Left colon obstruction due to non-reducible Spigelian hernia of the right side. Report of a case and literature review

Paolo Panaccio*, Paolo Raimondi*, Michele Fiordaliso*, Antonio Dell’Osa**, Roberto Cotellese*, Paolo Innocenti*

*Department of Medical and Oral Sciences and Biotechnologies, University of G. d’Annunzio, Chieti and Pescara, Chieti, Italy
**Division of General Surgery, “SS. Annunziata Hospital”, Chieti, Abruzzo, Italy

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AIM: Describe a rare case of intestinal obstruction due to sigmoid colon incarceration into a right Spigelian hernia and provide a literature review about its surgical management.

MATERIAL OF STUDY: An 88 year-old man presented with a 3-day history of right lower quadrant pain and abdominal distension. Clinical examination revealed a not reducible palpable mass on right side of the anterior abdominal wall. Computed tomography shown signs of intestinal obstruction and a Spigelian hernia of about 3 cm.

RESULTS: Sigmoid colon was incarcerated in the defect but no signs of intestinal ischemia was found during the surgical exploration. The hernia content was reduced and the defect was repaired with a polypropylene mesh placed in the pre-peritoneal space. Postoperative period was uneventful and the patient was discharged on the fourth postoperative day.

DISCUSSION: Spigelian hernia occurs through congenital or acquired defects in the Spigelian fascia at the level of the semicircular line. Clinical presentation depends on the size and the pattern of the hernia defect. In some cases, symptoms are no specific and uncommon findings have been reported so far. Preoperative establishment of the hernia content and the location of the sac is mandatory to plan a correct surgical strategy. Intestinal incarceration often occurs and suggests a prompt surgical exploration.

CONCLUSIONS: Colonic obstruction secondary to an incarcerated Spigelian hernia is a rare but dangerous occurrence. Surgical approach is selected based on patient’s conditions and surgeon’s expertise. In a non-contaminated surgical field, the use of prosthesis is recommended.

KEY WORDS: Intestinal obstruction, Mesh repair, Spigelian hernia

Introduction

Spigelian hernia (SH) occurs through congenital or acquired defects in the Spigelian fascia located laterally to the edge of the rectus muscle but medially to the Spigelian line, which is the point of transition of the transversus abdominis muscle to its aponeurotic tendon 1-3. The defect occurs more frequently at the level of the semicircular line or arcuate line of Douglas, which marks the inferior end of the posterior lamina of the aponeurotic rectus sheath in the infra-umbilical area. This hernia is mostly intraparietal overlying by the external oblique muscle. For this reason is difficult to diagnose. The clinical presentation varies depending on the content of the sac and uncommon findings have been reported in the literature. We present the case of a patient with acute abdominal pain due to incarcerated sigmoid colon into a right SH.
Case Report

An 88 year-old man presented to our surgical department with a three-day history of right lower abdominal pain, distension and severe constipation. He reported nausea and vomiting without fever or chills. Past medical history included myocardial infarction, atrial fibrillation, bilateral carotid artery stenosis and chronic renal disease. He treated a bilateral inguinal hernia several years ago. The patient was suffering and tense. His cardiac rhythm was irregular, with 110 beats per minutes. He presented mild hypoxemia and normal value of acid-base balance. Body Mass Index (BMI) was 36 Kg/m². At the physical examination, the abdomen was distended and tender to palpation with a bulge in the right side. The mass was about 3 cm in the major diameter and was located in the lower part of the right flank just 2 cm under the transverse umbilical line. It was firm and not reducible. According to the position and the clinical signs, a non-reducible hernia with possible implications of the bowel was suspected. A computed tomography (CT) of the abdomen revealed multiple fluid levels in the small intestine and in the colon that appeared markedly dilated and the presence of stretch convoluted sigmoid colon entrapped in a right SH. There was a small amount of perivisceral fluid in the hernia sac and around the sigmoid mesentery (Fig. 1). Surgical exploration was carried out through a skin incision over the palpable mass. The external oblique aponeurosis was opened exposing the hernia sac. The incarcerated sigmoid colon was viable without signs of ischemia. After a careful dissection, the hernia content was reduced into the abdomen. The hernia defect was repaired with a polypropylene mesh placed in the pre-peritoneal space (Fig. 2). The post-operative period was uneventful. The patient started a soft oral diet in second post-operative day and was discharged in fourth post-operative day. No local or general complication occurred in the short period. The patient was seen in the follow up without any sign of recurrence.

