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## CASE REPORT

# Traumatic spigelian hernia

Che-Min Wu<sup>a</sup>, Tsan-Hsing Liu<sup>a,\*</sup>, Hung-Jung Lin<sup>a</sup>, Gui-Tzi Wang<sup>b</sup><sup>a</sup> Department of Emergency Medicine, Chi-Mei Medical Center, Yung Kang City, Tainan County, Taiwan<sup>b</sup> Department of General Surgery, Chi-Mei Medical Center, Yung Kang City, Tainan County, Taiwan

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## Introduction

Spigelian hernia (SH), or ventro-lateral hernia is typically a rare clinical condition, it representing only about 1.5% of hernial formation cases of the abdominal wall.<sup>12</sup> The condition requires a high index of suspicion due to its high potential for life-threatening complications.<sup>7</sup> To the best of our knowledge, the first case of Spigelian hernia was reported in 1933, and subsequent reports would appear to have been only sporadic,<sup>3,5,6,9</sup> examples of Spigelian hernia due to blunt abdominal trauma appearing to have been rarely reported in the English medical literature. Only one pediatric case would appear to have been reported as best we can determine, this being presented by Luchtman et al. in 1997. Such rarity of presentation for a particular condition poses diagnostic and treatment challenges to emergency physicians and trauma surgeons.

## Case report

A 63-year-old female presented to our emergency department (ED) with persistent abdominal pain

following a motorcycle accident, this individual falling down to the ground as a consequence of a motor car colliding with her motorcycle on her left side. This patient was unable to recall as to whether the handle of her motorcycle had hit her on her abdomen or not, although a sudden sharp abdominal pain did develop soon after her accident. Upon presentation, this patient's blood pressure was 119/60 mm Hg and her pulse rate was 66 beats/min. This patient revealed a past history of laparo-hysterectomy around 20 years previously. A physical examination revealed a progressively enlarging tender mass (sized 8 cm × 8 cm) developing over the patient's lower left quadrant and featuring a 5-cm distance to the old laparo-hysterectomy midline scar (Fig. 1). Upon arrival, a focused assessment sonography in trauma (FAST) revealed no intraperitoneal fluid accumulation. A complete blood count (CBC) with differential count (DC) revealed mild leucocytosis (white blood cell—11,100/u, neutrophils—61%, hemoglobin—10.5 g/dL, hematocrit—31%, and a platelet count of 448,000/u). Serum urea nitrogen and creatinine were 12.3 and 0.71 mg/dl, respectively. Serum lipase level was 96.1 (normal value, 13–60 IU/L). The abdominal CT revealed herniation of a small bowel segment into the subcutaneous layer of the left lower abdominal quadrant. The characteristic CT findings confirmed the diagnosis of SH (Fig. 2). Under the impression of traumatic Spigelian hernia, the patient underwent laparotomy to reduce the extent of her herniated bowel segment.

\* Corresponding to: Tsan-Hsing Liu, Department of Emergency Medicine, Chi-Mei Medical Center, No. 901, Chung Hwa Road, Yung Kang, Tainan 710, Taiwan. Tel.: +886 6 2812811x57196; fax: +886 2812811x57178.

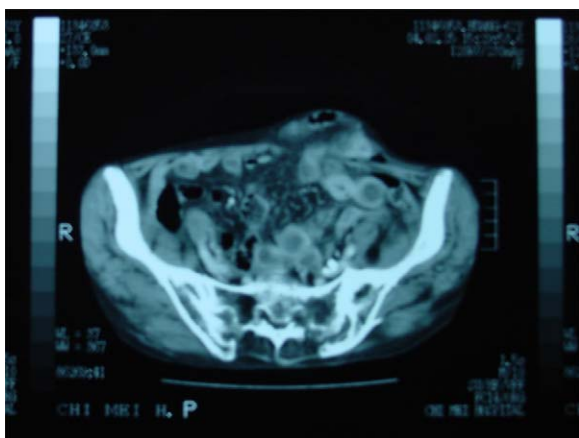


**Figure 1** A enlarging tender mass (8 cm × 8 cm) over the lower left quadrant with a 5-cm distance to the incision scar.

A segment of ileum that had herniated between the left abdominis rectus and the lateral muscles was reduced. Ischemic changes of the ileum was noted with perforation. The ischemic bowel segment was resected and an end-to-end anastomosis was completed.

