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Case Report General Surgery

UNCORRECTED PROOF

Incarcerated Spigelian hernia: A rare cause of abdominal wall tender mass

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ABSTRACT

We aimed to present that incarcerated spigelian hernia is an important cause of acute abdomen though it is a rarity. Spigelian hernia is rare, accounting for 1–2% of all abdominal wall hernias. It is caused by a defect in the aponeurosis of the transversus abdominis muscle, also known as the Spiegel fascia. This case analysis aims at presenting a Spigelian hernia case in which the sigmoid colon is incarcerated. The patient had referred to our emergency surgery clinic complaining of severe abdominal pain and a palpable mass in the left quadrant of the abdomen, presenting tenderness on the front abdominal wall. The symptoms had suddenly emerged approximately 8 hours ago. The patient was taken into surgery after the ultrasonography (US) and computed tomography (CT) results suggested a preliminary diagnosis of incarcerated Spigelian hernia for which polypropylene mesh repair was performed. No recurrence was identified in the patient's control examination performed 22 months later. Incarcerated Speigel hernia should be considered as a cause for patients developing sudden stomach ache and mass causing tenderness on the front abdominal wall for which mesh repair should be performed.

Keywords: Incarceration; sigmoid colon; Speigel Hernia.

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Also known as the Spiegel fascia, the transverse muscle aponeurosis is the area between the medial section of the transverse muscle and the aponeurotic tendons entering the posterior of the rectus muscle sheath [1–4]. Spiegel hernia is the protrusion of the preperitoneal adipose tissue, peritoneal pouch or abdominal organs from the Spiegel fascia due to a congenital or acquired defect. It appears at the location between wide abdominal muscle sheath and the lateral side of the rectus muscle, also known as transverse muscle aponeurosis or Spiegel fascia. Spiegel hernia accounts for 1–2% of all abdominal wall hernias and has an incarceration rate of 17–24%. In total there have been less than 1000 reported cases [1, 2, 5, 6]. It is more prevalent amongst women and clinically presents itself with abdominal pain and palpable mass on the front abdominal wall [7]. We aimed that presenting a Spigelian hernia case in which the sigmoid colon is incarcerated as a palpable tender mass.

CASE REPORT

The 36-year-old female patient had applied to the emergency polyclinic complaining of abdominal pain and nausea which had started about 8 hours ago. Blood pressure was 130/80; pulse was 88/min. There was neither vomiting nor abdominal distention. There was no fever. The patient had not previously undergone abdominal surgery. She had not suffered from previous chronic illness. Patient's background story included modified radical mastectomy followed by chemotherapy treatment

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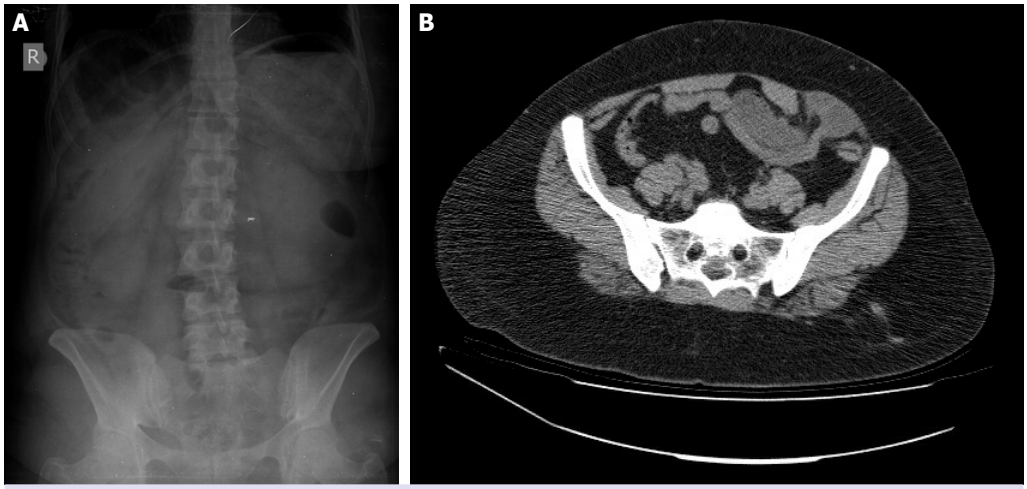

Figure 1. **(A)** Direct abdominal x-ray at a standing position. **(B)** Appearance of the incarcerated intestinal loop on Abdominal CT.

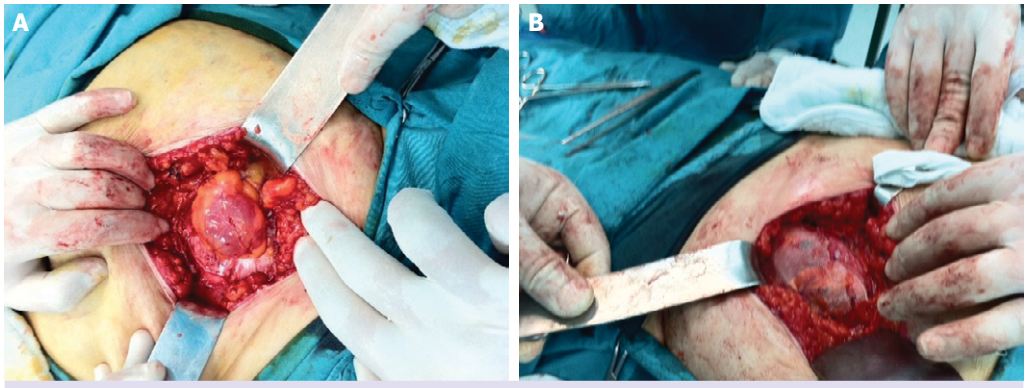

Figure 2. **(A)** Visual contact with the sigmoid colon, which forms the content of the hernia sac that has protruded due to the defect on the Spiegel fascia. **(B)** Reinforcement with polypropylene mesh following primary defect repair.

