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Spigelian hernia: a case report and review of the literature

A.M. ANGELICI, A.G. NASTI, N. PETRUCCIANI, G. LEONETTI, P. PALUMBO

SUMMARY: Spigelian hernia: a case report and review of the literature.

A.M. ANGELICI, A.G. NASTI, N. PETRUCCIANI, G. LEONETTI,
P. PALUMBO

Spigelian hernia is a rare abdominal hernia that occurs through Spigelian aponeurosis.

The Authors present a case of Spigelian hernia associated with narrowing of sigmoid colon and diverticular pathology. They also described historical background, surgical anatomy and etiopathogenesis of this hernia.

By a remarkable revision of literature, they sum up epidemiology and clinical features of Spigelian hernia. Furthermore, they discuss diagnostic and therapeutic principles.

RIASSUNTO: L'ernia di Spigelio: un caso clinico e revisione della letteratura.

A.M. ANGELICI, A.G. NASTI, N. PETRUCCIANI, G. LEONETTI,
P. PALUMBO

L'ernia di Spigelio è una rara ernia addominale che fuoriesce attraverso l'aponeuresi di Spigelio.

Gli Autori presentano un caso clinico di ernia di Spigelio con impingimento del colon, associato a patologia diverticolare. Descrivono la storia clinica, l'anatomia chirurgica e l'etiopatogenesi di tale patologia.

L'ampia revisione della letteratura permette di puntualizzare l'epidemiologia e le caratteristiche clinico-chirurgiche dell'ernia. Gli Autori discutono inoltre le procedure diagnostiche e terapeutiche.

KEY WORDS: Abdominal hernia - Mesh repair.
Ernia addominale - Ernia di Spigelio - Ernioplastica protesica.

Introduction

Spigelian hernia, or lateral ventral hernia, is a rare defect of the abdominal wall, occurring through the Spigelian aponeurosis (1-3); peritoneal sac or organ or preperitoneal sac can protrude through the hernial orifice (4).

It was already known and first described by De Blegny in 1860, Le Dran in 1742 and Le Clause in 1746. Klinkosh in 1764 gave to this hernia the definitive nosologic and topographic arrangement and named it Spigelian hernia, after a Belgium anatomist, Adriaan Von Spieghel, who first described the linea semilunaris.

It has been described in literature also with other names: joint tendon hernia, ventral interstitial hernia, semilunar line hernia and lateral ventral hernia (5, 6).

Spigelian hernia is infrequently referred to in the worldwide literature: Spangen's review in 1993 gathered 979 published cases (7); later other authors have added new cases usually in short series (8).

Linea semilunaris represent the border zone between muscular and aponeurotic portion of the transversus abdominis muscle; it has medial concavity and stretches from VIII-IX costal cartilage to pubic tubercle (9). The portion of aponeurosis situated between linea semilunaris and the lateral edge of rectus abdominis muscle is called Spigelian fascia. It is a weak point, in particular in the zone crossing Douglas semicircular line, in which all aponeurosis of large abdominal muscles became anterior to the rectus muscle (in his lower 1/4 the rectus abdominis muscle is in direct contact with transversalis fascia) (10, 11).

Other important factors in developing of this hernia are: 1) under the umbilicus the fibres of the transversus and internal oblique muscles run parallel giving rise to thin fingerings; 2) Spigelian fascia is crossed by inferior epigastric vessels, creating a space that may lead to the development of a sliding her-

nia (12-14). Higher Spigelian hernias occur above the inferior epigastric vessels, while the lower ones are located caudally to this vessels (8). Relating to muscular-aponeurotic planes, Spigelian hernia can be intraparietal (75-85%), preperitoneal or superficial (13).

Most hernial orifices (75-90%) occur in the Spigelian hernia belt of Spangen, which is a transverse strip at 0 to 6 cm over the interspinal line, included among interspinal line, semilunar line, spinal-umbilical line and the external edge of rectus muscle, where Spiegel's aponeurosis is wider.

Hernial sac usually contains greater omentum or omentum fat, small bowel, colon, but are described also other intra-saccular organs: gallbladder, stomach, Meckel's diverticulum, appendix, epiploic appendix, ovary, uterine leiomyoma, testis and a primary carcinoma of the peritoneum (15-17).

The hernial orifice is almost always small less than 2 cm - 57 % of cases gathered by a recent Spanish review (8) - oval or rounded and it has stiff and well-defined margins.

According to the literature, Spigelian hernia affects 1-2,4% of the population with hernia defects, with a slightly higher incidence in women (female:male ratio 1,5-2:1). It arises usually during the fifth and sixth decades of life, although also cases of congenital Spigelian hernia in infants and children are described it is most frequently localized on the right side (18-20).

