CASE REPORT – OPEN ACCESS

International Journal of Surgery Case Reports 49 (2018) 58–63

Contents lists available at ScienceDirect

International Journal of Surgery Case Reports

journal homepage: www.casereports.com

Laparoscopic herniorrhaphy of bilateral inguinal herniae and an incidental Spigelian hernia with intra corporeal suturing of the Spigelian hernia neck: A case report

Laura Halyk[a], Yagan Pillay[b,*]

[a] Univeristy of Saskatchewan College of Medicine, Saskatchewan Health Authority, 107 Wiggins Road, Saskatoon, SK S7N 5E5, Canada
[b] Department of General Surgery,Victoria Hospital, Saskatchewan Health Authority, 1521 6th Avenue West Prince Albert, SK S6V5K1, Canada

ARTICLE INFO

Article history:
Received 18 May 2018
Received in revised form 16 June 2018
Accepted 22 June 2018
Available online 28 June 2018

Keywords:
Bilateral inguinal hernia
Laparoscopic repair
Spigelian hernia

ABSTRACT

INTRODUCTION: A Spigelian hernia is a rare type of abdominal wall hernia occurring in an area of congenital or acquired defect. These hernias occur in an area called the Spigelian zone and are interparietal making for a difficult diagnosis on clinical exam.
PRESENTATION OF CASE: A 74-year-old female presenting with bilateral inguinal herniae and a left sided Spigelian hernia. The repair was done laparoscopically with an intra-corporeal suture closing the Spigelian hernia neck. Her recovery was uneventful.
DISCUSSION: The aetiology of Spigelian herniae remains nebulous. Due to their rarity and evasive nature on clinical exam, ultrasound imaging has become the first line in diagnosis. Open herniorrhaphy is still the most common technique, but laparoscopic repair is becoming more commonplace in the surgical armamentarium.
CONCLUSION: Spigelian herniae are rare with non specific symptoms. We present the first case report of a laparoscopic repair of bilateral inguinal herniae and a left sided Spigelian hernia with intra-corporeal suturing of the Spigelian hernia neck.

1. Introduction

Spigelian hernias are a rare type of abdominal wall hernia. Their incidence ranges from 0.1 to 2.0% of all abdominal wall hernias and a common synonym is the hernia of the semilunar line. A Spigelian hernia occurs when there is protrusion of preperitoneal fat, peritoneal sac, or intra abdominal organs through the Spigelian zone in an area of congenital or acquired defect [1]. The hernia sac is often interparietal passing through the aponeuroses of the transversus abdominis and internal oblique and located under the intact external oblique aponeurosis [2]. The Spigelian zone, bound medially by the lateral margin of the rectus muscle and laterally by the linea semilunaris is formed by the fusion of the transversus abdominus and internal oblique aponeurosis. Most Spigelian herniae occur in the Spigelian hernia belt, a six centimeter wide region superior to the interspinous line and inferior to umbilicus. The Spigelian aponeurosis extends from the costal cartilage of the eighth rib to the pubic tubercle [1]. The presence of concomitant Spigelian and inguinal herniae is an extremely rare clinical occurrence and to our knowledge has rarely been reported in the English literature based on a Pubmed and Medline search. We present a case report of bilateral inguinal herniae and an incidentally found left sided Spigelian hernia in a 74-year-old female. All three were laparoscopically repaired and the Spigelian hernia neck was laparoscopically closed with a non absorbable suture prior to mesh insertion. This publication has been reported in line with the SCARE criteria [8].

2. Case report

A 74-year-old female patient was referred for her symptomatic bilateral inguinal hernias. There was no history of trauma in the groin and both hernias were easily reducible. Clinically, the hernias were of similar size with no other abdominal wall hernias appreciated. The remainder of her abdominal examination was unremarkable.

