

Case Report

Appendicitis in epigastric hernia: a rare case report

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ABSTRACT

Epigastric hernias are defined as defects in the abdominal midline between the navel and the xiphoid process. Incarceration and strangulation are rare. This is a case report, the purpose of this article is to report a case of acute appendicitis successfully treated in an incarcerated epigastric hernia at the Santa Casa de Misericórdia Hospital in Belo Horizonte, correlating with the current literature. It is not yet clear how the cecum and appendix can mobilize freely to the epigastric region and present within the sac of an epigastric hernia. It has been suggested that in 10% of the population, there may be anatomical variation and abnormal mobility of the cecum, referred to as mobile cecal syndrome. However, it is difficult to establish which pathophysiological process (or perhaps both) could have attributed to this rare presentation.

Keywords: Appendicitis, Epigastric hernia, Hernioplasty

INTRODUCTION

Epigastric hernias are defects in the abdominal midline between the navel and the xiphoid process. The defects are generally no more than 1cm in diameter. They are probably the result of multiple factors, including impaired congenital line loss due to lack of fiber decussation, increases in intra-abdominal pressure, muscle weakness or chronic abdominal wall tension. The frequency of epigastric hernia is estimated to be between 3 and 5 percent in the general population, being more common in men (male: female = 3: 1) and more diagnosed in middle age.¹

Epigastric hernia may be asymptomatic, but patients will often notice a small, uncomfortable nodule between the navel and the xiphoid. Up to twenty percent of the epigastric hernias are multiple. Intestinal incarceration or strangulation is rare. Those involving a peritoneal sac

usually contain only omentum, and rarely the small intestine. Laparoscopically, these hernias may be difficult to identify due to lack of peritoneal protrusion through the hernia defect.²

Epigastric hernia repair is reserved for symptomatic patients and, most of the time, can be performed as a surgical procedure under local anesthesia. A small medial or transverse incision is made. The contents of the hernia are reduced or resected, and the defect is closed with interrupted sutures. Recurrence is uncommon.¹

In contrast, acute appendicitis is the main cause of acute abdomen and the most common surgical emergency in our country. Its diagnosis and early surgical treatment directly influence the prognosis of this pathology. Its overall mortality in US surveys is slightly less than 1% but reaches 3% in perforation cases and reaches up to 15% when perforation occurs in elderly patients. It is a

disease typical of adolescents and young adults and is uncommon before five and after 50 years. The overall risk of appendicitis is 1/35 in men and 1/50 in women. From the age of 70, this risk is 1/100.³

The appendix is a gloved finger-like formation projecting from the cecum approximately 2.5cm below the ileocecal valve in the coalescence of the three-colonic tenia, an important landmark for finding it during surgical procedures. Its size varies from one to 30cm, but usually is 5 to 10cm. Its width is generally up to 0.5cm. Although its implantation is at a constant point, the orientation of the organ as a whole varies according to the position of its tip. In this sense, many anatomical studies were performed and the retrocecal location appears as the most frequent. In an analysis of 10,000 corpses, the following prevalence was observed that retrocecal (65.3%), pelvic (31.6%), subcecal (2.3%), in the parietal leaf drip (0.4%), in postero-ileal position (0.4%). In rare cases, the appendix may be in a subepitavative position, in patients with poor bowel rotation, or in cases where they are very long and rise behind the colon and may mimic vesicular pathology. In another study, they noted that in 105 retroceptional appendages removed in operations, 11.4% extended to retroperitoneum. In this position, the appendix can ascend to the right kidney and mimic renal infection pictures; in fact, these patients complained of pain in their right flank. As seen, the appendix may occupy multiple locations, such as a clock hand, starting from its base in the cecum, which leads to different clinical presentations.⁴

The typical history of appendicitis includes periumbilical or diffuse pain periodically before it is located in the right iliac fossa. This is due to the low localizing property of the visceral nerves of the midgut, following the involvement of somatic nerves (parietal peritoneum) as the inflammation progresses. Pain is usually associated with loss of appetite and fever. Nausea or vomiting may or may not occur.⁵ The treatment of acute appendicitis is surgical and should be performed as soon as the diagnosis is established.⁶

Appendicitis within the hernia sac has been reported in the inguinal region (Amyand hernia) and femoral (hernia of Garengot). However, its presence in the epigastric hernia is extremely rare and after a vast literature search, only the citation of a case in Turkish magazine, of 1965, without digitized version was found.⁷

The aim of this article is to report a case of acute appendicitis successfully treated in an imprisoned epigastric hernia at the Santa Casa de Misericórdia Hospital in Belo Horizonte, correlating with the current literature.

CASE REPORT

Patient M.R.R, female, obese, 72 years old, transferred from Emergency Care Unit to Santa Casa de Misericórdia

hospital in Belo Horizonte. Asymptomatic epigastric hernia carrier for 20 years. Hospitalized due to complaints of epigastric pain started 1 month, worsening in the last six days before admission. Patient also presented with nausea. She denied fever, emaciation and local hyperemia. Preserved physiological habits. No comorbidities and previous surgeries. Negative family history for neoplasms.

On physical examination, she presented vital data without alterations, and the presence of large volume epigastric hernia incarcerated and painful palpation (Figure 1). No signs of strangulation or peritoneal irritation.



