# SPIGELIAN HERNIA: REAL-TIME SONOGRAPHIC DIAGNOSIS

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## ABSTRACT

The diagnostic potential of real-time sonography in detecting a clinically unrecognized case of spigelian hernia is illustrated and discussed. Due to its rarity and nonspecific presentation, spigelian hernia is often misdiagnosed clinically. Real-time sonography can provide the correct diagnosis by demonstrating dynamic sliding of hernial content through the peritoneal and muscular defect along the spigelian line in lower anterior abdominal wall.

## INTRODUCTION

Spigelian hernia is an uncommon anterior abdominal wall hernia that developed at either side, along the linea semilunaris, usually inferior to umbilicus. Clinical diagnosis of spigelian hernia poses greater difficulties than treatment. The clinical presentation varies, depending on the side, contents, degree and type of herniation. The compliants range from vague intermittent abdominal pain with or without palpable mass to acute symptoms related to intestinal obstruction and strangulation or incarceration of hernial contents. Most hernias, if not large enough, are overlooked because they are masked by the intact external aponeurosis and subcutaneous fat especially in obese patients. Because of its nonspecific presentation and difficulty in clinical diagnosis, ultrasound study can be significantly helpful in preoperative diagnosis.

## CASE REPORT

A 44-year-old man complained of left lower quadrant pain for one day without associated nausea, vomiting, constipation or diarrhea. Physical examination showed mild focal tenderness with ill-defined, mass-liked sensation over left lower abdomen.

The provisional diagnosis was acute diverticulitis with possible abscess and ultrasound study was ordered as a screening examination. The sonoscan revealed a hyperechoic mass, 3.17x2.12x2.84 cm. in size, locating in anterior peritoneal cavity with partly herniated through a defect of aponeurosis to lie immediately beneath anterior abdominal wall muscle. [fig. 1] The mass appeared to be increased in size and herniated more anteriorly when the patient was told to strain. [fig. 2] This dynamic procedure was reproducible and clearly demonstrated by real-time sonography. Due to its typical location and dynamic nature, the mass was diagnosed as spigelian hernia. The patient underwent laparotomy and a hernia sac was discovered through the spigelian defect. The sac contained gangrenous appendices epiploicae, which was resected. Then the defect was repaired. Postoperatively, the patient did well with complete recovery from the presented symptoms.

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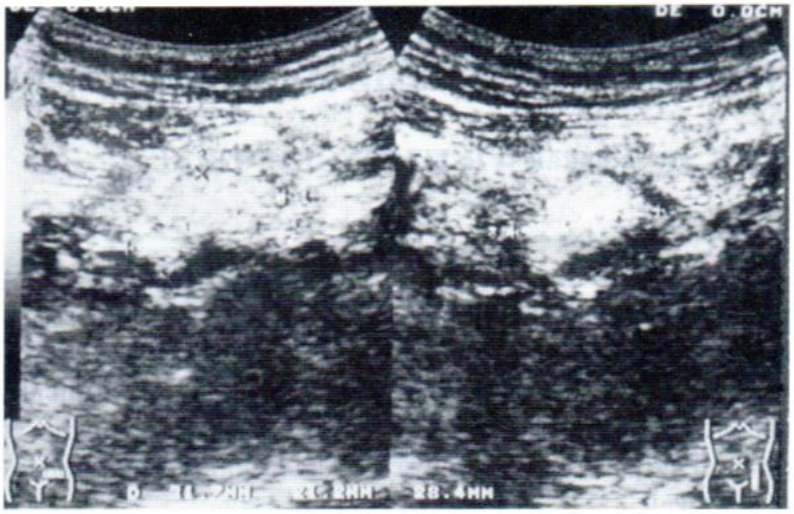


**Fig. 1** A hyperechoic mass in anterior peritoneal cavity partially herniated through spigelian defect on left side of anterior abdominal wall.

