

Open preperitoneal repair in a patient of large spigelian hernia

Bhavinder Kumar Arora

ABSTRACT

Introduction: The spigelian hernia is very uncommonly diagnosed variety of anterior abdominal wall hernia. The radiological imaging with ultrasound and computed tomography (CT) scan is diagnostic. **Case Report:** A 50-year-old female presented with a painless, self-reducible mass in the right lower abdomen. The size of mass was 14 × 11 cm. The clinical diagnosis of a large spigelian hernia was confirmed by ultrasound and CT scan. The patient was operated under general anesthesia and open preperitoneal mesh repair was done. **Conclusion:** For repair of large size spigelian hernia, reinforcement with polypropylene mesh is recommended because of high recurrence rate of tissue repair. Open preperitoneal repair is a preferred technique over laparoscopic total extraperitoneal repair.

Keywords: Linea semilunaris, Preperitoneal mesh repair, Spigelian aponeurosis, Spigelian hernia

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INTRODUCTION

The spigelian hernia is one rare variety of ventral hernias. The incidence of spigelian hernia is 0.1–2% of all abdominal hernias [1]. The first description of spigelian hernia was given in 1764 by Josef Klinkosch named after Adrian van der Spieghel who described semilunar line [2]. The spigelian hernia occurs through the defect in spigelian aponeurosis or aponeurosis of transverse abdominis muscle which is bounded medially by lateral edge of rectus abdominis muscle and laterally by linea semilunaris. Most of these hernias occur in spigelian hernia belt. The most common etiological factor is the obesity causing a weak transverse abdominis aponeurosis. Strenuous exercise is the initiating factor in these patients. Occasionally it can be congenital in pediatric age group. This hernia can occur due to iatrogenic trauma of laparoscopic trocars and abdominal drains. The predominant symptoms of spigelian hernia are palpable mass and pain. Both these symptoms are postural and are aggravated on standing. The obstruction and strangulation are common complications of spigelian hernia because of small size of neck of hernia. The giant size spigelian hernia has been reported only occasionally [3]. The spigelian hernia repair can be done by conventional open surgery. Most of small sac hernias can be repaired by inversion of sac alone. A small defect in fascia can be repaired by sutures alone. The reinforcement of spigelian fascia is done by placing a mesh in preperitoneal space or onlay mesh on the fascia. Laparoscopic repair of spigelian fascia is now becoming a popular procedure. Simple suturing of defect has been replaced with total extraperitoneal (TEP) and transabdominal preperitoneal (TAPP) approaches with excellent results [4]. For large spigelian hernia, open repair remains a preferable procedure as compared to laparoscopic repair. We report a case of large size spigelian hernia on right side in which preperitoneal mesh repair was done successfully.

CASE REPORT

A 50-year-old woman presented with a mass on right side of lower abdomen for last one year. This swelling became prominent on standing. There was no history of recurrent abdominal pain. Also, there was no history of abdominal distension. On examination, a swelling was visible just below and right to umbilicus. The abdomen was protuberant due to obesity. Palpation revealed swelling size of 14 × 11 cm size with cough impulse positive. The swelling was self-reducible on lying. It was soft in consistency and surface appeared to be smooth. A clinical diagnosis of spigelian hernia was kept (Figure 1).

The ultrasound of the abdomen confirmed the diagnosis of spigelian hernia present lateral to right rectus abdominis muscle. The CT scan was done using oral contrast. It revealed presence of a sliding hernia between thinned out external oblique aponeurosis and internal oblique muscle. The peritoneal sac contained small intestine (Figures 2 and 3).

The patient was investigated by hematological tests which were found normal. The preanesthetic checkup was done and labelled as ASA grade III. The patient was operated under general anesthesia. About 15 cm long transverse incision was given in the right lower quadrant of abdomen directly over the hernia. Skin and thick subcutaneous tissue were incised. The same incision line was used to incise the external oblique. This led to protrusion of hernial sac. The neck of hernia was incised on right lateral margin and sac was separated all around. The preperitoneal space was separated. A 15 × 15 cm polypropylene mesh was placed in this preperitoneal space. A few anchoring sutures were applied all around using 2-0 polypropylene suture (Figure 4). The external oblique muscle and aponeurosis were stitched using polypropylene suture. A negative suction drain was inserted and skin was closed using staples. The immediate postoperative recovery was good. The skin staples were removed on 10th postoperative day. No recurrence was noted in the six months follow-up.