Figure 1: Lateral view of patient in supine position, presence of incarcerated epigastric hernia.



Figure 2: Right hemicolectomy product, showing tumor lesion in cecum.

Patient underwent median supra-umbilical laparotomy, dissection and opening of the hernial sac, which evidenced an epigastric hernial sac with tumor lesion in cecum, with local purulent secretion (Figures 2 and 3). Then, right colectomy was performed, due to the risk of the lesion being of neoplastic origin, with lymphadenectomy and endolateral colonic ileus anastomosis, as well as epigastric hernioplasty for anatomical repair. Sent material for anatomopathological

study. She presented good postoperative evolution, without fever, well tolerated diet and was discharged on the eighth postoperative day, without complaints, with a good surgical wound.



Figure 3: Right hemicolectomy product, showing open tumor lesion in cecum.

Anatomopathological evidenced intestinal ulceration and perforation with acute suppurative periappendicitis. The present study is a case report. The information was obtained through the patient's chart, interview with the patient and literature review in the databases Pubmed, Scielo, Cochrane and Lilacs.

DISCUSSION

Acute appendicitis continues to be the most common surgical emergency so far and its presentation may vary, but most still show classic symptoms of central abdominal pain, which migrates to the right iliac fossa, nausea, anorexia and vomiting. This is related to the anatomical position of the appendix of the developmental stage of the intestinal rotation.⁸

After extensive research in the literature, only a citation of a case in Turkish magazine, 1965, without digitized version, of appendicitis in epigastric hernia was found.⁷

Appendicular hernias were well described in the literature, dating back to the early 1700s by Garengent and Amyand. They gave rise to the hernias of Garengent (femoral hernias containing the appendix) and Amyand (inguinal hernias containing the appendix). Most appendicular hernias occur in the groin, with a predilection for the right inguinal region. In a retrospective literature review of 45 cases of appendicular hernias in the groin area, acute appendicitis was identified in 95% of the right-side cases, 69% in the inguinal region and 26% in the femoral region.⁹

There is a report of a case of appendicitis perforated within a hernia incarcerated on the left side of the groin, containing small intestine, appendix, cecum and a portion

of the right colon. It was postulated that the arterial compromise of the bottleneck was the offensive event. Recently, several papers have documented appendicular hernias within renal transplant incisions and large abdominal wall hernias.¹⁰

In a series of 8,692 cases, acute appendicitis occurred in only 0.13% of all cases of herniated appendix. The extensive research identified only four adult cases of appendicitis within umbilical hernia and no case of appendicitis in epigastric hernia.¹¹

It is not yet clear how the cecum and appendix can mobilize freely for the epigastric region and present in the sac of an epigastric hernia, as in the case study.

It has been suggested that in 10% of the population, there may be anatomical variation and abnormal mobility of the cecum, called mobile cecal syndrome. In such individuals, the lateral peritoneal connection of the cecum is absent or movable, so that the terminal ileum and cecum can be found in any quadrant of the abdomen, depending on the position and activity of the patient. In addition, the acute inflammatory response (appendicitis) and subsequent intra-abdominal events (localization, adhesion and abscess) and the presence of a previous (epigastric) defect could explain this presentation.⁸ Another explanation in such circumstances is appendicitis as a result of extrinsic pressure, strangulation, and necrosis within the hernia defect.¹²

In the case reported, some hypotheses can be postulated. The patient probably carries the mobile cecal syndrome, which justifies the cecum in the epigastric position. Already her appendicitis, which may have been the cause of the hernia incarceration, or the incarceration of the hernia, which had previously contained the cecum, led to the appendicitis.

As there was already an important tumor in the cecum, with purulent secretion, right colectomy was necessary, with lymphadenectomy, due to the possibility of neoplasia.

The cause of appendicular inflammation within a hernia sac is postulated as being generally an extrinsic compression leading to partial ischemia. This may be inferred from the fact that typical features of appendicitis such as hyporexia and leukocytosis have not been observed in reported cases. The symptoms only manifest themselves after the onset of appendicular inflammation.¹³ Thus, the usual diagnosis is an imprisoned hernia, as in our case.

The final diagnosis is made in operation in most cases. Computed tomography has been shown to suggest the diagnosis of appendicitis in a preoperative external hernia in only a few cases.

Proper management in most cases includes appendectomy along with hernia defect repair. The degree of inflammation of the appendix is an important consideration for the placement of a prosthesis. Presence of purulent necrosis or secretion may be a contraindication to screen placement. As with similar procedures, wound drainage and antibiotics can be used.¹¹

CONCLUSION

Epigastric hernia appendicitis is a rare presentation, the pathophysiological mechanism of which has not been fully elucidated. It is possible that anatomical variations (mobile cecal syndrome) and physiological intestinal, as well as the action of extrinsic forces with bottleneck effect on the hernial content may be associated to its development.

In the case reported in this study, the patient probably carries the mobile cecal syndrome, which justifies the cecum in the epigastric position. The appendicitis picture may have been the cause of the incarceration of the hernia, or the incarceration of the hernia, which already had as its previous content the cecum, may have resulted in appendicitis.

It is concluded that it is important to always consider atypical presentations of appendicitis, since a delay in diagnosis may be associated with advanced pathology that may contribute to a higher morbidity and mortality.

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