



## Case report

## Epiploic appendagitis in a Spiegel hernia: A case report and review of the literature

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## ABSTRACT

**Introduction:** Spigelian hernia is a rare differential diagnosis of abdominal pain. It affects mainly women above the fifth decade of life, more on the left side than on the right side, usually with comorbidities that lead to an increase in intra-abdominal pressure, described as risk factors for the outbreak of ventral hernias. The content of a ventral hernia might be an epiploic appendix and lead to appendagitis.

**Presentation of case:** This article presents the case of an 82-year-old female patient who presented epiploic appendagitis in a Spigelian hernia.

**Discussion:** Spigelian hernia is a rare type of ventral hernia, especially in association with an epiploic appendagitis. A literature search of this rare entity yielded three publications presenting epiploic appendagitis in a Spigelian hernia. The initial approach after the diagnosis should be adequate analgesia associated with surgical correction of the hernia. There is no gold standard treatment for the repair. European and American societies suggest that if there is no palpable nodule, laparoscopic repair is preferable, always using a mesh.

**Conclusion:** Epiploic appendagitis in a Spigelian hernia is a rare condition whose diagnosis is a big challenge. However, the correct diagnosis can lead to a shorter hospital stay, with less cost and avoid the use of unnecessary medications.

## 1. Introduction

Spigelian hernia is a rare differential diagnosis of abdominal pain with an incidence ranging from 0.12–2% of abdominal wall hernias [1]. This type of hernia – a flaw in the abdominal wall at the outer edge of the semilunar line – affects mainly women above the fifth decade of life, with a higher incidence on the left side than on the right side, usually with comorbidities that lead to an increase in intra-abdominal pressure or weakened abdominal fascia, such as COPD, cirrhosis, obesity and pregnancy [1,2]. The high value of the body mass index and the age above 60 years are described as considerable risk factors for the outbreak of ventral hernias, and this rate varies in about 17–25% for Spigelian hernias [3,4]. An epiploic appendix can be the content of this type of hernia and evolve into a case of epiploic appendagitis.

An epiploic appendix as the content of a Spigelian hernia is very rare. With the increase in life expectancy and the growing number of obese individuals, due to sedentary lifestyle and inadequate eating habits, it's

likely that new cases will appear and the systematization of the best diagnostic and therapeutic approach for these patients becomes necessary. Therefore, we present here a case of epiploic appendagitis in a Spigelian hernia and a literature review about this clinical entity.

This case follows 2020 SCARE guidelines for reporting of cases in surgery [5].

## 2. Case report

An 82-year-old woman, body mass index 38, hypertensive and diabetic, was admitted to the emergency department due to a complaint of abdominal pain in the left iliac fossa for about three days, associated with hyporexia, fever and constipation. On physical examination, the patient was febrile, with globose and flaccid abdomen, painful to palpation in the left iliac fossa, with no palpable masses and without peritoneal irritation.

Laboratory tests showed an increase in C-reactive protein, with no

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other changes. The study was complemented with a non-contrast abdomen computed tomography, which showed a failure in the abdominal wall in the region of the left lower quadrant, containing an oval structure approximately 2.0 cm in diameter, with fat density, surrounded by a hyperdense ring of approximately 1 mm, close to the left colon (Fig. 1). No other imaging test were available to assist the diagnosis.

The patient was initially treated with analgesics and then was indicated an exploratory laparotomy in infraumbilical midline under general anesthesia. During the procedure was identified a Spigelian hernia. On dissection of the hernia sac, an epiploic appendix twisted in its own pedicle was identified at the entrance of the sac, characterizing a Spigelian hernia with epiploic appendagitis (Fig. 2).

Hernia repair was performed after the removal of the epiploic appendix using a mesh. After the surgery, the patient was referred to the ward, with improvement in postoperative pain and no other complaints and was discharged from the hospital after three days. The patient was referred to the outpatient surgery service for follow-up and after two months no complications were observed.

### 3. Literature review

A literature search on PUBMED and Scielo was performed using the terms "Hernia", "Spiegel", "Spigelian", "Appendage" and "Epiploic". This yielded three publications (France, Belgium and Italy) of epiploic appendagitis in Spigelian hernia. Other relevant articles on Spigelian hernia and epiploic appendagitis were also selected.

The 3 cases of epiploic appendagitis in a Spigelian hernia found in search were selected and reviewed. All the patients were female. The youngest being 49 years old and the oldest 84 years old. All cases had abdominal pain in the left lower quadrant as the main complaint, with or without fever. On physical examination, a palpable mass was identified in the left iliac fossa. An increase in C-reactive protein was or was not found on laboratorial tests. The first imaging test to be used in all cases was abdominal ultrasonography, which identified a hyperechoic center structure and a hypoechoic peripheral crown. Unenhanced computed tomography of the abdomen was then used to confirm the diagnosis. According to the articles analyzed, surgical correction of the hernia was performed, but only one article described the route used, which was laparoscopic. There was no description of complications or recurrence in the postoperative period [6,7,8].