## Discussion

To the best of our knowledge, the first case of Spigelian hernia was reported in 1933,<sup>2</sup> subsequent reports appearing to have been only sporadic.<sup>3,5,6,9</sup> Spigelian hernia due to blunt abdominal trauma would also appear to have rarely been reported in the English medical literature, we conducting a thorough literature review (Medline search using the key words SH and trauma) and finding only one pediatric case to have been reported previously, namely that



**Figure 2** Abdominal CT shows herniation of a small bowel segment between the left abdominis rectus and lateral muscles into the subcutaneous tissue.

reported by Luchtman et al. in 1997, for whose patient, Spigelian hernia developed following a bicycle accident.<sup>2</sup> We sincerely believe this to be the first case of adult traumatic Spigelian hernia to be reported in the English-language medical literature.

Spigelian hernia or ventro-lateral hernia is a rare clinical condition, it comprising about 1.5% of hernial formation cases of the abdominal wall.<sup>12</sup> Spigelian hernia would appear to be more common amongst women (71.4%) and on the left side (64.3%). Fifty percent of the thus affected patients were reported to have been in the fifth and sixth decades of life.<sup>8</sup> Our patient, although featuring a trauma etiology, does bear the same sort of demographic characteristics as patients featuring non-trauma etiologies as reported in the literature.

This hernia type most commonly presents at the level of the semicircular line (arcuate line of Douglas). Below this line the Spigelian aponeurosis is a single layer and is somewhat resistant to herniation, however, at the level of the semicircular line, the overlying fascia of the oblique and transversus muscles begins to split to allow for the formation of two separate fascial layers. It is at this juncture that the layers of the aponeurosis are at their weakest.<sup>4</sup> Typically for this injury, the overlying external oblique muscle and fascia remain grossly intact, contributing to the difficulty in diagnosis of this partial abdominal-wall hernia.

Blunt abdominal-wall disruption may occur associated with or without intra-abdominal injuries, and for cases of adult traumatic hernias, they are commonly related to direct trauma or seat-belt injuries.<sup>10</sup> For our case, the patient presented to the ED with a sudden protrusion mass over her left lower abdomen following a motorcycle accident. At the time, we presumed that an acute rise of intra-abdominal pressure as a consequence of this patient's motorcycle crash pushed the bowel segment in such a direction as to herniate through the weakest point of the abdominal musculature.

The correct diagnosis of Spigelian hernia typically presents great difficulties for physicians. From a review of the literature, Spigelian hernias have been reportedly confused with abdominal abscesses, seromas, hematomas, ovarian masses, pseudocysts, and malignant omental or peritoneal implants.<sup>11</sup> The severity of the pain associated with this condition would appear to vary and there would not appear to be any really typical character of pain for Spigelian hernia, although pain per se would appear to be the most-common symptom. In 1989, Spangen advocated that Spigelian hernia could be ruled out as a diagnosis for patients who did not feature any palpable tenderness.<sup>1</sup> Severe pain and the development of an enlarging mass with overlying subcutaneous hemorrhage,

as was the case for our patient, should lead the emergency physician(s) to consider the diagnosis of abdominal-wall hernia.

Although the diagnosis of SH can sometimes be made on the basis of history and physical examinations, it is advisable to perform some sonography or computed tomography for cases of diagnostic doubt, and if appropriate, laparoscopic surgery may also need to be considered. Sonography and tomography can provide appropriate data pointing to the exact location of the defect, its size, environment and sac contents, all of which is important information for selecting the appropriate surgical approach for remedial surgery.<sup>10</sup> These types of imaging modalities can be applied to both promptly and reliably diagnose Spigelian hernia based upon the following findings: (1) the presence of a peritoneal and muscular defect along the Spigelian line in the lower abdomen; (2) the intraparietal location of the hernial sac; and (3) the presence of a hernial sac containing omentum and/or mesentery and loops of bowel.<sup>1</sup> For our patient, abdominal computed tomography confirmed the original clinical diagnosis and prompted subsequent surgical exploration.

These hernias are also associated with a higher risk of bowel incarceration and strangulation than is typically the case for other abdominal-wall hernias. Subsequent to an individual sustaining such an injury, immediate surgical exploration is recommended as there exists a high risk of bowel incarceration and necrosis arising with such an injury, such that a delay in treatment may result in severe peritonitis and an increase in the rate of mortality. Our patient underwent surgical exploration only four hours subsequent to her accident, although ischemic changes to her ileum associated with perforation had already resulted.

Diagnosis of Spigelian hernia poses a great challenge for physicians, especially as arising following blunt abdominal trauma. Prompt utilization of imaging modalities can help with the early diagnosis of the condition and immediate surgical exploration and anatomical restoration. Herein, we report our experiences with a case of traumatic Spigelian hernia for an adult.

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