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Article

Intestinal Obstruction Secondary to Strangulated Spigelian Hernia: A Rare Entity

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Abstract: Spigelian hernia represents 0.1 to 2% of abdominal wall hernias; It is a defect in the aponeurosis of the transverse and oblique abdominal muscles between the lateral border of the rectus abdominis sheath and the semilunar line. CLINICAL CASE. A 43-year-old male with morbid obesity, type 2 Diabetes Mellitus, and Systemic Arterial Hypertension. He started suffering from abdominal pain of more than 36 hours of evolution, nausea and vomiting of gastro biliary content, and a fever of 38.7 ° C; found a painful tumor, which indicated a Computed Axial Tomography, which reported intestinal obstruction and hernial defect of the abdominal wall. Indicated Exploratory Laparotomy. Made a supra and infra umbilical incision in the previous scar. It is dissected by planes, finding a three cm hernial defect in the upper vertex of the previous scar with a fibrous sac, adhesions, and transverse colon content without vascular compromise and reduced content. Subsequently, we proceeded to identify a right paramedian ventral hernia with a six cm defect without being able to reduce the hernial sac along the midline, for which is made a right transverse incision; dissected by planes, identifying hernial sac with necrotic, fetid, non-perforated small intestine contents, performed adhesiolysis, reduced the defect, and performed a 150 cm ileum resection with stump closure; washed the cavity, the stoma was exteriorized and matured, and it was closed in layers. DISCUSSION. Spigelian hernia is a rare differential diagnosis of abdominal pain. This type of hernia mainly affects women over the fifth decade of life, with a higher incidence on the left side, generally with comorbidities that lead to

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increased intra-abdominal pressure or weakened abdominal fascia, such as COPD, cirrhosis, obesity, and pregnancy.

Keywords: Spigelian hernia; Incarceration; sigmoid colon; General surgery; Hernia surgery

1. Introduction

The surgeon, Adrián Spiegel, first described the semilunar line, which marks the transition from the transversus abdominis muscle to the aponeurosis, as well as its limits and its relationship with the lateral edge of the rectus abdominis muscle, calling it Spiegel's fascia. In 1764, Klinkosch coined the term "Spiegel's hernia" to describe the spontaneous protrusion of pre-peritoneal fat or peritoneal sac (whether or not it contains an intra-abdominal organ) through a congenital or acquired defect in Spiegel's line or fascia. 90% are asymptomatic, and up to 50% of cases are incorrectly diagnosed with a high risk of complications [1].

Spigelian hernia represents 0.12 to 2% of abdominal wall hernias; It is a defect in the aponeurosis of the transverse and oblique abdominal muscles between the lateral border of the rectus abdominis sheath and the linea semilunaris. Presents incarceration in 10.4% and strangulation in 6.7%. The herniated contents are usually the small intestine and omentum [2].

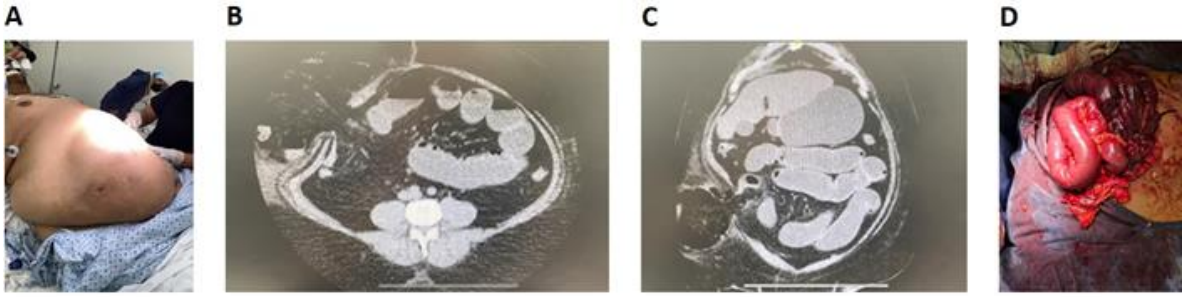
Intestinal obstruction is one of the most frequent pathologies in Radiology emergencies; the most common cause is adhesions or post-surgical flanges, with the consequent risk of ischemia and necrosis if performed a late diagnosis and treatment. Among other etiologies, internal hernia and incarceration of a hernia or hernia of the abdominal wall are less common and even more so when both coincide. Due to its rarity of presentation and the interest in radiological images, we present a case of a young woman who presented with abdominal pain and vomiting, with a final diagnosis by computed tomography of double intestinal obstruction caused by an incarcerated hernia and an internal hernia [3].

