

Spigelian hernia, a case series of four cases and literature review

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Abstract

Four female patients aged 50-85 underwent surgery for Spiegel hernia. One patient was managed with antibiotics for 2 weeks before presenting to the emergency department with non-specific symptoms and signs of sepsis. Emergency laparoscopic surgery was converted to laparotomy due to the discovery of pus and appendicitis. The abdominal defect was closed using a tension technique to mitigate the risk of mesh infection. This patient recovered well and was discharged after 36 h with a double antibiotic regimen. Three elective surgeries utilized an open approach with different mesh placement techniques and resulted in discharges within 24 h. These cases demonstrate diverse surgical approaches and outcomes in older female patients.

Keywords: Spiegel. Hernia. Appendicitis. Rives.

Introduction

Ventral lateral hernia, interstitial hernia, and interparietal hernia, better known as Spiegel's hernias, are a rare condition (0.1-2% of all abdominal wall hernias), in which there is a defect in the transversus aponeurosis on the semilunar line, with frequently a hernial sac sliding below the intact external oblique aponeuroses, it is often externalized at the weak point located at the intersection between the semilunar line and the lateral end of the arched line, in a transition zone of the posterior rectus abdominis aponeurosis¹. These hernias occur most frequently in patients between the sixth and seventh decade, with no significant difference in the incidence between genders. Surgical resolution may be with an open approach, frequently using the Rives technique, or with a laparoscopic approach with an extraperitoneal or transperitoneal technique.

Cases report

Case 1

An 85-year-old female with a history of chronic systemic hypertension treated with telmisartan, which came to us through the emergency department because of 15 days of abdominal pain referred in the lower abdomen, treated firstly in another clinic with antibiotics (ceftriaxone) and non-steroidal anti-inflammatory drugs, with transient relief, reason why she seeks attention in San Carlos General Hospital. After interrogation and physical examination in which right quadrant and low abdomen tenderness were recognized, blood tests were requested with the following results: Leukocytes $21.5 \times 10^3/\text{mm}^3$, neutrophils 81%, hemoglobin 10.2 g/dL, hematocrit 30.8%, platelets $206 \times 10^3/\text{mm}^3$, prothrombin time 13.8, partial thromboplastin time 23.4 seg,

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international normalized ratio 1.31, and C reactive protein 170 mg/L. The patient goes through a diagnostic laparoscopy finding an incarcerated Spigelian hernia with a portion of the right wall of the bladder and complicated appendicitis (Fig. 1). Due to a lack of materials, the procedure is converted to a laparotomy, reducing the contents of the hernia, doing an appendicectomy and ventral closure of the Spigelian belt defect. A Penrose drainage to the pelvis is inserted, which in subsequent days showed no signs of abdominal complication. The patient starts with a liquid diet the next morning after the surgery, later on a normal diet is given, with no throwback. The patient is able to walk; Penrose is extracted and after no clinical manifestation of complication, is sent home 48 h post-surgery.

The other three patients came to us through the surgery consult because of vague and unspecific symptoms, two patients were diagnosed with chronic cholecystitis before our visit, because of gallbladder stones in ultrasound, being ruled out after an appropriate questioning and physical examination and mainly because abdominal pain was in the lower abdomen and differed totally from typical pain referred by chronic cholecystitis patients. They all referred to mild, intermittent abdominal pain related to a mass in the low right or left quadrant. This mass, as described by two patients, spontaneously disappeared when in decubitus and came back on when standing or seated.

Case 2

A 53-year-old female, with a clinical background of bilateral tubal oophorectomy in 2011, right inguinal repair with mesh in 2016, and chronic hypertension treated with losartan, with a 3-year history of a mass in the low left quadrant of the abdomen, with episodes of pain and bulking. The abdominal Ultrasound (Fig. 2) came back reporting: a gallbladder with 72 × 19 mm measure, thin walls, with a single stone inside, and a left Spiegel's hernia of 17 × 13 mm. Surgery was done on August 29, 2022, where a 6 cm Spiegel's hernia was found with omentum (Fig. 3) on its inside, with an aponeurosis defect of 3 cm in the transversalis and minor oblique muscle, being both aponeuroses repaired with a smead jones closure using a vycril suture, and mesh placement in between the major and minor oblique in a Rives fashion way. She is dismissed 24 h post-surgery, with adequate oral tolerance and painlessness.