DISCUSSION

The spigelian hernia is rare clinical diagnosis as this hernia is present in intermuscular plane, presents with vague clinical symptoms and protuberant abdomen due to obesity [5]. These patients usually present as painful lower abdominal mass [6]. The natural history of development of spigelian hernia is that it begins as extraperitoneal fat protrusion and with passage of time it develops a peritoneal sac. Three clinical stages have been described; stage 1 hernia occurs in young patients and is without peritoneal sac, stages 2 and 3 occur in older patients and have peritoneal sac. Stage 3 large spigelian hernia is too large for laparoscopic repair [7]. The diagnosis of spigelian hernia is difficult clinically but preoperative imaging with ultrasound and CT scan helps

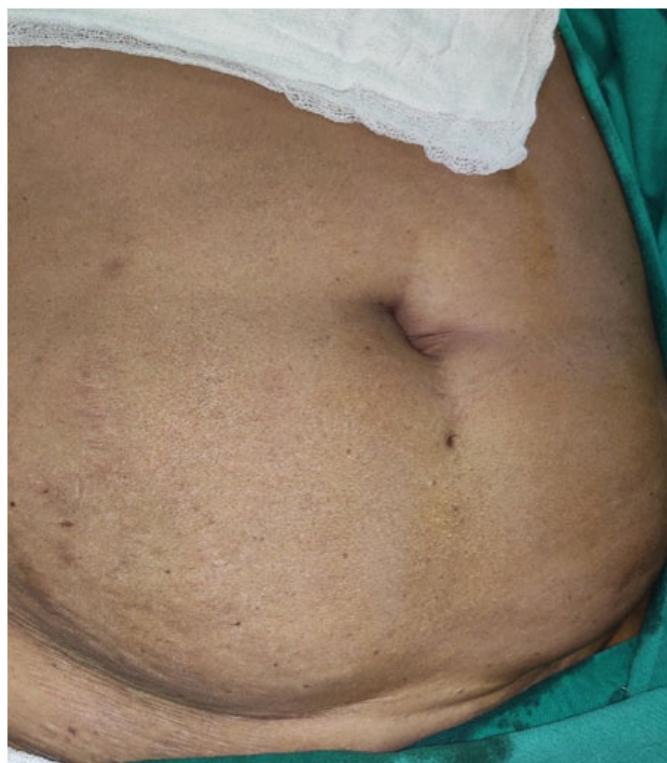


Figure 1: Right spigelian hernia.

