

Spiegelian hernia and necrotic acute appendicitis. Case report

Hernia de Spiegel y apendicitis aguda necrosada. Un reporte de caso

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Abstract

Background: Spiegel hernia is a rare type of ventral hernia that occurs when there is a defect in the semilunar line (Spiegel line) through which there is protrusion of preperitoneal fat or a peritoneal sac with or without an intra-abdominal viscus.

Clinical case: A 52-year-old female patient admitted for abdominal pain and tumor in the lower right quadrant of 15 cm. In the operating room, wall plasty was performed and when hernia sac was opened, necrotic appendicitis was identified.

Conclusion: The incidence of hernia is that Spiegel is very low and is lower when associated with acute appendicitis. Given its low frequency, clinical suspicion is important. The treatment is surgical.

Keywords: Spiegelian hernia. Appendicitis. Plasty. Appendectomy.

Resumen

Antecedentes: La hernia de Spiegel es un tipo de hernia ventral poco frecuente que ocurre cuando existe un defecto en la línea semilunar (línea de Spiegel), a través del cual hay protrusión de grasa preperitoneal o un saco peritoneal con o sin una víscera intraabdominal. **Caso clínico:** Mujer de 52 años que ingresa por dolor abdominal y un abultamiento en el cuadrante inferior derecho de 15 centímetros. En quirófano se realiza plastia de pared y al abrir el saco herniario se identifica apendicitis necrosada, por lo que se realiza apendicectomía tipo Pouchet y plastia de pared con malla de polipropileno. **Conclusión:** La incidencia de la hernia de Spiegel es muy baja y lo es aún más cuando se asocia a apendicitis aguda. Dada su baja frecuencia, es importante la sospecha clínica. El tratamiento es quirúrgico.

Palabras clave: Hernia de Spiegel. Apendicitis. Plastia. Apendicectomía.

Introduction

Spigelian hernia is a rare type of ventral hernia that occurs when there is a defect at the semilunar line (Spigelian line), through which there is a protrusion of preperitoneal fat or a peritoneal sac with or without an intra-abdominal viscus. It can be congenital or acquired in nature, and its treatment is surgical, with of

conventional surgery (open approach) or laparoscopic approach being the alternatives. Spigelian hernia accounts for 0.12-2% of abdominal wall hernias and occurs at all ages, with peak incidence at between 50 and 60 years of age¹.

Most Spigelian hernias occur in the lower abdomen, where the deficient posterior sheath is located. It is also called spontaneous ventrolateral hernia or

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semilunar line hernia. The hernia ring is a well-defined defect at transverse muscle aponeurosis. Spigelian hernia diagnosis is difficult. The hernia can be inter-parietal with no obvious mass on examination or palpation. Spigelian hernia has been repaired both by conventional and laparoscopic approaches. Most times, when laparoscopy has been used as treatment modality for Spigelian hernia, it has been carried out by transabdominal or extraperitoneal approach².

Clinical case

A 52-year-old woman who attended the emergency department with an 18-h history of lower right quadrant abdominal pain. Relevant past history included hypertension and hypercholesterolemia diagnosed 1 year prior, on treatment with enalapril and bezafibrate; cholecystectomy 2 years prior; two gestations and two cesarean sections. She denied a history of allergies, trauma, transfusions, infectious-contagious diseases, alcoholism, smoking, or drug addiction. Native to Mexicali, Baja California, she was a housewife with a sedentary lifestyle; her diet was based on high consumption of refined flours, sugars, fats, chicken thrice weekly, red meat once weekly, and low intake of fruits and vegetables. Current condition started 18 hours before admission to the emergency room with acute onset of the right lower quadrant abdominal pain, associated with nausea, without vomiting being produced, without irradiation or migration, and without other added symptoms. On examination, a palpable protrusion was observed at the right lower quadrant, which was of stony consistency, slightly mobile, tender on palpation, of approximately 15 cm in diameter. Ripasa scale evaluation reported a score of 9.5, and Alvarado, 6 points.