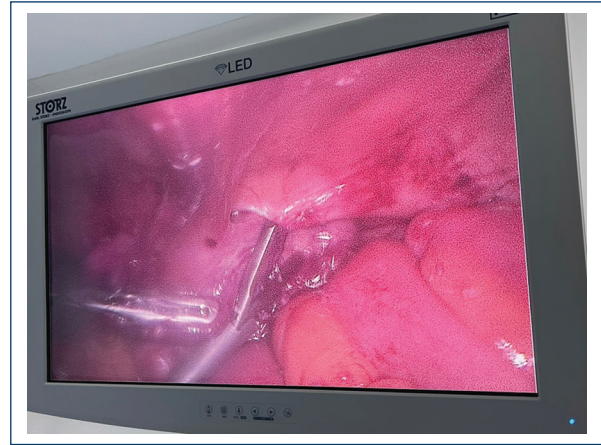


Figure 1. Diagnostic laparoscopy finds pus at the right lower quadrant.

Case 3

A 59-year-old female with a background of cesarean delivery and BTO, anxiety and depression disorder treated with clonazepam and risperidone, with a history of 6 months of biliary colic, with an abdominal Ultrasound reporting: gallbladder with 54 × 20 mm measurement, thin walls and two stones on its inside, 7 cm to the left of the abdominal midline (at the transition zone between the rectus anterior muscle fascia and the oblique muscle sheath) a hernia neck measuring 26 × 22 mm which contains a hernial sac measuring 21 × 21 mm of omental content. We decided to treat the hernia first. The patient was intervened on October 17, 2022, finding a 4 cm hernia defect in transversalis muscle, with a 5 cm protruding sac with omentum on its inside (Fig. 4). The defect is treated with a Rives fashion mesh in the pre-peritoneal space after careful dissection, minor oblique aponeurosis is closed with a continued vycril suture, so as the major oblique aponeurosis, skin is closed with a subdermal suture with nylon 3-0. The patient is dismissed 24 h post-surgery, with no complications.

Case 4

A 68-year-old female, who comes as an outpatient appointment in October 2022, with a clinical background of 20 years evolution diabetes type 2 and two cesarean deliveries with an infraumbilical approach, complaining of a 5-month diffuse abdominal pain in the lower abdomen, without a mass. At the physical examination of the right lower abdomen, at the Spiegels belt, a palpable abdominal mass, which reduces with