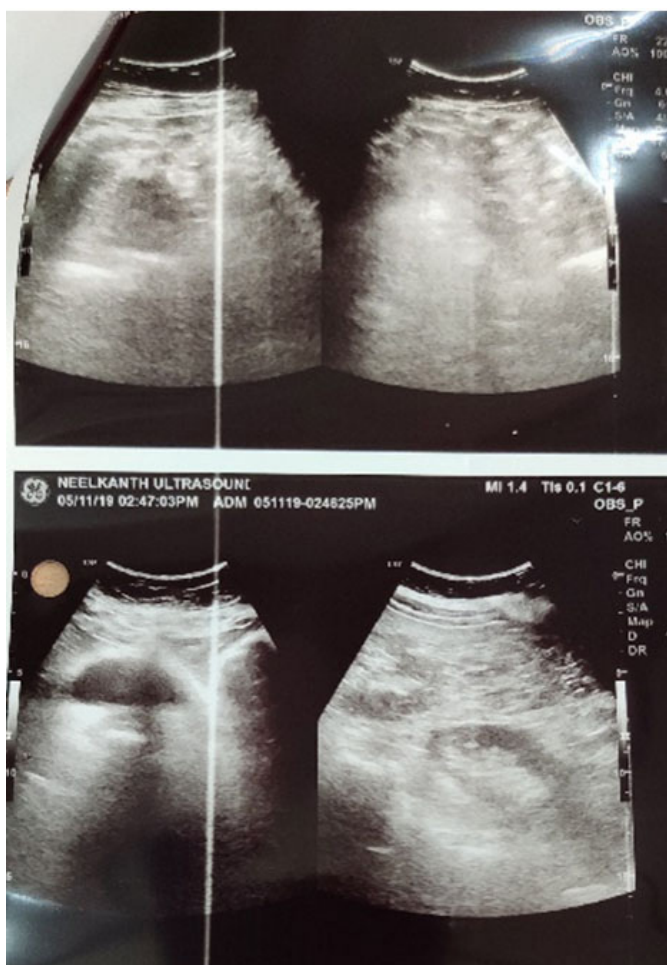


Figure 2: Ultrasound of spigelian hernia.

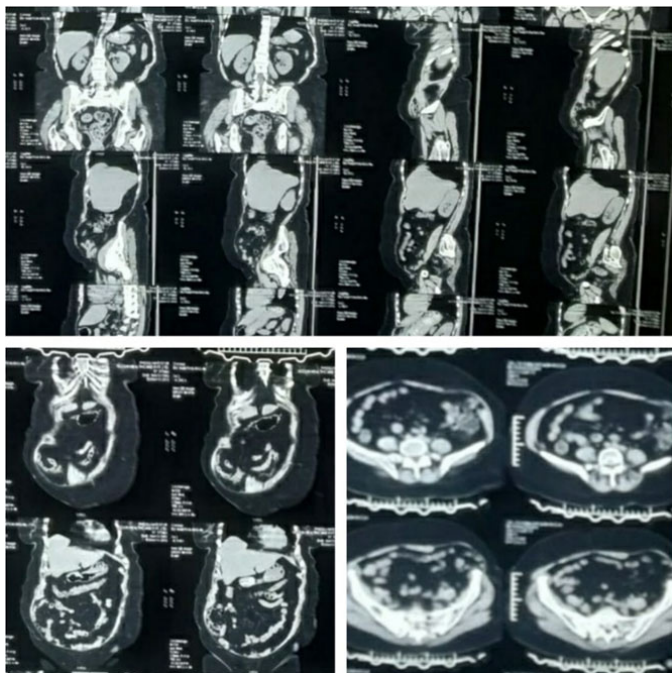


Figure 3: CT scan of spigelian hernia.

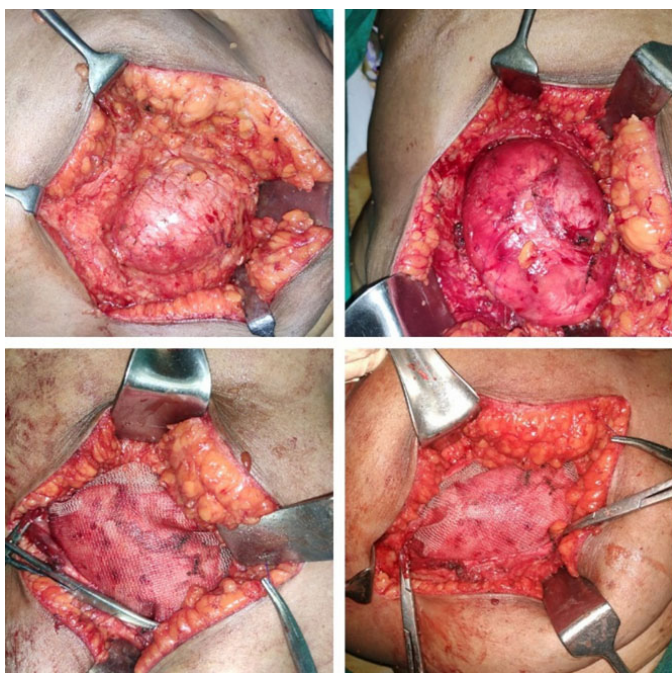


Figure 4: Operative photographs of spigelian hernia.