Radiologically, her computerised tomography (CT) scan confirmed the diagnosis and showed a third defect in the abdominal wall on the left side. An incidental left Spigelian hernia was diagnosed (Figs. 1, 2). The patient had not complained of any symptoms over this area. After an extensive discussion, she consented to a laparoscopic repair of her bilateral inguinal herniae and her

* Corresponding author.
E-mail addresses: laura.halyk@usask.ca (L. Halyk), yagan2pillay@yahoo.ca (Y. Pillay).

https://doi.org/10.1016/j.ijscr.2018.06.026

Fig. 1. CT scan coronal view showing bilateral inguinal herniae (green arrows) and a left sided spigelian hernia (orange arrow).

Spigelian hernia. Laparoscopic examination revealed two inguinal herniae as well as a left Spigelian hernia about five centimeters superior to the left direct inguinal hernia and lateral to the rectus muscle (Figs. 3, 4). On the left side of the anterior abdominal wall, superior and inferior peritoneal flaps were raised; the superior flap was dissected cepahalad until the Spigelian hernia was exposed (Fig. 5) and the hernial contents reduced. The Spigelian hernia neck was then closed by intra-corporeal suturing with a V-loc© suture (Fig. 6). The inferior flap was then dissected until visualization of Cooper's ligament medially and the inguinal ligament laterally was obtained. Once the inguinal hernia sac was reduced into the peritoneal cavity, a Prolene© mesh (9 x 5 cm) was placed to cover both the inguinal and Spigelian herniae. The mesh was stapled medially to Cooper's ligament and superiorly to the anterior abdominal wall (Fig. 7) using Absorbatack© absorbable tacks. Closure of the peritoneal flaps using AbsorbaTack© absorbable tacks (Fig. 8) resulted in reperitonealisation of the left sided anterior abdominal wall.

The right sided inguinal hernia was repaired in a similar fashion. Her surgery was uneventful and post-operatively she made a complete recovery.

3. Discussion

The Spigelian hernia has a well-defined anatomic location between the semilunar line and the edge of the rectus abdominus muscle. More than 90% occur in the Spigelian hernia belt. This belt is a six centimeter wide area transversely located superior to the interspinal plane and inferior to umbilicus [3,4]. Their aetiology remains nebulous due to the rarity of the condition. One theory is that of perforator vessels that weakens the Spigelian fascia allowing a small lipoma to enter and gradually lead to hernia formation [2].

Its rarity and lack of characteristic clinical symptoms makes for a challenging diagnosis [2]. An intermittently palpable mass that worsens with straining and decreases when lying supine, and pain are the most common presentations. Spigelian herniae originate inferior to the intact external oblique aponeurosis making its signs and symptoms very nonspecific. Asymptomatic cases are not uncommon. In a retrospective audit by the Mayo clinic looking at 81 Spigelian herniae in 76 patients, only 64% of patients were diagnosed by physical examination [5].

It may be difficult to detect a small hernia without imaging. Ultrasound (US) is recommended as first line imaging for a Spigelian hernia. Advantages of an US includes the ability to do real time imaging and perform an examination with the patient in both the supine and upright position, or while the patient performs Valsalva maneuvers. CT scan is considered the most reliable technique for diagnosis in uncertain cases. Magnetic reasonance imaging (MRI) may be of benefit preoperatively with increasing availability in difficult to evaluate cases [2].