In view of the abdominal pain and the presence of a tumor, performing a plain abdominal computed tomography (CT) scan 1 h after admission to the emergency room was decided, after intravenous parenteral solutions and analgesia implementation and blood sample collection (Table 1). The CT scan found a hernia defect of about 4.5 cm located between the lateral border of the right rectus abdominis muscle and ipsilateral semilunar line, where a sac protruded that respected internal oblique muscle aponeurosis and that contained a small portion of the ileum, cecum and ascending colon, with abundant residue material within, in addition to peritoneal cavity fat, with minimal inflammatory changes surrounding the hernia orifice. Incidentally, multiple sacculations of <0.5 cm were

Table 1. Laboratory tests at admission (blood count, blood chemistry, and clotting times)

Parameter	Result
Hemoglobin	16 mg/dl
Hematocrit	50.2%
White blood cells	16.00 10 ³
Neutrophils	86%
Platelets	295 10 ³
Glucose	85 mg/dl
Urea	34 mg/dl
Creatinine	1.3 mg/dl
Prothrombin time	17 s
INR	1.05
Partial thromboplastin time	23.5 s

INR: International normalized ratio.



Figure 1. Cross-section in which the hernia defect at Spigelian line is observed.

also identified along the descending colon wall (Figs. 1-4).

Half hour after the report by the radiology and imaging department, treatment with abdominal plasty and mesh was decided, after antibiotic prophylaxis with ceftriaxone (1 g/12 h intravenously [i.v.]), ketorolac (30 mg/8 h i.v.), metamizole (1 g/8 h i.v.) and omeprazole (40 mg/24 h i.v.), all started at the moment of diagnosis and surgical decision, for up to 7 days after discharge until 10 days of treatment thus where



Figure 2. Cross-section showing the hernia sac with ascending colon and cecum content.



Figure 4. Abdominal sagittal section.



Figure 3. Coronal section in which Spigelian hernia is identified.

completed. Once in the operating room, after subdural block implementation with heavy bupivacaine (15 mg), asepsis, and sterile fields placement, a transverse incision was made above the hernia, with dissection being continued by planes until the external oblique muscle bulging fascia was found; a scalpel incision was then made and the Spigelian line was found with a 5-cm defect and a 15-cm hernia sac. The sac was opened and 9 × 0.5-cm retrocecal appendix on necrotic phase at its distal two-thirds was identified (Fig. 5), and a Pouchet-type appendectomy was therefore performed with 2-0 Vicryl®; the cavity was

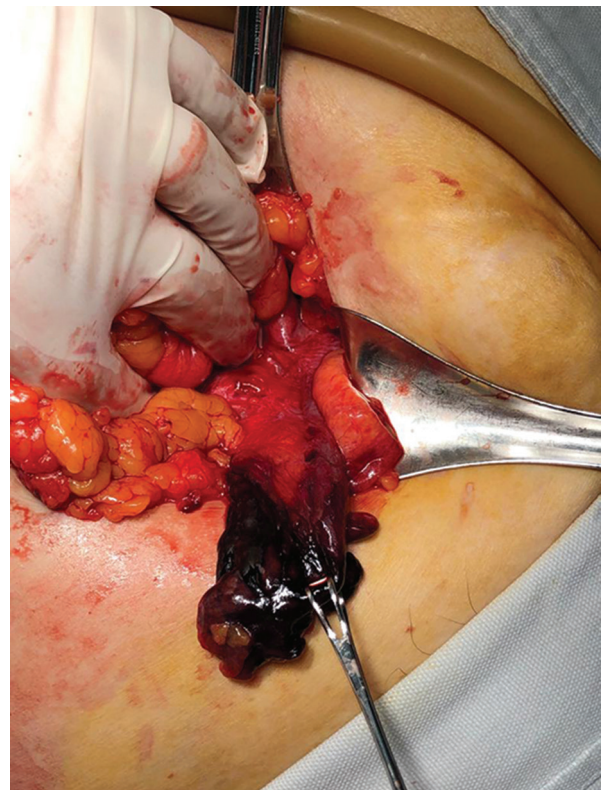


Figure 5. Spigelian hernia with open hernia sac and necrotic appendicitis within.