Predisposing factors are: obesity, multiple pregnancy, rapid weight loss, chronic obstructive pulmonary disease, traumas, ascites, previous surgery and chronic constipation (21, 22).

According to some Authors complications are present at the onset in 21-33% of cases: the most common are intestinal obstruction (23%), intestinal sub-obstruction (8%), strangulation (20%), incarceration (14-24,1%) (23-25). The high frequency of complications is due to the mentioned conformation of hernial orifice that is small (0,5-2 cm) and has rigid margins in the most of cases. In other cases the onset is insidious; most frequent symptoms are not specific: pain in 31-86% of cases and abdominal swelling in 1/3 of cases (26). Other symptoms that may occur are nausea, vomiting and dyspepsia.

Case report

A 73 years-old overweight man was admitted to our Department with a history of a left-sided abdominal mass, constipation and low abdominal pain, the onset of which dated back to about 6 months prior the admission. He had noted a lower left quadrant abdominal mass localized in left flank, that enlarged during Valsalva manoeuvre, without tenderness or cutaneous alterations. Past history of intestinal sub-obstruction. The patient hadn't had surgical intervention on abdomen. He was affected by diverticular disease diagnosed 8 years before by a colonoscopy.

On admission, the patient was in good clinical conditions, without fever. The abdominal examination revealed an oval palpable soft swelling in left flank, covered by normotrophic skin. The mass had a maximum diameter of 6 cm and was reducible; it transmitted cough impulses and was not aching neither tenderness. Bowel sounds were normal and peristalsis was present. There were no signs of peritonitis. Laboratory work-up showed no pathological findings.

A colonoscopy showed the diverticular pathology (without mucosal inflammation) and stiffness of sigma. A contrast-enhanced computed tomography displayed a voluminous left abdominal hernia with diastases of oblique muscles, with engagement of a portion of the sigmoid colon; sigma was slightly narrowed in the point of engagement in hernial orifice and the adipose tissue was hyper-dense as for inflammation. Multiple diverticuli were found in left colon.

The patient underwent to surgery. A median laparotomy was performed to check the vitality of the sigma engaged in the hernial orifice and to evaluate the perivisceral inflammation shown by CT findings and the extent of diverticular pathology; this approach was indicated to have the possibility to make a bowel resection if necessary. Intraoperative findings confirmed the diagnosis of Spigelian hernia. The peritoneal cavity and the bowel were explored: there were no lesions of sigma, so no resection was performed and colon was correctly replaced. Hernia was repaired using an extraperitoneal mesh technique.

The postoperative course was unremarkable with an uneventful recovery of the patient. The patient was discharged on the 8th postoperative day.

Discussion

As above mentioned, Spigelian hernia is a rare abdominal hernia that occurs mainly in women, in the right side, it is often small and it is not palpable in almost 2/3 of cases; the engagement of sigmoid colon is not common and is scanty described in worldwide literature. This prompted us to describe our "not conventional" interesting case: our patient was a male, his Spigelian hernia was localized in the left side and he presented a big tumefaction. Engagement and narrowing of sigmoid colon associated to chronic severe constipation created a vicious circle: the rising of abdominal pressure due to chronic constipation produced the enlargement of hernia and a consequent worsening of constipation. Furthermore the patient was also affected by diverticular disease.

Clinical diagnosis of Spigelian hernia can be difficult for the following reasons: 1) it is a rare pathology; 2) symptoms are often not specific, intermittent and vague; 3) a palpable tumefaction is not present in the most of cases; 4) hernia are frequently intramural; 5) plain abdominal radiograph is not diagnostic. According to Stürnemann et al., physical examination fails to establish the diagnosis in up to 50% of cases (27).

Differential diagnosis includes: lipoma and other neoplasms of abdominal wall, desmoid tumours, haematoma and myositis of rectus muscle.

Ultrasound scan is considered the first examination to be performed, because of its low price and non invasivity, but it can be not useful in overweight patients.

Preoperative CT scan is recommended by many authors: it provides detailed information about hernial sac, herniated contents and localization. It should be used in presence of other abdominal pathology like in our case.

Spigelian hernia should be always treated surgically to avoid serious complications that have high frequency. To avoid recurrences is advisable the positioning of a synthetic mesh, as we did; this treatment guarantees better results and major strength and resistance compared to simple repair.

In literature are described various surgical techniques: midline laparotomy is the more indicated approach in case of strangulation or if there is another concomitant pathology or when preoperative diagnosis is uncertain. This approach route allows an optimum exploration of the abdominal cavity and permits an eventual bowel resection. Lateral paramedian and local approaches are also recommended by many authors.

Laparoscopic repair was first reported in 1992 (28) and it seems associated with decreased patient morbidity and a shortened hospital stay.

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