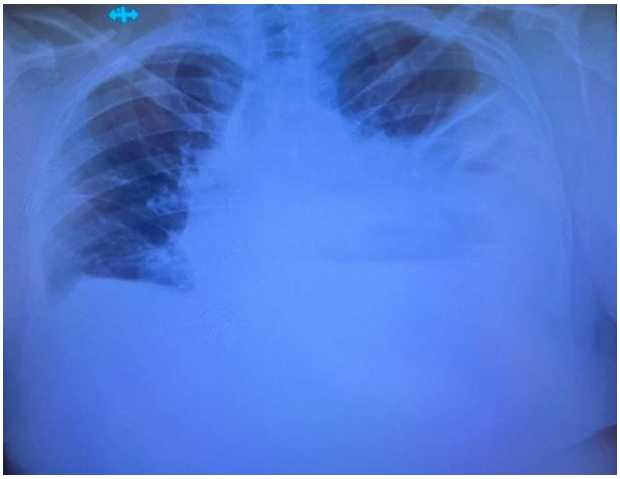

Figure 1: Hydro-aerial levels found in left hemithorax, absence in visualization of the left lung field.

For this reason, she was urgently admitted to the operating room and exploratory laparotomy was performed, finding an abscess in the hiatus, vertical gastrectomy was performed, due to multiple subsequent perforations in the gastric body, as well as placement of an endopleural mediastinal tube for collection of 100 cc, Due to the presence of surgical complications and comorbidities in the patient, she was admitted to the ICU after her discharge from the operating room. The patient was invaded early to start support with vasopressors as well as invasive mechanical ventilation, with a delicate prognosis.

DISCUSSION

In the context of the postoperative Nissen fundoplication patient, the prevalence is described as recurrent and persistent, however the causes can be multiple, both esophageal and gastric. The most common early manifestation is postoperative dysphagia, being of variable incidence and strictly dependent on the surgeon's technique. On the other hand, it is mainly due to edema and inflammation of the involved tissue, resolving within 2-4 weeks.[1] On the other hand, serious complications are reported, being infrequent such as pneumothorax and emphysema, being more related to hiatal dissection and are accompanied by the possibility of disruption of the fundoplication and perforation in the context of pain, leukocytosis, fever and tachycardia.[1] The structural alteration to rule out in this context is the migration of the fundoplication in up to 50% secondary to laxity of the plasty. The Nissen fundoplication generally has good clinical results and low operative morbidity; regarding the case described in the literature, a low incidence of complications such as volvulus is reported.[2] Specifically, intrathoracic migration of the fundoplication is considered the most frequent failure of anti-reflux surgery as well as the most frequent cause of reintervention in the late postoperative period, 27.9%.[3] Migration has associated risk factors, among which are disruption of the fundoplication 22.7%, telescoping 14.1% paraesophageal hernia 6.1% hiatus disruption 5.3% stenosis 1.9%.[3] In a series of 511 patients, intrathoracic gastric migration was reported in 9 patients with surgery performed within 5 postoperative days up to 30 months, finding a relationship with failure in the performance of the crural repair that in the context of cough or vomiting migrates the stomach to the thorax, highlighting the importance of the subsequent crural repair.[4] Based on this assumption, new surgical techniques have been tried to be reproduced to reduce the incidence, even without clear evidence.[5-7] In another series of 264 patients, a technique with circumferential hiatal dissection is reported, delineating the diaphragmatic crura, achieving a minimum of 3 cm intrabadominally esophageal, a posterior crural repair is performed with ethibond, leaving a floppy plication, 360 of 3 cm around the esophagus, reporting 2 gastric migrations at 8 and 12 weeks. Highlighting the importance of the posterior fixation of the plication, the lack of recognition of esophageal shortening, as well as

the presence or absence of muscular efforts such as coughing, or retching due to nausea and vomiting.[8] Recommending the complete mobilization of the proximal part of the greater curvature to achieve a floppy fundoplication without becoming redundant, as well as early treatment of postoperative nausea and vomiting, the patient should be oriented to avoid strenuous physical activities, avoid copious meals, as well as the use of mesh.[8] The use of mesh, although there is a tendency to use them, is not free of complications, such as mesh migration, which is generally of a late type and can sometimes resemble a neoplasm.[9,10] It is also associated with esophageal and gastric erosion.[11]

CONCLUSION

Due to the low incidence in a laparoscopic approach does not mean a total absence of them, in this case, the high incidence of suspicion in the post-surgical period leads to a complication detection that although it was done early, generally speaking the prognosis does not improve substantially by the addition of further complications after gastric migration as well as comorbidities of the patient. Emphasis is placed on the safety tips in the technique that have been found mostly related to migration as well as patient education to reduce the risk of the same as a way to reduce the incidence of this complication and therefore the associated mortality.

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REFERENCES

1. Sobrino-Cossío S, Soto-Pérez JC, Coss-Adame E, Mateos-Pérez G, Teramoto Matsubara O, Tawil J, et al. Síntomas y complicaciones posfunduplicatura: abordaje diagnóstico y tratamiento. Revista Gastroenterol Mexico. 2017;82(3):234-47.
2. Casado-Maestre, Socas-Macias, Morales-Conde, Cristina MG, Antonio BM, Jean MCD, et al. Migracion intratorácica de funduplicatura asociado a vólvulo gástrico organoaxial. Revista Española Enfermedades Digestivas. 2012;104(10):546-7.
3. Matas AF, Giordano H, Campano Cruz I, FernÃ¡ndez Alonso A, Meus M, Gil Iriondo A, et al. Migration of gastric funduplicature with intratoractic perforation. Ann Mediterranean Surg. 2020;3(2):8-11.
4. O'Boyle CJ, Heer K, Smith A, Sedman PC, Brough WA, Royston CMS. Iatrogenic thoracic migration of the stomach complicating laparoscopic Nissen fundoplication. Surgical Endoscopy. 2000;14(6):540-2.
5. Dally E, Falk GL. Teflon pledget reinforced fundoplication causes symptomatic gastric and esophageal lumenal penetration. Am J Surg. 2004;187(2):226-9.
6. Doi T, Ichikawa S, Miyano G, Lane GJ, Miyahara K, Yamataka A. A new technique for preventing wrap disruption/migration after laparoscopic Nissen fundoplication: An experimental study. J Laparoendoscopic Adv Surgical Techn. 2008;18(1):179-82.
7. Ringley CD, Bochkarev V, Ahmed SI, Vitamvas ML, Oleynikov D. Laparoscopic hiatal hernia repair with human acellular dermal matrix patch: our initial experience. Am J Surg. 2006;192(6):767-72.
8. Balakrishnan S, Singhal T, Grandy-Smith S, Shuaib S, El-Hasani S. Acute transhiatal migration and herniation of fundic wrap following laparoscopic Nissen fundoplication. J Laparoendoscopic Adv Surg Techn. 2007;17(2):209-12.
9. Jansen M, Otto J. Mesh Migration into the Esophageal Wall After Mesh Hiatoplasty. In: Schumpelick, V., Fitzgibbons, R.J. (eds) Hernia Repair Sequelae. Springer, Berlin, Heidelberg. 2010.
10. Martínez-Alcalá-García F, Pérez-Pozo JM, Alcalá FM. Late mesh migration after Nissen funduplication mimicking a gastric neoplasm. Revista Espanola Enfermedades Digestivas. 2019;111(1):80.
11. Watson DI, De Beaux AC. Complications of laparoscopic antireflux surgery. Surg Endosc. 2001;15:344352.

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