

# Spigelian Hernia: A Case Review

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## Abstract

Spigelian hernia is a variety of interparietal hernia present at the level of the arcuate line. It is very rare, with only 1000 cases reported in literature. It is usually diagnosed with the help of CT scan or ultrasonography of abdomen apart from thorough clinical examination. Subcutaneous presentation of Spigelian hernia with intestinal obstruction in such a rare hernia is still rarer. We present a review of the rare entity Spigelian hernia along with case reports of Spigelian hernias diagnosed and treated at our institute. These have presented with various presentations in chronic and emergency settings and have been dealt with by different procedures like mesh plasty and herniorrhaphy.

## CASE 1

A 30-year-old female, a housewife, came with a history of pain in the lower abdomen for 3 months. She would pass hard stools off and on, but did not have any other complaints. On examination, she was obese. A firm lump of about 4 x 4 x 1.5cm was found on the right lower abdomen at the margin of the right semilunar line. The lump would increase on coughing and decrease in lying position. There was impulse on coughing. Abdominal muscle tone was good.

A diagnosis of right-sided Spigelian hernia was made clinically, which was confirmed by CT scan. She was subjected to Spigelian hernioplasty and a polypropylene mesh was inserted. Post-operative recovery was good and the patient has followed up for over a year without any local recurrence.

## Figure 1

Figure 1: CT scan showing the defect of a Spigelian hernia



## CASE 2

A 78-year-old male patient came with features of intestinal obstruction. He was unable to pass stools and flatus for 2 days with distension of the abdomen and bilious vomiting. He also had colicky pain in the abdomen. He noticed a lump in the left lower part of the abdomen of about 15 x 20cm. The lump did not decrease in lying position or increase on coughing or straining.

The abdomen was distended with a lump in the left iliac

fossa of about 15 x 20 x 5cm. The lump was firm, with no impulse on coughing. Bowel sounds were absent.

On digital per rectal examination, ballooning of the rectum was noted.

X-ray of the abdomen (standing) showed multiple air-fluid levels. These loops did not resolve on repeat X-ray after 48 hours of conservative management.

Ultrasonography of the abdomen revealed dilated small and large bowel loops loaded with fecal matter in the left iliac fossa region measuring 3.2 x 4.6 cm. The patient was taken up for exploratory laparotomy. On exploration, a defect was seen in the peritoneum through which large and small bowel was herniating. A separate incision was taken over this Spigelian hernia and hernia repair was carried out along with adhesiolysis. The defect was closed by herniorrhaphy.

**Figure 2**

Figure 2: Opened sac of Spigelian hernia in left arcuate line



**CASE 3**

A 65-year-old male came with complaints of a lump in the right lower abdomen. This would increase on standing and coughing and would decrease in lying position. He had earlier been operated for right-sided inguinal hernia ten years ago.

On examination, a lump of about 7 x 5 x 2cm was noted in the right lower abdomen at the edge of the right semilunar line. Impulse on coughing was visible. The abdominal muscle tone was poor.

The patient was subjected to right Spigelian hernioplasty and an inlay mesh was fixed in the pre-peritoneal space. The patient is following up, without any local recurrence.

**CASE 4**

A 45-years-old, male patient presented to the outpatient department with the complaint of a lump in the left lower abdomen for the past six months. This would increase on coughing and decrease on lying down. He did not have any episode of irreducibility or intestinal obstruction in the past.

On examination, a lump of about 15 x 29 x 5cm was noticed in the left lower abdomen at the level of the arcuate line. Impulse on coughing was present. The abdominal muscle tone was poor.

The patient was subjected to left-sided Spigelian hernioplasty and an inlay mesh of polypropylene was placed in the pre-peritoneal space. The post-operative course of the patient was uneventful and the patient is following up without any recurrence till date.

**DISCUSSION**

Spigelian hernia occurs through congenital or acquired defects in the Spigelian fascia. This is the area of the transversus abdominis aponeurosis, lateral to the edge of the rectus muscle but medial to the Spigelian line, which is the point of transition of the transversus abdominis muscle to its aponeurotic tendon [1,3]

Although named after Adriaan van der Spiegel, he only described the semilunar line (linea Spigeli) in 1645. The hernia was first described by Klinkosch in 1764 [4]. It was his description of the linea semilunaris, which defines the transition from muscle to aponeurosis in the transversus abdominus, and its relationship with the lateral border of the rectus muscle, which outlines the medial and lateral aspect of what we now call the “Spigelian fascia”. It is within this Spigelian fascia that this defect occurs.