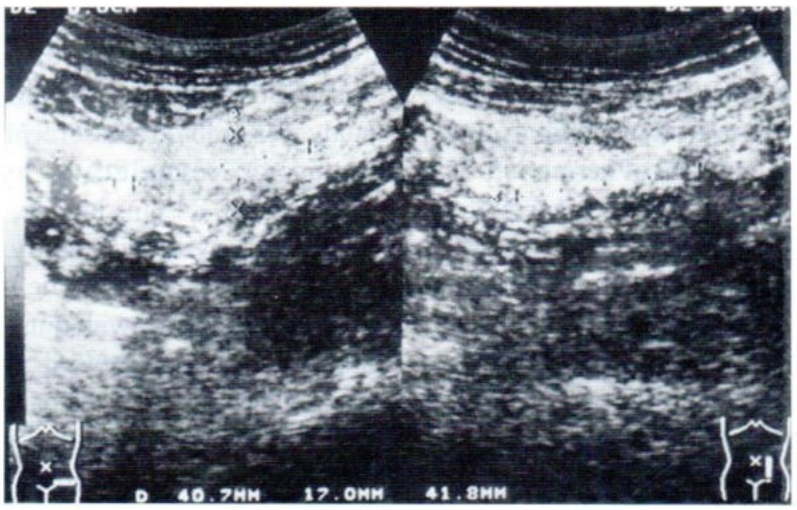


**Fig. 2** With abdominal strain, the mass herniated more anteriorly through the abdominal wall defect.

## DISCUSSION

Spigelian hernia is an uncommon, acquired anterior abdominal wall hernia that occurs through a defect in the spigelian aponeurosis. The spigelian aponeurosis is the part of aponeurosis that lies lateral to the rectus abdominis muscle and medial to linea semilunaris, which is the line forming and marking the transition from muscle to aponeurosis of the three abdominal muscles of anterior abdominal wall-namely external oblique, internal oblique and transversus abdominis.[1] In its upper three fourths, the fused aponeurosis of these three muscles splits medially to form the anterior and posterior rectus sheath. At the lower fourth, the aponeurosis passes medially to cover only the anterior surface of the rectus muscle. This anatomic transition is marked by linea semicircularis.[2] Most hernias occur at the widest part of the aponeurosis just below the level of umbilicus in the region of linea semicircularis.[3,4] On rare occasions, such hernias have been occurred caudal and medial to the inferior epigastric artery which are called low spigelian hernias.[1]

Spigelian hernias occur at any age but more commonly in the eldery.[1,3,5] The ratio of incidence is equal in both men and women.[1,2,3,5] They developed with almost equal frequency on either side and occasionally be bilateral[1,3,5] The clinical presentation varies, depending on the sides, contents, degree and type of herniation. The hernial sac contents are usually omentum and/or segment of small bowel or colon but other structures such as stomach, ovary, Meckel's diverticulum and even endometrial tissue have been reported.[1,3,5] Spigelian hernias represent less than 2% of anterior abdominal hernias[3,5] and because of common delays in the diagnosis, they are associated with a higher risk of bowel strangulation than other abdominal wall hernias.[2,3,5] Due to their rarity, nonspecific presentations and difficulty in clinical diagnosis, many physicians are unaware of these hernias. As a result, radiologic studies play an important role in giving the correct diagnosis. Spigelian hernias rarely show any abnormalities on scout abdominal films except that they cause small or large bowel obstruction. Since most of the spigelian hernias donot contain intestinal loops, the plain abdominal film findings are usually absent or nonspecific. They can be more specifically diagnosed with small bowel contrast study or barium enema if they do contain the intestinal segment in the hernial sacs.[3,5] With newer imaging modalities as real-time ultrasound, computerized tomography and magnetic resonance imaging, spigelian hernias are easier to be diagnosed. The added advantage of these high resolution studies is evident in as much as omental fat herniation can be diagnosed even when there is no intestinal herniation. Ultrasound is a good screening examination because of its availability, cheaper cost and lack of radiation hazard. Moreover; it provides good imaging resolution, multiplanar views and real-time display on specific maneuvers. Spigelian hernia can be diagnosed by demonstration of a hernial orifice in the spigelian aponeurosis, on an intramurally located hernial sac and on sac content in the form of intestine or omentum. The hernial orifice is visualized as a defect in the echo line from the aponeurosis. Since the hernia is sliding in nature, it can be diagnosed more confidently by using several provocative maneuvers that increase intraabdominal pressure such as the Valsalva maneuver, abdominal strain, upright position, coughing, etc.[2] The great benefit of ultrasound study is its ability to demonstrate this motion graphically in real time. This capability is not possible with the static scans of other imaging modalities. As shown in this reported case, the hernia was augmented by abdominal strain which help in making the diagnosis more specifically. Some anterior abdominal wall pathologies and intraabdominal processes that are superficial in peritoneal cavity

may produce similar sonographic appearance. Among them are abdominal wall lipoma, abscess, rectus sheath hematoma or seroma, and peritoneal or omental tumor implants.[4,5,6] The hernial sac can be confused with lipoma of the abdominal wall when the external oblique aponeurosis is also defective.[7] When the hernia is incarcerated, the provocative maneuvers may fail to demonstrate sliding of hernial contents. Nevertheless; with careful attention to the abdominal wall defect at specific location, the diagnosis of spigelian hernia can be made in most cases. Further studies can be done in problematic cases which should be judged on case-by-case basis.

In conclusion, real-time sonography has shown to be very helpful and effective in the diagnosis of spigelian hernia which is difficult to diagnose clinically.

## REFERENCES

1. Spagen L: Spigelian Hernia. World J Surg 1989;13:573-580
2. Mufid MM, Abu-Yousef MM, Kakish ME, Urdaneta LF, Al-Jurf AS: Spigelian Hernia: Diagnosis by High-Resolution Real-time Sonography. J Ultrasound Med 1997;16:183-187.
3. Balthazar EJ, Subramanyam BR: Radiographic Diagnosis of Spigelian Hernia. Am J Gastroenterol 1983;78:525-528.
4. Fried AM, Meeker WR: Incarcerated Spigelian Hernia. Ultrasonic Differential Diagnosis. AJR 1979;133:107-110.
5. Balthazar EJ, Subramanyam BR, Megibow A: Spigelian Hernia: CT and Ultrasonography Diagnosis. Gastrointest Radiol 1984;9:81-84.
6. Sutphen JH, Hitchcock DA, King DC: Ultrasonic Demonstration of Spigelian Hernia. AJR 1980;134:174-175.
7. Lee HM, Cohen AJ:CT Imaging of Abdominal Hernias. AJR 1993;161:1209-1213.