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Open Surgery for Spiegel's Hernia

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ABSTRACT

Spiegel's hernias are uncommon anomalies in the Spiegel's aponeurosis, which runs between the rectus muscle and the semilunar line. They are most commonly found in the "Spigel's hernia belt" between the navel and the interspinal line (a horizontal line connecting the anterosuperior iliac spines). We recommend open repair for individuals who arrive with an acute Spiegel's hernia, especially if there is a risk of high-grade blockage, strangulation, intra-abdominal infection, and/or the necessity for bowel resection. Furthermore, open repair may be required due to the surgeon's lack of expertise with and/or experience with laparoscopic methods, or when laparoscopy is contraindicated due to an inability to tolerate pneumoperitoneum or securely access the peritoneal cavity. Sutures or mesh can be used 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 and may enhance morbidity.

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INTRODUCTION

Spiegel's hernias, first described by Josef Klingosh in 1764, are an uncommon kind of primary ventral hernia. Adriaan van den Spieghel is credited for defining the semilunar line about 100 years before the first mention of this hernia. [1]

Spiegel's hernias are uncommon, accounting for about 0.1 to 2% of all ventral hernias. Spiegel's hernias are becoming more common, which may be attributed to the widespread use of high-quality cross-sectional imaging, misinterpretation of lateral incisional hernias (e.g., port site hernias), or a real rise due to the obesity pandemic. There is no evident gender preference, and the majority of individuals are diagnosed in their fifth or sixth decade of life. These hernias are uncommon in youngsters. When they are identified in children, they may be linked with additional anomalies such as undescended testes. [2]

Spiegel's hernias are primary ventral hernias caused by a tear in the Spiegel's aponeurosis (fascia), which is made up of the transverse abdomen and internal oblique aponeuroses. Spiegel's aponeurosis is bordered by the rectus muscularis medially and the semilunar line laterally. Although Spiegel's hernias can form anywhere along the length of the Spiegel's aponeurosis, they most usually occur between the navel and the interspinal plane (a horizontal line between the right and left anterosuperior iliac spine). Spiegel's hernia belt is another name for this area. Anatomically, the belt of Spiegel's hernia might be explained by the fibers of the two contributing fascia layers running parallel immediately below the navel, as opposed to the right angles at the navel and above. Spiegel's hernias have no effect on the external oblique aponeurosis. [3]

Increased intra-abdominal pressure (e.g., obesity, numerous pregnancies, chronic cough, especially in smokers) and conditions that weaken tissue layers are all risk factors for the development of Spiegel's hernias (e.g., collagen disorders, smoking, or chronic obstructive pulmonary disease). Blunt trauma is another well-known cause of Spiegel's aponeurosis disruption. It is debatable whether the traumatic hernias at this location are real Spiegel's hernias or "incisional hernias." Hernias caused by earlier incisions (drain placement, laparoscopic ports, paramedian incisions, stoma sites, etc.) should be classed as lateral ventral incisional hernias. [4]

CLINICAL PRESENTATION

Spiegel's hernia patients may be asymptomatic (hernia discovered on imaging for unrelated causes) or have inflammation in the middle or lower abdomen, just lateral to the rectus muscle. On physical examination, a muscle in the vicinity of Spiegel's aponeurosis may be palpated (lateral to the rectus muscle). The patient may also experience intense pain or discomfort at this location. Although up to 20% of S piegel hernias are incarcerated, the hernia is frequently reducible in the supine position. [5]

Supine and standing examinations, as well as Valsalva exercises, can aid in diagnosis. A lateral decubitus

examination with the afflicted side in a dependent posture may also be beneficial. [6]

DIAGNOSIS

If a patient exhibits swelling in the middle or lower abdomen, just lateral to the rectus muscle, Spiegel's hernia can be identified clinically. Even with placement and Valsalva, not all patients with a Spiegel's hernia have a palpable mass. This is especially true for obese people. Only around half of patients have this unusual hernia correctly diagnosed by physical examination. Imaging should be conducted when a Spiegel's hernia is highly suspected, such as in the case of a patient with acute pain or localized sensitivity in the predicted region of a Spiegel's hernia. Transverse imaging can also aid in defining the anatomy of a hernia.[7]