two years ago due to breast cancer. Physical examination identified tenderness and defence in the left quadrant of the abdomen and a tender, palpable, hard and nonreducable mass (approx. 4x4 cm) in the left hypochondrium. Intestinal sounds were normoactive; rectal examination was normal. Hemogram test returned leukocyte value of 9.200/mm^3. There was no sign of levelling in the direct abdominal X-ray at a standing position (Fig. 1A). US identified a 30x40x60 mm sized conglomerated, fixed, distended, aperistaltic intestinal loop surrounded by minimal amount of free fluid. An abdominal CT was performed. Abdominal CT identified intestinal loops protruding from the left front wall of the abdomen due to the current defect (Fig. 1B). The informed concent which was signatured by patient was taken for operation. Patient was admitted for surgery with preliminary diagnosis of incarcerated Spiegel hernia. The hernia sac was accessed with a left pararectal incision (Fig. 2A). The sac was separated from surrounding tissue by dissection. It emerged that the cause was a defect in the Spiegel fascia. The contents of the sac were explorated. Sigmoid colon and mesocolon were visualised. The defect was repaired using prolene suture to primarily approximate the sac containing the rectus muscle lateral and that of the transverse and internal oblique muscles. The repair was reinforced with polypropylene mesh (Fig. 2B). Patient was discharged in good health on post-op day 3. The control examination performed 22 months later did not identify recurrence.

DISCUSSION

Spiegel hernias are most commonly seen to the lateral of

the rectus muscle, in the lower left quadrant [8, 9]. Under normal conditions hernias involving peritoneal pouch usually contain omentum, small intestine or colon [7, 10]. In our case, it was the sigmoid colon that composed the contents of the hernia sac. It is more prevalent amongst women. However pregnant and obese females are under higher risk [7, 9, 11]. Spiegel hernias characteristically contain narrow sac necks (0.5–2 cm) the rate of incarceration is 20% whereas the rate of strangulation is 14% [9, 12]. Reports have been generally about the incarceration and strangulation of the small intestine, colon and omentum [2]. Patients seek medical help complaining of severe, continuous or intermittent spells of stomach ache however it may be asymptomatic or patient could apply with indistinct abdominal pain [2, 13]. In our patient's story it is possible to see occasionally palpable mass in the front abdominal wall and positional abdominal pain. Small hernias may not present clinical findings, especially in obese patients because of subcutaneous adipose tissue or healthy external oblique aponeurosis [6]. The patient had sought medical attention due to severe and continuous abdominal pain suddenly developing approximately 8 hours ago. Physical examination identified tender palpable mass in the left quadrant hypochondrium of the abdomen. US is the best, easiest and most reliable diagnostic tool for diagnosing Spiegel hernias. It has a final diagnosis rate of 86%. In cases of reduced hernias or in the absence of mass lesions, US provides the semilunar line as an echogenic area in the region complying with the fascial defect [2]. Abdominal CT can be employed in cases where making a diagnosis proves difficult. CT is advantageous because it is capable of providing a good picture of the abdominal front wall muscles and fascia structures. US and CT are widely seen to possess similar sensitivity rates, however in some case studies CT was found to identify hernia defects in the Spiegel fascia in fine slices allowing sensitivity rates to reach almost 100% [6–8, 10, 14, 15]. The patient had undergone US, which returned significant findings suggesting incarcerated hernia however location-wise, it was CT that provided a clear diagnosis for Spiegel hernia. Traditionally Spiegel hernias have been treated with the open surgery method. Transverse or oblique incision over palpable mass or fascial defect can be used. It is possible to come across a subcutaneous hernia sac however more than often there is a need to dissect and cut the external oblique fascia to access hernias. Recently, laparoscopic surgery has become a viable alternative [2, 16]. Mesh repairing is a preferred method for acute hernias. [17]. Open surgery was preferred for this case. Exploration was performed with a left pararectal incision. Dissecting the external oblique muscle provided access to the hernia sac. Polypropylene mesh repair was performed following primary fascia repair. There was no sign of recurrence or complications during the follow-up period that continued 22 months after the surgery.

Conclusion

Incarcerated spigelian hernias are rare entities. Ultrasonography (US) and abdominal CT are important for anatomical localisation and surgical planning. Early recognition and timely surgery is vital.

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Authorship Contributions: EA proposed the study. EA, FB and ST performed research and wrote the first draft. EA, FB and EA collected and analyzed the data. All authors contributed to the design and interpretation of the study and to further drafts. OA is the guarantor.

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