This hernia 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 resistant to herniation. However, at the level of the semicircular line the fascias of the oblique and transversus muscles begin to split to allow the formation of two separate layers. It is at this juncture that the layers of the aponeuroses are at their weakest. The overlying external oblique muscle and fascia remain intact, contributing to the difficulty in diagnosis of this partial abdominal wall hernia.

Embryologically, Spigelian hernias may represent the clinical outcome of weak areas in the continuation of aponeuroses of layered abdominal muscles as they develop

separately in the mesenchyme of the somatopleura, originating from the invading and fusing myotomes.

Spigelian hernias are very uncommon and constitute only 0.12% of all abdominal wall hernias.[1]

The hernia appears to peak in the 4<sup>th</sup> to 7<sup>th</sup> decades. The male to female ratio is 1:1.18. [5] Spigelian hernias are very uncommon and constitute only 0.12% of all abdominal wall hernias. Spigelian hernia can be congenital or acquired. [6] Perforating vessels may weaken the area in the Spigelian fascia and a small lipoma or fat enters here which gradually leads to hernia formation. Spigelian hernia may be related to stretching in the abdominal wall caused by obesity, multiple pregnancies, previous surgery or scarring. Spigelian hernia has been described as a complication of chronic ambulatory peritoneal dialysis (CAPD). [7]

The hernia sac usually contains the greater omentum. However, involvement of other organs has been reported, including the small intestine, colon, stomach, gallbladder, Meckel's diverticulum, appendix, ovaries and testes. [1-3]

A hernia sac situated subcutaneously is observed in only 15 cases worldwide as most of them are located between the musculoaponeurotic layers of the anterior abdominal wall. These hernias mainly occur among adults between 40 and 70 years of age, and generally in obese females who have undergone multiple pregnancies.

The common presentations are abdominal mass (38%), pain with mass (28.9%), pain (26.3%) and intestinal obstruction (5%). The most common diseases that mimic Spigelian hernia include rectus sheath hematoma, abdominal wall abscess and seroma [5]. Only 50% of cases are diagnosed preoperatively. [8,9]

Spangen, in 1984, was the first to use ultrasonic scanning for the diagnosis of Spigelian hernia. This approach has gained wider acceptance recently. According to Spangen, rapid and accurate diagnosis can be made by carefully scanning the abdominal wall to demonstrate the discontinuity in the echo line from the aponeurosis caused by a hernial orifice in the Spigelian fascia, at the level of the palpable mass or point of tenderness. [1-3,10,11]

Hernias below the level of the arcuate line of Douglas pass through the conjoined tendon of transverse abdominis and internal oblique muscles and are called "low" Spigelian hernias. At the lowest level they may mimic direct inguinal hernias. Other hernias such as umbilical, epigastric or

inguinal may be associated with Spigelian hernia.

Nonetheless, most authors have found that many Spigelian hernias may remain undiagnosed until laparotomy is performed

Although uncommon, Spigelian hernias account for over 2% of cases undergoing emergency surgery for abdominal wall hernia. The treatment of this condition is always surgical, and typically has excellent results.

Intestinal obstruction occurring in these hernias is common as the defect is usually <2cm. Twenty per cent of these patients can present with strangulation. Therefore, the treatment of choice is operative which is done under general/regional/local anesthesia depending upon size of the hernial defect and condition of the patient.

Treatment is similar to any patient of an obstructed hernia; however, a larger sac needs to be excised meticulously and any concurrent sliding hernia needs to be ruled out to prevent the recurrence. An inlay mesh is usually put to cover large defects of 4 cm or more in diameter. The mesh should spread at least 2cm beyond the margins of the defect and be fixed adequately all around. A drain is kept over the mesh for a couple of days.

Now, laparoscopic hernia repair, with either trans-peritoneal or total extra-peritoneal approach is recommended when the patient is not having obstruction [12,13,14]. A mesh is fixed with either tackers or manual suturing. The prognosis is excellent. Routine peri-operative care is taken and the same advice is given to the patient as to any other hernia patient.

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