2. Clinical Case

A 43-year-old male with morbid obesity, with a history of type 2 Diabetes Mellitus, is being treated with Mixed Insulin 100 IU and Linagliptin. They managed Systemic Arterial Hypertension with Losartan, Metoprolol, and Furosemide. In 2015, an exploratory laparotomy was performed secondary to an acute abdomen requiring intestinal resection, primary anastomosis, and prophylactic appendectomy. Suffering begins with abdominal pain of more than 36 hours of evolution, nausea and vomiting of gastro biliary content, and fever of 38.7°C; It was clinically evaluated and found a painful tumor, which indicated a Computed Axial Tomography, and report intestinal obstruction and hernial defect of the abdominal wall. Indicated Urgent Exploratory Laparotomy; Under general anesthesia, made a supra and infra umbilical incision in the previous scar; is dissected by planes, finding a 3-cm hernial defect in the upper vertex of the previous scar with a fibrous sac, adhesions, and transverse colon content without data of vascular compromise and content is reduced. Subsequently, we

proceeded to identify a right paramedian ventral hernia with a 6 cm defect without being able to reduce the hernial sac along the midline, for which we made a right transverse incision; dissection by planes, identifying hernial sac with necrotic, fetid, non-perforated small intestine contents, performed adhesiolysis, reduced the defect, and is performed a 150 cm ileum resection with stump closure; performed Cavity lavage, the stoma is exteriorized and matures, and it is closed by planes. The patient left the operating room hemodynamically unstable and went to the Intensive Care Unit and death on three weeks later.

Figure 1. An image of a patient with a globose abdomen, with a supra- and infra umbilical scar due to a post-incisional ventral hernia with a 20-mm reducible ring and a 30x30-cm incarcerated right flank hernia. B and C Tomography shows 26-mm wall defects in the epigastrium with protrusion of fat and intestinal loop, another in the right flank with a 78-mm defect and small bowel obstruction, and striation of fat with complication data. D image of intestinal loops during Laparotomy.



3. Discussion

Sir Astley Cooper 1804 gave the first anatomical explanation with his "vascular theory," proposing a prolapse through the aponeurosis of the transverse muscle by opening perforating vessels and nerves. Anson and MacVay thought it was caused by pre-peritoneal fatty infiltration, causing areas of weakness in the abdominal wall. It was not until 1944 that Zimmerman proposed a "musculoaponeurotic defect" above the arcuate line, resulting in a weakness between the transverse and internal oblique muscle layers with interdigitation of fatty tissue. Based on this, have been considered several factors have contributed to its etiology, such as increased intra-abdominal pressure, deterioration of the abdominal wall, collagen alterations, age, obesity, multiple pregnancies, weight loss, chronic obstructive pulmonary disease (COPD), and trauma. (6) There are two types of HS. Located the superior ones above the inferior epigastric vessels, and the hernias are located caudally to said vessels designated as inferior HS [4].

Intestinal obstruction is a surgical emergency that occurs when the flow of intestinal content is interrupted or affected. Hernias are the third cause, constituting 2 to 15% of cases, and are generally diagnosed clinically. However, Spigelian hernias quickly go unnoticed because they have non-specific and scarce symptoms. Identifying them by palpation in the decubitus position is difficult, especially when it coexists with obesity. Occasionally, the defect can manifest below the aponeurosis of the major oblique muscle, leading to a hidden or concealed hernia.

The pain is non-specific, of variable intensity, intermittent, poorly defined at times, and increases with exertion, coughing, and the Valsalva maneuver. When there is diagnostic doubt, performing ultrasound or tomography is advisable. These techniques can help considerably in the diagnosis, especially regarding the exact location of the defect, the size, the neighbor relationships, and the contents of the hernial sac. Despite the support from the office, it is common for a positive diagnosis of Spigelian hernia during the operation. The only indicated treatment is surgical and consists of complying with the therapeutic principles corresponding to any external abdominal hernia: dissection, opening, and excision of the hernial sac, treatment of its contents, and closure of the hernial ring and its reinforcement with the neighboring aponeurotic structures.

Spigelian hernia mainly affects women between the ages of 40 and 70, and its risk factors are conditions that increase abdominal pressure or weaken the abdominal wall, such as obesity, chronic lung disease, multiparity, abdominal trauma, and abdominal incisions [5].

A traumatic abdominal wall hernia is a rare form that occurs after blunt trauma to the abdomen. Traumatic Spigelian hernia is a rare subtype described sporadically in the literature. It is a defect of the anterior abdominal wall that occurs along the Spigelian aponeurosis, limited laterally by the linea semilunaris and medially by the rectus abdominis muscle. CT imaging is the study of choice.