### 4. Discussion

Spigelian hernia consists of the protrusion of a content of the abdominal cavity (pre-peritoneal fat, small intestine or other) through a

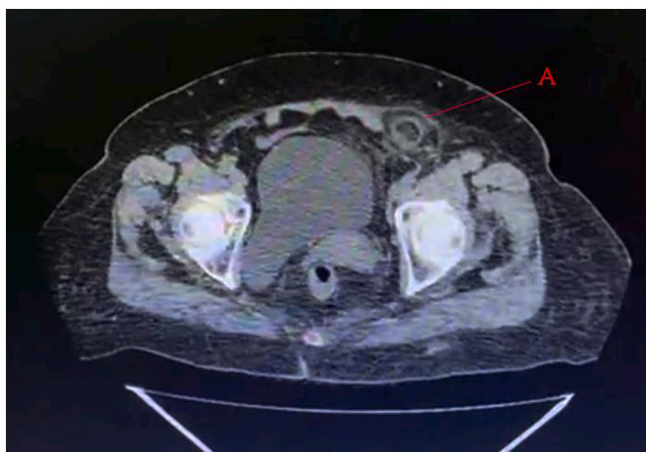


Fig. 1. Abdominal computed tomography findings. An oval structure found in left lower quadrant measuring approximately 2.0 cm (A).



Fig. 2. Surgical piece of an epiploic appendix twisted in its own pedicle, found at the hernia sac of a Spigelian hernia.

congenital or acquired defect through Spiegel's aponeurosis, between the semilunar line (which marks the transition of the muscle to the aponeurosis in the transversus abdominis muscle) and the lateral edge of the rectus abdominis muscle, just below the arcuate line of Douglas [1,3].

This pathology affects mainly women above the fifth decade of life with predominance on the left side. Usually with comorbidities that lead to an increase in intra-abdominal pressure or weakening of the abdominal fascia such as: COPD, cirrhosis, obesity and pregnancy [3]. Diagnosis is usually difficult, especially when it doesn't cause symptoms, which is why the help of imaging tests such as ultrasonography and computed tomography is essential. Patients may describe a bulging in the left lower quadrant, which may or may not be painful, starting suddenly or not, usually intensifying while standing [1]. About 17–25% of cases are urgently operated, sometimes with incarceration of part of the small intestine [3].

The patient presented in the case corresponded to the age group, with high BMI value and with symptoms in the left lower quadrant. These characteristics are described as high risk for incarceration of ventral hernias [4]. The surgical finding was a Spigelian hernia with an incarcerated epiploic appendix twisted in its own pedicle. The epiploic appendagitis was caused by ischemic infarction of the epiploic appendix, due to torsion of its draining vein.

The frequency of appendagitis is estimated at 1.3% and its incidence at about 8.8 cases/million/year [9]. The clinical presentation of appendagitis is non-migratory abdominal acute pain, located both in the left lower (69–89%) and right lower (8–16%) quadrants, which are very similar to the symptoms of appendicitis or diverticulitis [10]. Fever, nausea, diarrhea or constipation may be associated, but they are rarely present. Laboratory tests are usually within normal values and (in some cases) they may present a slightly elevated leucocytes and C-reactive protein count, due to ischemic necrosis of fatty tissue [11]. Its diagnosis is often determined after an abdominal computed tomography. Usually,

epiploic appendages don't appear on computed tomography (except in the case of an inflammatory process or ascites). Its main characteristics are an oval lesion, measuring between 1.5 and 3.5 cm in diameter, with fat density, surrounded by a hyperdense ring due to the inflammatory reaction of the overlying serous (sign of the central point). Ultrasonography can be used in non-obese patients or in those who have contraindications to the tomography radiation [11,12].

Appendagitis is usually a self-limited disease, and its treatment is done with analgesics and anti-inflammatory drugs. Studies have shown that incorrect diagnosis was responsible for longer hospital stays, associated with higher costs and the use of inappropriate medications, such as antibiotics [13]. In the case of its association with a Spigelian hernia, the initial approach should be adequate analgesia associated with surgical correction of the hernia, due to the process of incarceration of the epiploic appendix. The most recent studies declare that there is no gold standard treatment for the repair. European and American societies suggest that if there is no palpable nodule, laparoscopic repair is preferable, always using a mesh. But in the end, the surgeon's experience should be the basis for the best choice [3,11].

## 5. Conclusion

Epiploic appendagitis in a Spigelian hernia is a rare condition whose diagnosis is a big challenge. However, the correct diagnosis can lead to a shorter hospital stay, with less cost and avoid the use of unnecessary medications.

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## Ethical approval

As the manuscript is not a research study, we only have the patient consent for writing and others forms of publication. Also, the ethical approval for this case report has been exempted by our institution.

## Informed consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

## Author contribution

Edirany Villalaz and Dhallya Cruz made contributions to conception and the review of literature. Fernando Chióing Neto collected the patient details. Fernando Chióing Neto and Railane Paula wrote the paper. Leonardo Guimarães made contributions to patient management. Fernando Chióing Neto, Railane Paula and Leonardo Guimarães critically revised the article. All authors read and approved the final manuscript.

## Research registration

N/A.

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## Declaration of competing interest

FVCN, RLP, ESV, DASC and LSCG declare that don't have any conflict of interests.

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