



Parietal Repair of a Large Spigelian Hernia by Muscle Plasty Associated with a Non-Absorbable Plaque

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Abstract

Hernia is a condition in which part of an organ is displaced and protrudes through the wall of the cavity containing it. A spigelian hernia is a rare type of ventral hernia, principally acquired. Surgery is the only way to treat a spigelian hernia, either by a regular surgical operation or through laparoscopic repair. We present the parietal repair of a large spigelian hernia by muscle plasty and placement of a plate in a 59-year-old patient. The patient had an abdominal ptosis and a surgical history of ipsilateral inguinal hernia repair. The result is satisfactory. Similarly to other ventral hernia, spigelian hernia can be treated with minimally invasive techniques, but an open approach remains a valid option for large hernias. Regardless of the technique employed, a mesh repair is recommended. Nevertheless, a non-mesh repair maybe remains a reasonable alternative in small hernias.

Subject Areas

Surgery & Surgical Specialties

Keywords

Spigelian Hernia, Parietal Repair, Muscle Plasty, Non-Absorbable Plaque, Democratic Republic of Congo

1. Introduction

Hernia is a condition in which part of an organ is displaced and protrudes through the wall of the cavity containing it (often involving the intestine at a weak point in the abdominal wall).

A spigelian hernia is a rare type of ventral hernia, principally acquired. Its name originates from a Flemish anatomist and physician, Adriann van den Spieghel (1578-1625), who introduced several new anatomic descriptions. Particularly, he described the well-known linea semilunaris, originally named as the *linea semilunaris spigelii* [1] [2]. The first description of SpH itself occurred about one century later by the Bohemian anatomist and surgeon Josef Klinkosh, describing a ventral hernia occurring at the level of the “*linea spigelii*”, therefore named spigelian Hernia [1] [3].

Surgery is the only way to treat a spigelian hernia, either by a regular surgical operation or through laparoscopic repair. The surgical modalities are based on the characteristics of the patient and the type of hernia, and consist of a simple closure by suture, a muscle plastic surgery, a plastic prosthesis, or an intra-abdominal or extra-peritoneal laparoscopy [1] [4].

We present a large spigelian hernia in an obese patient who underwent parietal repair by muscle plasty associated with a non-resorbable plaque.

2. Observation

A 59-year-old patient consulted us for a soft, expansive, sometimes painful swelling in the right lumbar region (**Figure 1**). He was an obese patient (BMI greater than 40) with abdominal ptosis and a surgical history of ipsilateral inguinal hernia repair. The diagnosis of a lumbar hernia or a lipoma was retained. It was following the results of the ultrasound and the abdominal scan that the diagnosis of a Spiegel hernia had been retained. Ultrasound provided detailed images of the abdominal wall defect, the hernia sac and its contents, and the relationship of the contents to the Spigelian fascia, as well as the rectus, external oblique, and internal oblique muscles. The hernial orifice of spigelian hernia had located in the Spigelian fascia, that is, between the lateral border of the rectus abdominis muscle and the semilunar line, through the transversus abdominis aponeurosis, close to the level of the arcuate line. CT of the abdomen also confirmed the presence of a spigelian hernia. A CT scan of the patient demonstrated an incarcerated spigelian hernia containing small bowel which had subsequently reduced spontaneously.

Repair by open surgery was chosen. A preoperative drawing of the incision was made (**Figure 2**). Intraoperatively, after opening the aponeurosis of obliquus externus abdominis muscle (**Figure 3**), we observed a spigelian hernia containing the greater omentum which we immediately reinstated (**Figure 4**). We performed a plasty of the broad muscles of the lateral abdominal wall (**Figure 5**). This parietal cure was reinforced by a non-resorbable plate placed in retro aponeurotic (**Figure 6**). We closed the operative wound layer by layer: aponeurosis of the greater oblique, subcutaneous tissue and skin (**Figure 7**). The postoperative course was simple with healing of the surgical wound by first intention. The result of the surgery after a follow-up of six months is satisfactory: no more pain or swelling after a major intra-abdominal thrust (**Figure 8**).



Figure 1. Bulky right spigelian hernia.



Figure 2. Preoperative drawing and anatomical landmarks.



Figure 3. Opening of the aponeurosis of obliquus externus abdominis muscle.



Figure 4. Hernia containing the greater omentum which, immediately reinstated.

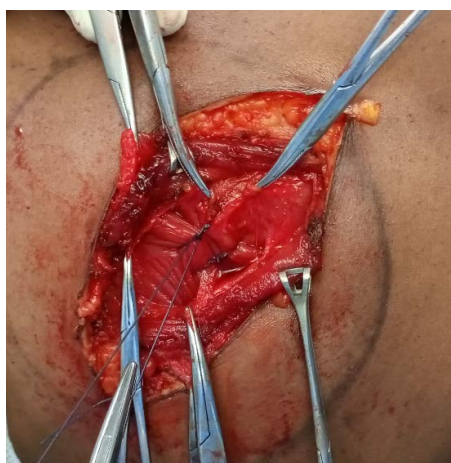


Figure 5. Lateral abdominal wall muscle reconstruction.