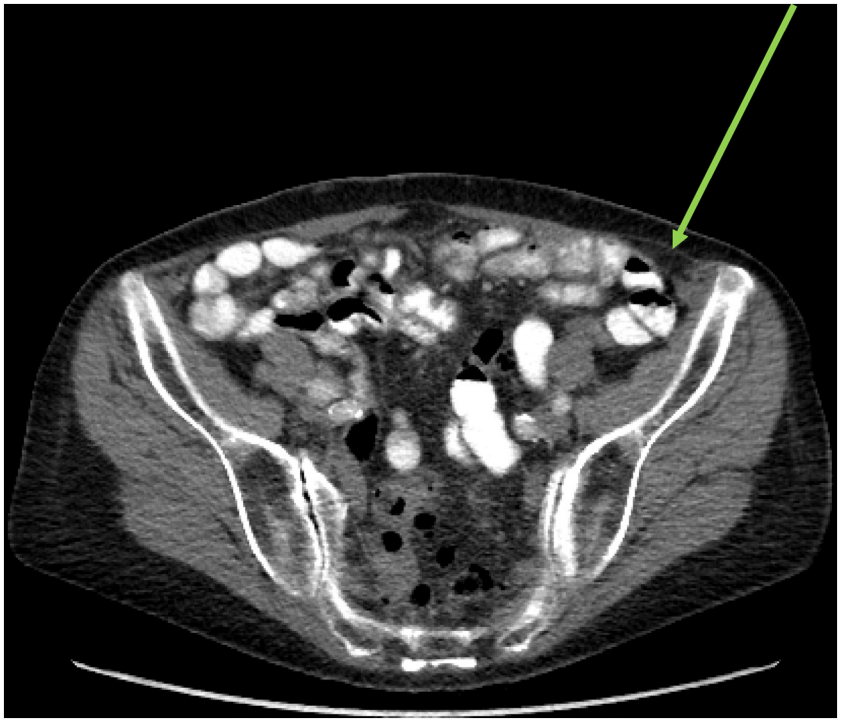

Fig. 2. CT scan axial view showing the spigelian hernia (green arrow).

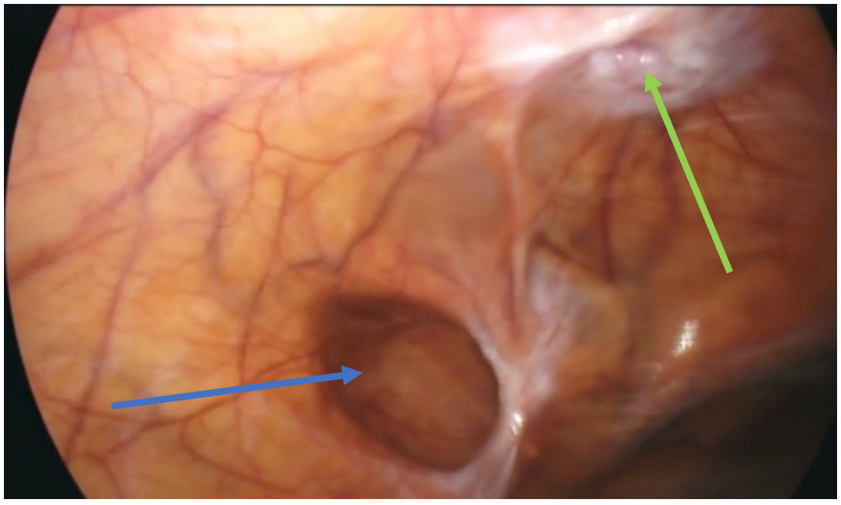

Fig. 3. Left Inguinal hernia (blue arrow) and left spigelian hernia (green arrow).

Although open herniorrhaphy with polypropylene mesh still is the most frequent surgical technique, laparoscopic techniques have been increasing in recent years [1]. Originally sutures were used to close the defect in the Spigelian fascia, but recently mesh is being placed intra- or extraperitoneally through the creation of a peritoneal flap [2]. The first laparoscopic Spigelian herniorrhaphy was performed by Carter and Mizes in 1992 [6]. A significant advantage of our repair was the laparoscopic intra coporeal closure of the Spigelian hernia neck with non absorbable suture. We extrapolated this data from the component separation technique where closure of the hernia neck and restitution of the abdominal wall anatomy resulted in superior outcomes and lower recurrence rates [7]. We believe this is the first case report in which the Spigelian hernia neck has been closed with laparoscopic suturing and then an underlay mesh

placement as a TAPP approach. There have been studies showing a TEPP approach for concomitant repair of a Spigelian and Inguinal hernia as well [9].