Discussion and Comments

Spigelian Hernia, also known as abdominal lateral hernia, is an acquired or congenital defect that arises at the level of the semilunaris line, primarily described by the Belgian anatomist Adriaan van den Spieghel in the early 17th century. Klinkosch, in 1764, made the first clinical report of a SH. He described the semilunaris line as the transition from the muscle to the aponeurosis of the transversus abdominus muscle and its relationship with the lateral border of the rectus muscle, which represent the medial and lateral aspect of what we know as the Spigelian fascia. This hernia most commonly presents at or below the semicircular line (arcuate line of Douglas) with a well-defined defect in the transversus aponeurosis due to the lack of the posterior rectus sheath at this level. SH accounts for <1% of all hernias. Its frequency is slightly higher in females. Obesity and pregnancy are predisposing factors. Bilateral hernias are rare. In children is often associated with other congenital defects. Clinical presentation depends on the size and the content of the hernia sac. Moreover, the specific path of the sac through the muscular layers determines the symptoms. Commonly, patients presented with an intermittently palpable mass or postural pain. Incarceration has
been reported in 17-24% of the patients and urgent surgery is required in 10% of cases 5. Omentum and small bowel are the most common hernia contents, although large bowel, stomach, gallbladder, ovary, testis, uterus and bladder are reported in the literature 6-8. Symptoms and signs are no specific. In more than one third of patients, especially in the obese, the subcutaneous fat or the intact external oblique aponeurosis could mask the hernia mass or the parietal defect 6,7. Difficulties in the diagnostic process are due to the parietal location of the defect. Indeed, the hernia sac protrudes through the aponeurosis of the transversus abdominis, but is usually covered by the external oblique muscle 8,9. Because the internal oblique muscle offers less resistance, the hernia may spread between deep muscle fibers. This could be a confusing factor for the surgeon who makes the incision over the mass unless to find the hernia defect in a deeper layer. Abdominal ultrasound (US) has been reported as a useful diagnostic tool for palpable and non-palpable SH 10. The hernia appears as a complex mass within the anterior abdominal wall or is pointed out by the interruption of the echo lines of the aponeurosis. CT scan is a reliable diagnostic test and is highly recommended especially in challenging cases 11. It delineates the content of the hernia sac and confirms the defect in the Spigelian aponeurosis. Successful diagnosis by CT scan after an equivocal ultrasound has been recommended 12. Because US is more available and cheaper, some authors have advocated US examination followed by CT for doubtful cases. Considering the high rate of complication, surgical repair is mandatory once the diagnosis is established. Our patient presented with a three days lasting growing abdominal pain associated with the presence of the SH that strongly suggested surgical exploration. Preoperative CT scan was mandatory to plan the correct surgical approach. Reports on the laparoscopic approach show good results in terms of lower recurrence, low rate of wound infection and short hospital stay comparing to the traditional approach. However, these data are not substantially different from the studies focusing on the open approach 13,14. Use of laparoscopy, with either trans-peritoneal or total extra-peritoneal approach, in case of complicated SH is under discussion probably due to lack of validation by randomized trials. The shortage of studies is probably due to the low incidence of this type of hernia and to the not widespread experience with the minimally invasive approach 15. Some authors reported that the laparoscopic procedure is safe and effective even in emergency. However, we preferred a traditional open approach considering patient’s comorbidities and surgeon’s expertise in emergency procedures. A right paramedian incision over the palpable mass was carried out. The hernia sac was opened and inspected. We found a convoluted sigmoid colon strangulated at the hernia point without signs of ischemia or perforation. If complications occur, extension of the first incision or new midline laparotomy is required to treat associated lesions or to assess the peritoneal involvement. Usually, many surgeons reconstitute the anatomy with simple sutures for each layer. The use of a prosthesis in the pre-peritoneal space seems to be a safe method in weak abdominal wall or for long-standing hernias, particularly without infected field. The mesh could be profiled according to the defect, placed in the pre-peritoneal space or between the muscle planes and fixed with absorbable sutures. The advantages of mesh over suture even for small ventral and incisional hernias have been reported 16. Furthermore, use of mesh may decrease recurrence rate in presence of risk factors of hernia formation such as obesity, collagen disease and diabetes 17. Surgery is usually performed under general anesthesia, even if Zuvela and al. reported that one-day surgery could be performed under local anesthesia in selected cases. This technique reduces operative time and complications, requires no special surgical equipment, allows simultaneous repair and is a cost-benefit procedure 18.