in making a confirmatory diagnosis [8]. Ultrasonography (USG) and CT scan are highly sensitive for diagnosis of occult spigelian hernia. When there is possibility of spigelian hernia clinically, these patients should be worked up with these two imaging studies to establish the diagnosis [9]. The USG shows a defect in spigelian fascia with hernial sac and contents passing through this defect and sac lying in the interstitial plane. The USG in these patients should be done in standing position and Valsalva being performed to raise the intra-abdominal

pressure. Computed tomography scan depicts a defect at level of linea semilunaris just below umbilical level. Most commonly the hernial sac dissects laterally passing between transverse abdominis and internal oblique aponeurosis and remains deep to external oblique aponeurosis. To delineate the intestine oral contrast must be used and sections should be taken at small margins [10].

The spigelian hernia always needs surgical operation due to high risk of strangulation. The operative treatment is an easy and effective way to treat the spigelian hernia [11]. The treatment of spigelian hernia is required either by open surgery or laparoscopic surgery. Due to rare hernia and lack of experience, it is impossible to say which technique is better [12]. The surgical treatment of spigelian hernia is fascial defect repair or reinforcement. The direct closure has high recurrence rate. The reinforcement with synthetic mesh gives adequate repair [13]. The spigelian hernia can be repaired by primary spigelian fascia repair with reinforcement by onlay mesh and also by laparoscopic TEP repair with good results. No recurrence has been noted in both methods of repair in this series. Open surgical repair needs only normal surgical skill [14]. The successful management of spigelian hernia is reinforcement by placement of mesh or darning [15]. The surgical treatment of hernia has excellent results with appropriate choice of surgical technique. The open surgical technique is most commonly used technique with excellent results as compared to laparoscopic repair which is available only at few centers because this disease is rarely encountered [16]. Laparoscopic repair ensures less morbidity and shorter hospital stay.

Spigelian hernia has been treated as ambulatory surgery procedure using open preperitoneal flat mesh technique under local anesthesia. This preperitoneal mesh technique was found suitable as ambulatory surgery procedure because of simple and convenient procedure with no complications and recurrences [17]. Preperitoneal mesh repair is the procedure of choice. Mouton et al. operated 35 patients of spigelian hernia by open surgical technique. The repair was reinforced by mesh placed in preperitoneal space. This repair produced good results as no recurrence was observed. This study concluded that preperitoneal mesh repair gives very low recurrence rate as compared to tissue repair in spigelian hernia [18]. This retrospective study was conducted at Mayo Clinic on patients with spigelian hernia. These patients were analyzed for clinical presentation, diagnostic work-up, surgery, and final outcome. Only a small number of patients were asymptomatic, rest of patients presented with intermittent mass, painful mass, and intestinal obstruction. Imaging could make preoperative diagnosis in most of patients. The patients were treated by primary suture and mesh. Long follow-up revealed recurrence only in a very small number of patients [19].

CONCLUSION

The clinical diagnosis of spigelian hernia in this case was made despite the presence of protuberant abdomen due to obesity. This clinical diagnosis was confirmed by USG and CT scan. This hernia was wide necked and self-reducible. The tissue repair has high recurrence rate. So, the reinforcement with mesh is required. Large size spigelian hernias are better treated with open preperitoneal repair than with total extraperitoneal laparoscopic repair because of rare diagnosis of spigelian hernia.

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Author Contributions

Bhavinder Kumar Arora – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

Guarantor of Submission

The corresponding author is the guarantor of submission.

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Consent Statement

Written informed consent was obtained from the patient for publication of this article.

Conflict of Interest

Author declares no conflict of interest.

Data Availability

All relevant data are within the paper and its Supporting Information files.

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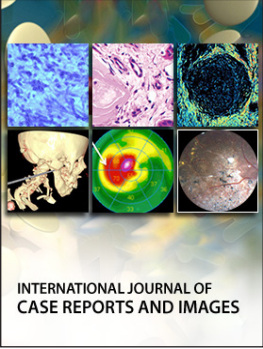
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