4. Conclusion

Spigelian hernias are rare defects in the abdominal wall requiring a high index of suspicion for diagnosis. Clinically the most common symptoms are a palpable mass or pain confined to a very specific region of the abdomen. Preoperative workup should include imaging with either US or CT of the abdomen to deter-

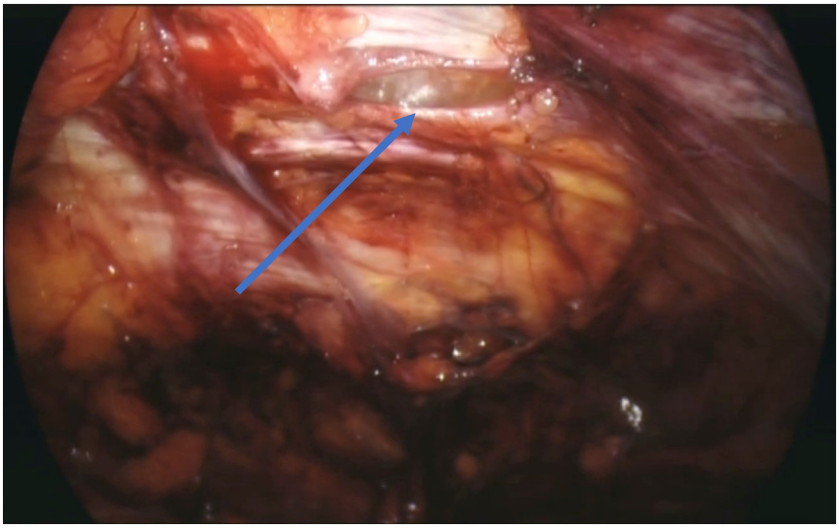

Fig. 4. Preperitoneal exposure of the spigelian hernia neck (blue arrow).

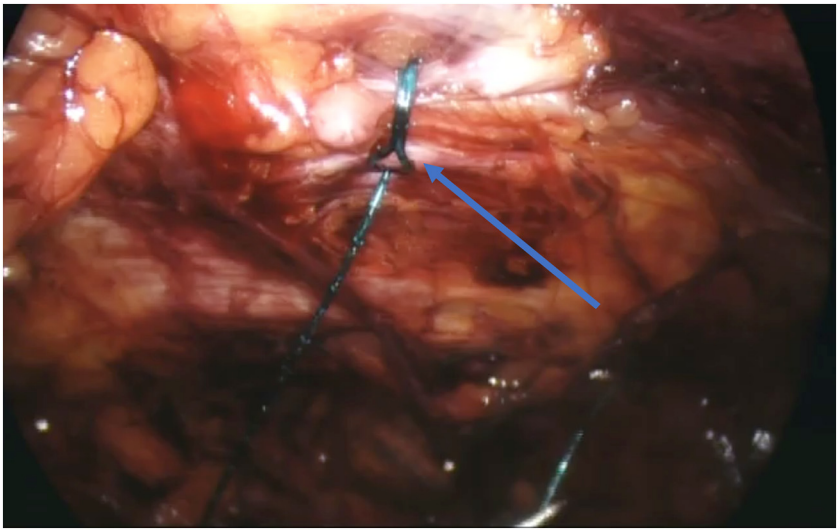

Fig. 5. Intra-corporeal suturing of the spigelian hernia neck with V-Loc suture (blue arrow).