TREATMENT

The only successful therapy for Spiegel's hernias, like with other hernias, is surgery, and the sole non-surgical alternative is expectant care (i.e. expectant management). Historically, all patients with a known Spiege's hernia were advised to have surgical surgery. However, like with other types of primary ventral hernias, modern care is more sophisticated and personalized. [8]

Spiegel's strangulated and severely incarcerated hernias demand immediate surgical correction. Surgical treatment of Spiegel's hernias should be based on the same criteria as any other main ventral hernia: symptoms, higher risk of acute presentation (e.g., intestinal confinement or past incarceration), and patient preference. Patients who choose to postpone surgery should be counseled on the signs and symptoms of imprisonment and strangulation, as well as whether to seek emergency or elective treatment. [9]

If the hernia is not strangulated or abruptly incarcerated, patients at risk of problems and recurrences following surgery (e.g., uncontrolled diabetes, active smoking, body mass index [BMI] >40 kg/m2) should receive preoperative optimization before to surgery.

Historically, only surgical repairs were employed; however, open, laparoscopic, and robotic procedures are reported in recent literature. Single-incision laparoscopic procedures have also been reported. [8, 9]

Several surgical methods have been evaluated and compared. Given the rarity of Spiegel's hernias, the majority of the literature consists of single-center/single-surgeon case series, which should be interpreted in the context of relatively low-quality data, lack of uniformity in reporting outcomes, general lack of long-term follow-up, and the low prevalence of these hernias.

SPIGEL'S HERNIA OPEN REPAIR

In the setting of acute presentation, presentation with blockage and/or bowel perforation of the degree, anticipation of bowel resection, lack of knowledge and/or experience with laparoscopic procedures, and/or lack of expertise with laparoscopic techniques, open approaches may be chosen. When laparoscopy is not possible owing to the inability to endure pneumoperitoneum or securely reach the peritoneal cavity, open repair is necessary. [10]

For open repair, suture and mesh approaches (preperitoneal, intraperitoneal, or overlapping sites) have been reported. The evidence on primary ventral hernia repair suggests that mesh installation reduces the risk of recurrence and should be utilized in all clean cases. As a result, we only do suture repair of Spiegel's hernias in cases of contamination when mesh implantation may enhance morbidity. [11]

The following main stages are often used in open repair of Spiegel's hernias. [12]:

1) A skin incision is created over the hernia. The Gridiron incision (McBurney incision) is traditionally made at right angles to the line connecting the anterosuperior iliac spine and the navel, centered at the McBurney point (1/3 distance to the iliac spine, 2/3 distance to the navel). A paramedian or mid-line incision may also be performed if the hernia or imprisoned contents cannot be palpated. Dissection is performed via the subcutaneous tissues to the aponeurosis of the external blicus.
2) The aponeurosis of the external oblique is divided along the path of its fibers.
3) The contents of the hernial sac are examined and reduced.
4) If preperitoneal mesh installation is to be done, the hernial sac must be dissected with the formation of a preperitoneal plane.
5) Closure of the fascial defect with or without mesh implantation, including closure of the transverse abdomen and internal oblique.
6) Reapproximation of the external oblique aponeurosis. The mesh is put over the reapproximate external oblique aponeurosis if the overlapping approach is employed for mesh placement. If the mesh is put beneath one of the muscle layers (for example, between the inner and outer oblique), this is referred to as a sublayer method.
7) Subcutaneous tissue and skin closure.

CONCLUSION

In the setting of acute presentation, presentation with high-grade intestinal blockage and/or perforation, expectation of bowel resection, lack of knowledge and/or expertise of the surgeon with laparoscopic procedures, and/or surgeon preference, open techniques may be recommended. When laparoscopic repair is not possible due to inability to tolerate pneumoperitoneum or securely reach the peritoneal cavity, open repair is necessary. When the hernia is visible on imaging but not on physical examination, open repair should be avoided.

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