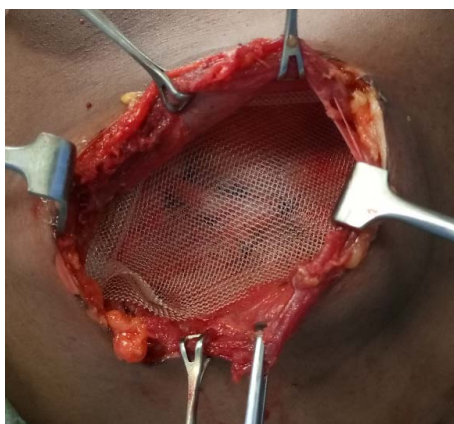


Figure 6. Non-resorbable plate placed in retro aponeurotic.



Figure 7. Skin fermeture.



Figure 8. Satisfactory result of the surgery after a follow-up of six months.

3. Discussion

3.1. Epidemiological, Clinical and Paraclinical Aspects

In the literature, spigelian hernia is a rare pathology [5]. The real extent and epidemiology of this pathology in the Democratic Republic of Congo are not known. We found no published data. Spigelian hernias, accounting for about 2% of the abdominal wall hernias are commonly found in an area called spigelian hernia belt, a transverse 6 cm wide zone between anterior superior iliac spine and umbilicus. Above the umbilicus, these hernias are less common unless there

is an acquired anatomical defect. This is due to the way the fibers of internal oblique and transversus abdominis are crossing each other. They are one and a half times more common in women and present on the 6th decade [6] [7] [8].

The abdominal swelling is painful at times. At the beginning with the absence of pain, the diagnosis of a lipoma had also been evoked.

Differential diagnosis of a palpable mass in the typical region of spigelian hernia, includes lipoma [9], hematoma of rectus abdominis muscle or any abdominal solid tumour. Pain in the left inguinal fossa without palpable lump, can be confused with all other causes of left-sided abdominal pain, such as acute sigmoid diverticulitis for instance [10]. Webber *et al.* suggested the development of spigelian hernia in two stages: firstly, small spigelian hernia without any peritoneal component, typically occurs in younger patients complaining only of intermittent pain, without palpable mass; and secondly, a larger spigelian hernia develops with a palpable hernia sac [1] [9].

Our patient presented a risk factor, obesity with significant abdominal ptosis. The patient had a history of ipsilateral inguinal hernia surgery. The diagnostic confirmation of spigelian hernia was made after an ultrasound and an abdominal scan.

Similar to other ventral hernias, factors contributing to high intraabdominal pressure, such as chronic obstructive pulmonary disease, chronic cough and obesity are found regularly among patients with spigelian hernia. A possible contribution of the pneumoperitoneum during a laparoscopic procedure in development of the spigelian hernia through a pre-existing weakness in the Spigelian fascia has been hypothesized by Slakey *et al.*, describing one case of the incarcerated spigelian hernia following laparoscopic living donor nephrectomy [11].

Several studies suggest that abdominal wall ultrasonography is a conclusive imaging method in spigelian hernia, with a sensitivity of 83% - 90% [12] [13] [14]. The benefit of CT scan imaging lies in the possibility to visualize the hernia content supplementary to the visualization of the hernia defect.

3.2. Surgical Aspects

For our patient, the repair by open surgery was chosen. The parietal repair of a voluminous Spiegel hernia was performed by muscle plasty associated with a non-absorbable plaque.

According to the recent EHS guidelines [15], there are no definitive preferences between open and minimally invasive approaches and the choice is at the discretion of the operating surgeon. Furthermore, a mesh repair is recommended regardless of the approach used. Repair with direct suture can be safely performed for SpH with small defects. Overall recurrence rate is very low, especially after mesh repair [16] [17]. In cases of intraperitoneal mesh placement, the use of composite or covered mesh is advocated, to decrease post-operative adhesions [18]. As for all ventral hernia, a mesh overlap exceeding the hernia neck more than 5 cm is mandatory. Closure of the SpH defect before mesh insertion is debated.

In our case, we first closed the defect with a muscle plasty and the prosthesis was placed afterwards, in retro aponeurotic. The result of this surgery, despite this short follow-up of six months, is already very satisfactory.

We perform open repair for individuals who arrive with an acute spigelian hernia, especially if there is a risk of high-grade blockage, strangulation, or intra-abdominal infection. Furthermore, open repair may be required due to the surgeon's lack of experience with laparoscopic methods, or when laparoscopy is contraindicated. We realize sutures or mesh to repair an open Spiegel's hernia. Given the risk of recurrence, we only do suture repair in cases of contamination when mesh implantation is contraindicated.

4. Conclusion

The parietal repair of a voluminous Spiegel hernia was performed by muscle plasty associated with a non-absorbable plaque. The result is satisfactory. Similarly to other ventral hernia, SpH can be treated with minimally invasive techniques, but an open approach remains a valid option for large hernias. Regardless of the technique employed, a mesh repair is recommended. Nevertheless, a non-mesh repair may be remains a reasonable alternative in small hernias.

Conflicts of Interest

The author declares that there is no conflict of interest.

Ethics Statement

Three fundamental principles of research ethics were respected in the present study: respect for the person, beneficence and justice.

We obtained the patient's free and informed consent for this study.

We explained to the patient the risks, the advantages and the alternatives of this intervention. The patient has made a voluntary decision about whether to undergo this surgical operation.

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