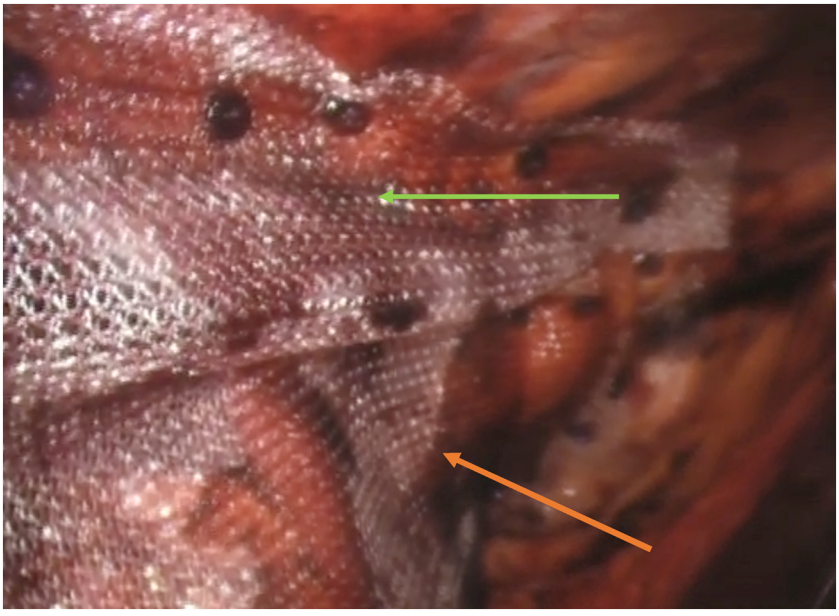

Fig. 6. Pre-peritoneal mesh (TAPP approach) covering the inguinal (orange arrow) and spigelian (green arrow) herniae.

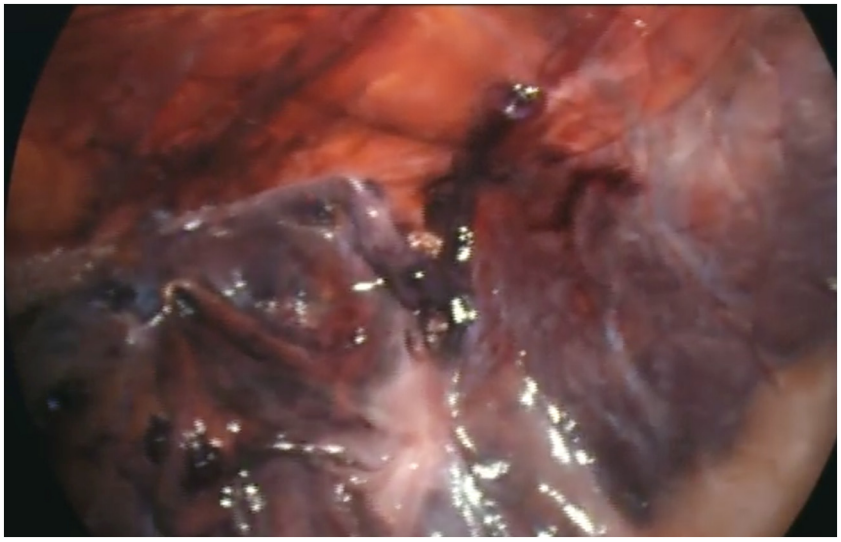

Fig. 7. Reperitonealisation of the Left inguinal area.

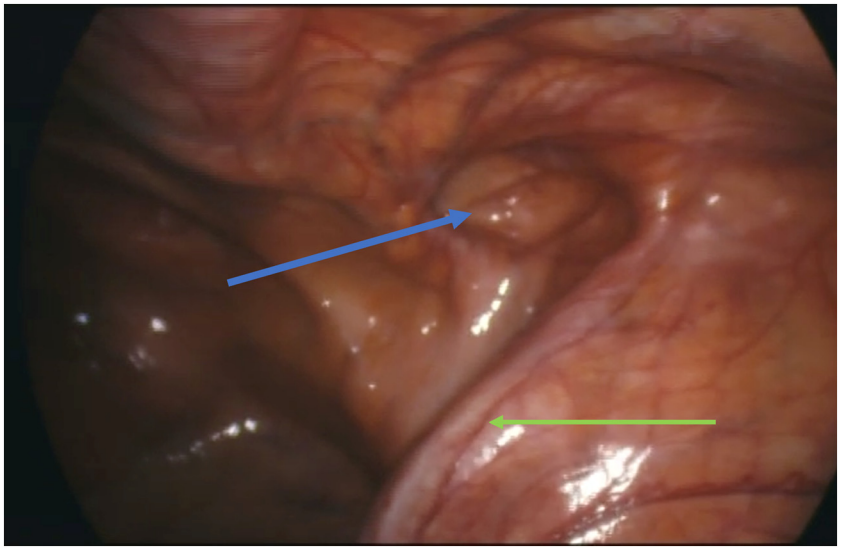

Fig. 8. Right Inguinal hernia (blue arrow) and right round ligament (green arrow).