explored with no other intra-abdominal lesion being identified. Wall plasty was carried out by bringing the Spigelian line edges (right anterior and transverse rectum) together and, subsequently, the external oblique muscle fascia was closed with #1

polypropylene (Prolene®), healthy surrounding aponeurosis was dissected, a 10 × 10-cm Prolene® mesh was placed and fixed with 2-0 polypropylene. A closed drain was placed at the subcutaneous cellular tissue, the edges of which were brought together, and the skin was closed with vertical mattress stitches.

The patient had a favorable evolution, vital signs were within normal parameters, she tolerated the oral route and drainage serum-hematic output was low (about 30 mL). Discharge was decided on 3rd post-operative day for antibiotic impregnation and the patient was discharged with double antibiotic regimen based on ciprofloxacin (500 mg/12 h orally [p.o.] and metronidazole (500 mg/8 h p.o.), and paracetamol (500 mg/8 h p.o.). An appointment was made for drainage removal 5 days after surgery, with scarce serous output being observed (about 20 ml in 24 h), and it was therefore withdrawn. Subsequently, 15 days after drainage removal, she was evaluated on an outpatient basis, with the surgical wound being found already healed, without hernia defects, and without data consistent with abdominal alarm.

Discussion

Spigelian hernias, also known as lateral ventral hernias or semilunar line hernias (Fig. 1), are considered a rare condition, since they constitute 0.12-2% of all abdominal wall hernias. Adriaan van den Spiegel (1578-1625), an anatomist from Belgium, was the first one to describe the semilunar line. Subsequently, Joseph Klinkosch first described this type of hernia as a defect at the semilunar line, thus coining the term "Spigelian hernia"³.

Several factors that might contribute to its etiology have been considered, such as an increase in intra-abdominal pressure, abdominal wall deterioration, collagen alterations, age, obesity, multiple pregnancies, weight loss, chronic obstructive pulmonary disease, and trauma⁴.

Spigelian hernia is a rare type of abdominal hernia and the appendix is rarely found within hernia contents; according to reports, various intra-abdominal organs have been observed in this hernia, but presence of the appendix is exceptional⁶. Initial symptoms are usually non-specific, which delays correct diagnosis and appropriate treatment establishment. Imaging tests are particularly useful for diagnosis⁵.

Treatment is surgical and there are several approaches. Repair has been described using different techniques, from primary closure to mesh repair

technique. Primary closure is considered a repair with tension and has a high percentage of relapses (4%). Repair with mesh (without tension) is associated with a significant decrease in relapses (0-0.7%). The disadvantage of these techniques is that they require a large incision and dissection, and therefore evolve with significant post-operative pain and require hospitalization⁷.

Conclusion

The presence of a Spigelian hernia associated with acute appendicitis is uncommon and has been rarely described in medical literature. Given its low frequency, suspicion, and especially clinical and paraclinical correlation, are important for timely diagnosis to be accomplished. Treatment is surgical in all cases².

The importance of the clinical case herein presented is due to the rarity of this condition, since it occurs in < 2% of the general population, and when associated with acute appendicitis, the percentage is even lower. Abdominal pain is a common reason for patients to attend the emergency room and a reason for consultation with the surgery department. Spigelian hernia clinical presentation can be mistaken for other more common conditions and, therefore, comprehensive assessment is important, considering differential diagnoses and not neglecting other not-so-common etiological possibilities.

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Conflicts of interest

The authors declare that no conflicts of interests was generated, since there were no personal or financial relationships that might inappropriately influence the actions taken at the time this work was carried out.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this research.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors have obtained informed consent from the patients and/or subjects referred to in the article. This document is in the possession of the corresponding author.

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