The surgeon has various treatment options ranging from traditional midline laparotomy to laparoscopic repair with or without the use of mesh. Conservative treatment is defended as a safe and feasible option in selected cases [6].

Spigelian hernia is a rare differential diagnosis of abdominal pain. This type of hernia, a defect in the abdominal wall at the outer edge of the linea semilunaris: mainly affects women over the fifth decade of life, with a higher incidence on the left side than on the right, generally with comorbidities that lead to increased intra-abdominal pressure or weakened abdominal fascia, such as COPD, cirrhosis, obesity, and pregnancy. The high value of the body mass index and the age greater than 60 years as considerable risk factors and markers for the outbreak of ventral hernias, and this rate varies by approximately 17-25% for Spigelian hernias. An omental appendix can be the content of this type of hernia and evolve into a case of omental appendicitis [7].

Under normal conditions, hernias involve the peritoneal pouch and contain the omentum, small intestine, or colon. Spigelian hernias characteristically contain narrow (0.5–2 cm) sac necks. The incarceration rate is 20%, while the strangulation rate is 14%. Reports have generally been of incarceration and strangulation of the small intestine, colon, and omentum. Patients seek medical help complaining of severe, continuous, or intermittent episodes of abdominal pain. However, Spigelian hernia may be asymptomatic, or the patient may present with indistinct abdominal pain. Small hernias may not present clinical findings, especially in obese patients, due to healthy subcutaneous or external adipose tissue oblique aponeurosis [8].

In the constituted forms, are repressed all the aponeurotic planes, and the diameter of the hole can be essential and represents less than 1% in a series of 117 patients. The incidence of strangulation and incarceration of this type of hernia is estimated at 17%, requiring urgent

surgery intervention. Abdominal computed tomography, which has excellent sensitivity, remains the critical test for the diagnosis of hernia and its content [9].

The treatment of Spigelian hernia is surgical. Laparoscopic mesh surgery is the best option without complications. It gives good results regarding postoperative pain, length of hospital stay, and recurrence. Should be chosen an open approach without mesh in complicated cases with a high risk of infection in the emergency context associated with intestinal necrosis.

Spigelian hernia is a rare type of hernia. Strangulation is a complication that requires early diagnosis and treatment. The clinical presentation with necrosis of the cecum, appendix, and terminal ileum is exceptional. The laparoscopic approach with mesh is the best option when there is no necrosis since it reduces postoperative morbidity and the risk of recurrence. However, in an emergency setting, meshless aponeurorrhaphy should be chosen to avoid the risk of infection [10].

In the absence of strangulation or incarceration, a diagnosis on clinical suspicion alone is challenging and often missed. As such, more images as required. Is recommended Ultrasonography as the first-line imaging modality in treating a suspected Spigelian hernia, as it allows the radiologist to have the patient perform various maneuvers to increase intra-abdominal pressure to accentuate the hernia. Contrast-enhanced CT is the imaging modality of choice when doubt is present and allows clear visualization of any contents within the hernial sac and the resulting soft tissue changes that may indicate strangulation. Despite these interventions, only 50% of cases preoperatively are diagnosed; the remaining half only definitively are diagnosed during exploratory Laparotomy [11].

While Spigelian hernias are usually solitary, there is no reason why two nearby defects in the transverse abdominis aponeurosis (mainly below the arcuate line) cannot occur. Ultrasonography and CT can be helpful in preoperative diagnosis, but false negatives are not uncommon. The two ipsilateral hernias demonstrated in our patient were only recognized when CT images were reviewed postoperatively in the sagittal plane. While this anatomical variant may not have described before, it is more likely unrecognized, particularly in an elective open repair [12].

SpH is a subgroup of primary ventral hernias, and the EHS classification should apply for classification purposes. The size of the most frequently reported hernia defect is greater than 2 cm in diameter, which corresponds to the small group hernia. Medium and large SpH are those with a defect > 2 cm and > 4 cm, respectively. We have recently described a distinction between SpH with and without peritoneal components, impacting the appropriate surgical approach choice. Low SpH is classified as Nyhus (type Ib) or Gilbert (type V) inguinal hernia [13].

In the prosthetic repair of abdominal bulges, mesh fixation and overlapping of the defect are open questions, as they are a source of complications. A newly developed tentacle-shaped mesh ensures a non-fixation repair with a broader defect overlap in abdominal hernia repair. This study describes the long-term results of a nonfixation repair of Spigelian hernias performed with a web of tentacles placed the implant in the preperitoneal sublayer and the straps delivered through the abdominal musculature with a passing needle [14].