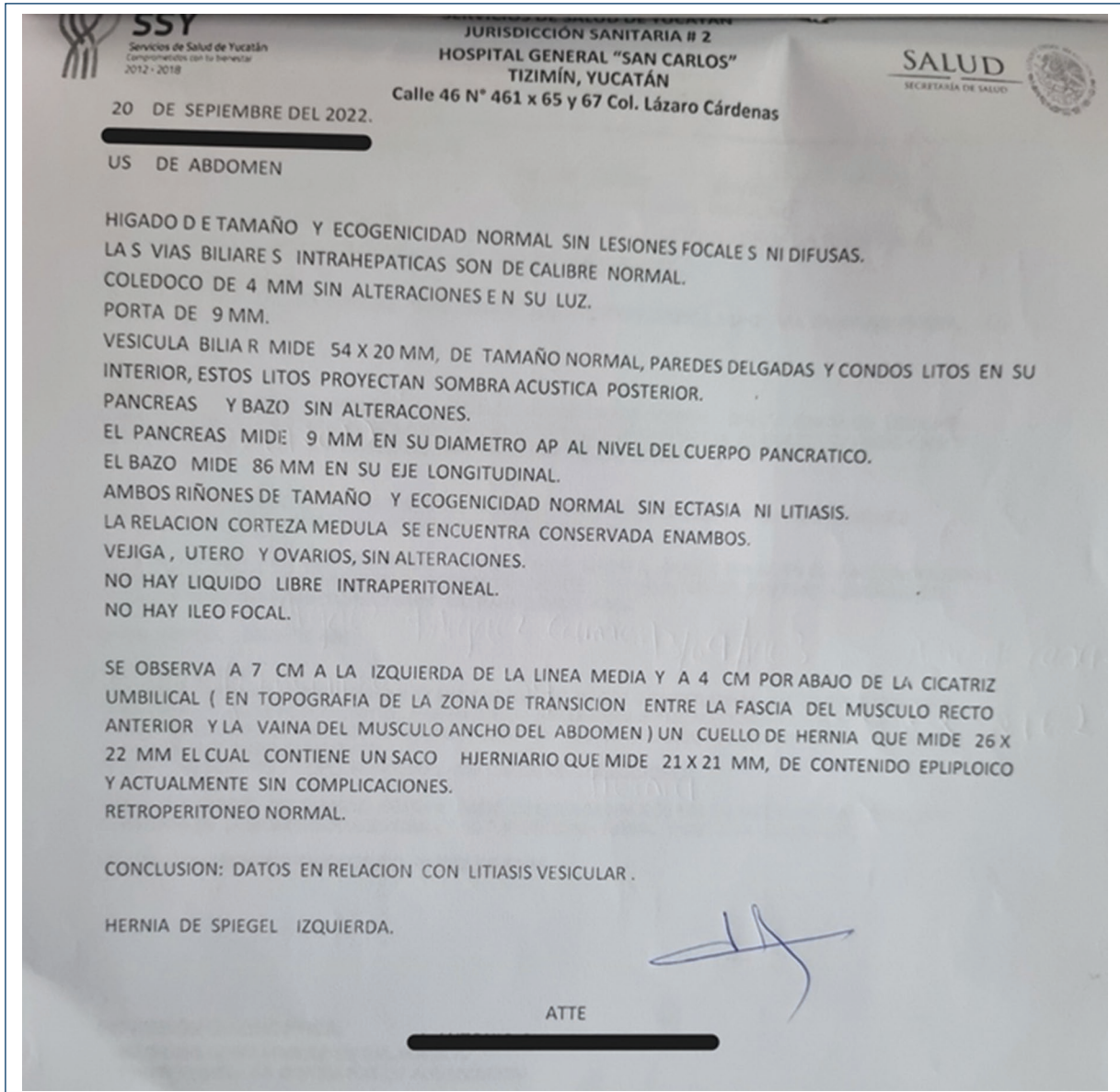


Figure 2. Detailed description of the diagnosis of Spiegelian hernia.

pressure, with no referred pain at manipulation. USG: In the right iliac fossa, at inguinal height, below subcutaneous cell tissue a round-shaped image that measures 32 × 14 mm, which increases with Valsalva, to 38 × 20 mm. She was surgically intervened on December 12, 2022, finding a 6 cm defect on the transversalis fascia, with a protruding sac with omentum on its inside, placing the mesh in the pre-peritoneal space (Fig. 5) after careful dissection in a plug and mesh fashion, minor and major oblique aponeurosis is closed separately with a vycril suture, skin is closed in a subdermal suture with nylon 3-0. The patient is dismissed after 24 h with no complications.

Discussion

Most hernias thus occur at the level of the Spigelian girdle, an area 6 cm high situated between the umbilicus at the top and a line passing through the anterior superior iliac spines at the bottom².

Spiegel's hernia represents a diagnostic challenge for the surgeon due to its low incidence rate and un-specific symptoms if there are any. If the patient has a palpable lump along the Spigelian aponeurosis, the diagnosis is apparent. The same applies if the hernia appears when the patient is upright and disappears spontaneously on lying down. The clinical diagnosis of



Figure 3. Omentum inside the defect of the transversus abdominis fascia. In Kelly grasps, major oblique aponeurosis.