mine location and the surgical approach. When diagnosed, surgery should be advised due to the high risk of strangulation. Repair can be done successfully using a laparoscopic intraperitoneal or extraperitoneal technique. We present the first case report to our knowledge of bilateral inguinal herniae and a left sided Spigelian hernia that was laparoscopically repaired along with intra corporeal suturing of the Spigelian hernia neck.

Conflicts of interest

The authors declare that there is no conflict of interests regarding the publication of this paper.

Funding source

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Ethical approval

This case report was exempt from ethic committee approval because all data was collected from clinical records and imaging systems for routine preoperative planning and follow up.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Author contribution

Laura Halyk – Paper writing, and revision. First author.
Yagan Pillay, MD – Surgeon, study concept or design, and paper revision.

Registration of research studies

This study is not a trial and as such, does not require registration.

Guarantor

Yagan Pillay.

References

[1] M. Ozgur, G. Degirmencioglu, C. Dener, A rare case of Spigelian hernia combined with direct and indirect inguinal hernias, Turk. J. Surg. 33 (2017) 40–42, http://dx.doi.org/10.5152/UCD.2015.2793.
[2] T. Mittal, V. Kumar, R. Khullar, A. Sharma, V. Soni, M. Baijal, P.K. Chowbey, Diagnosis and management of Spigelian hernia: a review of literature and our experience, J. Minim. Access Surg. 4 (2008) 95–98, http://dx.doi.org/10.4103/0972-9941.45204.
[3] L. Spangen, Spigelian hernia, World J. Surg. 13 (1989) 573–580 (Accessed 7 April 2018) https://link-springer-com.cyber.usask.ca/content/pdf/10.1007%2FBF01658873.pdf.
[4] S. Matsui, N. Nitori, A. Kato, Y. Ikeda, Y. Kiatagwa, H. Hasegawa, K. Okabayashi, M. Tsuruta, M. Kitajima, Laparoscopic totally extra-peritoneal hernia repair for bilateral Spigelian hernias and coincident inguinal hernia: a case report, Int. J. Surg. Case Rep. 28 (2016) 169–172, http://dx.doi.org/10.1016/j.ijscr.2016.09.053.
[5] D.W. Larson, D.R. Farley, Spigelian hernias: repair and outcome for 81 patients, World J. Surg. 26 (2002) 1277–1281, http://dx.doi.org/10.1007/s00268-002-6605-0.
[6] J.E. Carter, C. Mizes, Laparoscopic diagnosis and repair of spigelian hernia: report of a case and technique, Am. J. Obstet. Gynecol. 167 (1992) 77–78, http://dx.doi.org/10.1016/S0002-9378(11)91630-5.
[7] C.E. Butler, D.P. Baumann, J.E. Janis, M.J. Rosen, Abdominal wall reconstruction, Curr. Probl. Surg. 50 (2013) 557–586, http://dx.doi.org/10.1067/j.cpsurg.2013.08.003.
[8] R.A. Agha, A.J. Fowler, A. Saetta, I. Barai, S. Rajmohan, D.P. Orgill, for the SCARE Group, The SCARE statement: consensus-based surgical case report guidelines, Int. J. Surg. 34 (2016) 180–186.
[9] H. Tran, K. Tran, M. Zajkowska, V. Lam, W.J. Hawthorne, Single-incision laparoscopic repair of spigelian hernia, JSLS: J. Soc. Laparoendosc. Surg. 19 (1) (2015).