Due to the low incidence rate of Spigelian hernias, surgeons should be aware of their typical presentation as an intermittent palpable bulge along the linea lunate, which is most prominent on standing or during Valsalva maneuvers. Once a Spigelian hernia has been confirmed with ultrasound imaging followed by CT with oral contrast, it is critical to schedule a surgical repair as soon as possible due to its 24% incarceration rate and 27% strangulation rate. Among the surgical modes available, robotic surgery offers better access to the different layers of the abdominal wall, better ergonomics, greater freedom of instrumentation, and more excellent image stability. In addition, robotic surgery should be considered for patients with Spigelian hernias due to a lower hernia recurrence rate than laparoscopic procedures and a lower hernia complication rate than open procedures. Finally, surgeons should consider using a hybrid technique when repairing a hernia at risk of intraperitoneal adhesions [15].

5. Conclusions

Obesity and a history of abdominal wall surgery can mask the diagnosis of Spigelian hernia, making timely treatment difficult and increasing the risk and surgical complications.

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References:

1. Águila-Gómez MV. Hernia de Spiegel, ¿un mito o una realidad?: nuestra primera experiencia, a propósito de un caso. Rev Méd La Paz. 2017; 23(2):34-9.
2. Rupit SMJ, Jaime LÁR, Palacio VF. Strangulated Spigelian hernia contains the terminal ileum, cecal appendix, cecum, and ascending colon. Report of a case. Cir Gen, 2017; 39(3):157-163. Doi:10.35366/77029.
3. Garrido Márquez I, García Pérez PV, Martín Rodríguez JL. Obstrucción intestinal doble por hernia interna y eventración incarcerada. RAPD Online. 2022; 4 5(2):70-2.
4. Fonseca-Sosa Fernando Karel, Rey Vallés Yaima Susana. Hernia de Spiegel: diagnóstico dudoso. Multimed. 2019 Dic; 23(6):1395-402.
5. Marques-da Silva DV, Azevedo-Cordova JL, Ferreira-Vasconcelos LH, Martins de Menezes F. Pereira-Bastos PS, Chimeli-Ormonde L. Spigelian hernia diagnosis: Case report. Int J Surgery Case Rep, 2023; 106: 108-65.
6. Kangabam B. Traumatic Spigelian Hernia Following Blunt Abdominal Trauma. Cureus, February 27, 2023; 15(2): e35564. Doi 10.7759/cureus.35564
7. Villalaz Chiong Neto F, Lima de Paula R, dos Santos Villalaz E, da Silva Cruz DA, Coelho Guimaraes LS. Epiploic appendagitis in a Spiegel hernia: A case report and literature review. Int J Surgery Case Rep, 2021; 88 106504
8. Anilir E, Buyuker F, Tosun S, Alimoglu O. Incarcerated Spigelian hernia: A rare cause of abdominal wall tender mass. North Clin Istanb, 2020; 7(1):74-7.
9. Bouali M, el attar l, Elhattabi K, Elbakouri A, Bensardi F, Fadil A.

Strangulated Spiegel hernia: About a case and literature review. Ann Med Surg, 2021; 66: 102453.

10. Ndong A, Tendeng JN, Niang FG, et al. Strangulated Spigelian hernia with necrosis of the caecum, appendix, and terminal ileum: an unusual presentation in the elderly. J Surg Case Rep, 2020; 6, 1–3 Doi: 10.1093/jscr/rjaa115
11. Anand R, Rahesh J, Ciubuc J, et al. Gangrenous appendicitis contained within a Spigelian hernia. PROC Bayl Univ Med Cent, 2021; 34(1):104-6. https://doi.org/10.1080/08998280.2020.1822131
12. Singh R, Jayamanne H, Stephenson BM. Ipsilateral Spigelian hernia: just an infrequent variant? Ann R Coll Surg Engl, 2020; 102:190-1. Doi 10.1308/rcsann.2020.0094
13. Hanzalova I, Schäfer M, Demartines N, Clerc D. Spigelian hernia: current approaches to surgical treatment—a review. Hernia, 2022; 26:1427-33
https://doi.org/10.1007/s10029-021-02511-8
14. Amato G, Agrusa A, Buscemi S, et al. Tentacle Mesh for Fixation-Free Spigelian Hernia Repair: Mini-Invasive Approach Granting Broad Defect Overlap. J Clin Med, 2023; 12, 3866. https://doi.org/10.3390/ jcm12123866
15. Abraham B T, Sheikhaden H, Lee J, et al. Robotic Ventral Transabdominal Preperitoneal Repair of Uncomplicated Spigelian Hernia. Cureus, Jan 31, 2023; 15(1): e34441. Doi 10.7759/cureus.34441