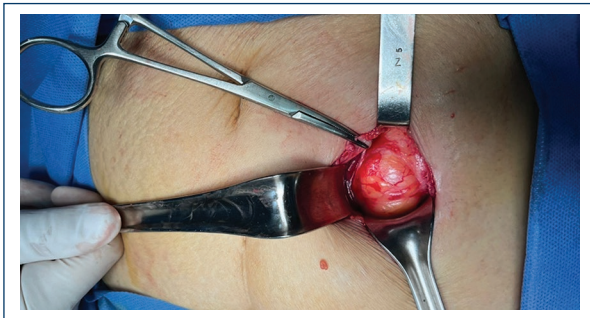


Figure 4. Weakening of the abdominal wall, underneath the major oblique aponeurosis (grasped by Kelly). To the left of the image, the umbilicus.

hernia is complicated by that the defect continues to expand laterally and caudally between two oblique muscles³. Patients usually may be asymptomatic, or even present to consultation for a different condition as presented above. Some of the symptoms referred by patients with a ventral lateral hernia include mild abdominal pain (more often while standing or walking) or may feel a mass (which may disappear in decubitus),

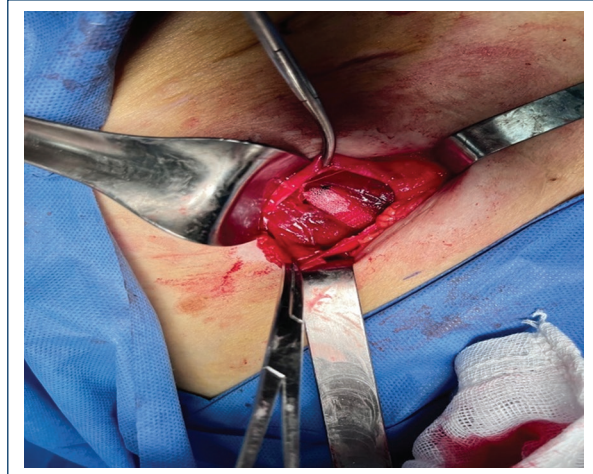


Figure 5. Major oblique aponeurosis grasped by Kelly clamp. Below, mesh in a plug-and-mesh fashion to repair the hernia.

which the surgeon needs to keep a high suspicion in mind while facing these patients because of the low incidence and the ambiguous symptoms. The usefulness of ultrasound and computed tomography is emphasized, especially in cases in which the clinical presentation can be confusing⁴.

Treatment is surgical; different approaches are feasible: direct, by raphy or pre-peritoneal or pre-aponeurotic prosthetic replacement; laparoscopic, by intra-peritoneal, trans-abdominal pre-peritoneal or extra-peritoneal raphy or mesh repair. If the hernial ring is narrow (< 2 cm) A direct approach herniorrhaphy is usually sufficient. Otherwise, a laparotomy approach or transperitoneal laparoscopic repair with a double-sided or pre-peritoneal mesh is performed, with a lower risk of recurrence with synthetic mesh than simple suture⁵.

Conclusion

Spiegel's hernia, as cited above, is a very rare condition which we had the opportunity to treat in four different cases in a relatively short period of time for its incidence, including an emergency case associated with appendicitis, making it even rarer.

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Conflicts of interest

The authors declare no conflicts of interest.

Ethical considerations

Protection of humans and animals. The authors declare that no experiments involving humans or animals were conducted for this research.

Confidentiality, informed consent, and ethical approval. The authors have followed their institution's confidentiality protocols, obtained informed consent from patients, and received approval from the Ethics

Committee. The SAGER guidelines were followed according to the nature of the study.

Declaration on the use of artificial intelligence. The authors declare that no generative artificial intelligence was used in the writing of this manuscript.

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