Conclusions

Spigelian hernia is a rare type of abdominal hernia with challenging clinical presentation and prone to complications. Strangulation is a frequent and fearsome event that requires prompt surgical intervention. However, intestinal obstruction due to sigmoid colon incarceration is an uncommon finding. CT scan of the abdomen is mandatory to assess the correct diagnosis and rule out major complications. Minimally invasive surgery has shown some advantages in the elective treatment. The procedure of choice in emergency is not well established so far and depends on surgeon’s experience.
Riassunto

L’ernia di Spigelio è un raro difetto della parete addominale anteriore che insorge a livello della fascia omo-nimia, situata lateralmente al margine del muscolo retto dell’addome. Il punto di maggiore debolezza è rappresentato dalla linea arcuata di Douglas o linea semicircolare, che segna la scomparsa della lamina posteriore della guaina dei muscoli retti. La presentazione clinica dipende dal contenuto del sacco erniario e dalla posizione che assume attraverso i differenti strati muscolari. L’ernia di Spigelio si presenta spesso in modo acuto e complicato. Riportiamo il caso di un paziente di 88 anni, cardiopatico ed in trattamento con anticoagulanti orali, giunto alla nostra osservazione per l’insorgenza acuta di dolore addominale associato a distensione ed alveo chiuso a feci e gas. L’esame fisico ha rilevato una dolorabilità diffusa nei quadranti inferiori e la presenza di una massa di circa 3 cm a livello della fossa iliaca destra, molto dolente alla palpazione e non riducibile alla compressione. La TC dell’addome ha messo in evidenza la dilatazione delle anse ileali e del colon fino al sigma che appare strettamente inglobato in un sacco erniario compatibile con un’ernia di Spigelio del lato destro. All’esplorazione chirurgica, il colon è risultato costretto nel colletto erniario ma senza presentare segni di ischecoria. Per tale motivo è stato ridotto in addome ed il difetto di parete riparato con una rete di polipropilene. All’esplorazione chirurgica, il colon è risultato costretto nel colletto erniario ma senza presentare segni di ischecoria. Per tale motivo è stato ridotto in addome ed il difetto di parete riparato con una rete di polipropilene posizionata nello spazio extraperitoneale.

L’incarceramento di un ansa intestinale in un’ernia di Spigelio rappresenta un evento estremamente grave che si presenta nel 20% dei casi, di cui la metà richiede un intervento chirurgico. Il decorso intraparietale del sacco erniario rende spesso difficile una corretta diagnosi clinica ed il ricorso alla tomografia computerizzata risulta obbligatorio sia per una corretta definizione diagnostica che per pianificare la strategia chirurgica. Sebbene la laparoscopia sia stata dimostrata utile e sicura nel trattamento dell’ernia di Spigelio, non ne è stata ancora riconosciuta la superiorità rispetto all’approccio tradizionale. In emergenza, la laparotomia viene preferita anche rispettando lo status fisico del paziente e l’esperienza dell’operatore.

References