

Case Report

Rare case of Ischaemic Meckel's diverticulum in spigelian hernia

Tahmina Hakim*, Selwyn Selvendran, Soumya Hariswamy, Neha Gauri, Edward Tong

Department of General Surgery, Campbelltown Hospital, New South Wales, Australia

Received: 11 August 2025

Accepted: 16 September 2025

***Correspondence:**

Dr. Tahmina Hakim,

E-mail: th_rupa@yahoo.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Ischemic Meckel's diverticulum in Spigelian hernia is a rare condition and poses a significant diagnostic and management challenges. Spigelian hernia is a rare type of acquired ventral hernia that accounts for 1-2% of all abdominal wall hernias. We present a rare case of a 59-year-old female patient who presented with incarcerated abdominal wall hernia. The preoperative CT scan showed left sided abdominal wall hernia and not bowel obstruction. However, intra-operatively patient had an ischaemic small bowel segment and a necrotic Meckel's diverticulum in Spigelian hernia. The patient underwent a laparoscopic procedure converted to open repair of spigelian hernia with resection of small bowel containing ischaemic Meckel's diverticulum. Patient's post-operative recovery course was unremarkable and diet was gradually upgraded. Incarcerated/ischaemic Meckel's diverticulum in a Spigelian hernia is rare and may present with significant pre-operative diagnostic challenges. CT or MRI could be helpful diagnostic modalities. Both open or laparoscopic repairs could be performed depending on clinical situations.

Keywords: Bowel obstruction, Meckel's diverticulitis, Spigelian hernia

INTRODUCTION

Ischaemic Meckel's diverticulum in Spigelian hernia is a rare clinical presentation with significant diagnostic and management challenges. Spigelian hernias are rare type of acquired ventral hernia with a low incidence (2% of abdominal wall hernias). The anatomical location with intact internal oblique aponeurosis causes high risk of incarceration. Meckel's diverticulum is the rare embryological anomaly of small bowel which is caused by incomplete obliteration of omphalomesenteric duct. Complications related to a Meckel's diverticulum include small bowel obstruction, bleeding, inflammation and perforation.¹

CASE REPORT

A 59 years old female presented with sudden onset lower abdominal pain with a palpable lump in left lower quadrant (LLQ) and bowels not opened but passing wind for 1 day. She has history of hypercholesterolemia, tubal ligation and her medication history included rosuvastatin.

Examination showed a 3×4 cm soft, mild tender, firm, irreducible lump in LLQ. On admission, her white blood cells $12.1 \times 10^9/l$ and C-Reactive protein were 6.2 mg/l. Contrast enhanced computed tomography (CT) of the abdomen showed a left abdominal wall hernia containing a faecalised and dilated loop of small bowel with no upstream obstruction (Figure 1 and 2).

The hernia was more superior and lateral in location than would be expected for an inguinal hernia. She consented for laparoscopy and possible laparotomy with left abdominal wall hernia repair. Intra-operatively, a left Spigelian hernia with incarcerated small bowel with strangulated and necrotic Meckel's diverticulum were identified without perforation and remainder of the small bowel was health (Figure 3).

Through her laparoscopic procedure, the small bowel was not completely reduced without significant tension, hence transverse incision made in LLQ and hernial sac was identified and reduced. The small bowel containing ischaemic Meckel's diverticulum (Figure 3) was

exteriorized and resected followed by closure of transverse abdominis and internal oblique with interrupted Figure of 8 sutures.



Figure 1: Axial image of left sided spigelian hernia with incarcerated small bowel.

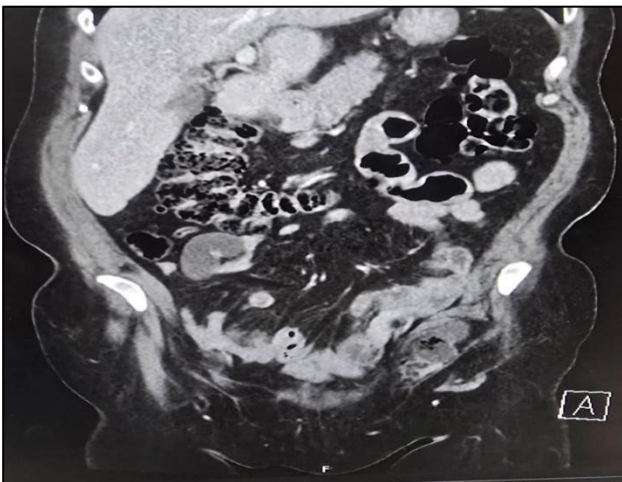


Figure 2: Coronal CT image of left sided Spigelian hernia containing incarcerated small bowel.



Figure 3: Necrotic Meckel's diverticulum in Spigelian Hernia.

She was monitored in hospital post-operatively with a gradual upgrade of diet. She was discharged home on post-operative day 3.

DISCUSSION

Meckel's diverticulum is the most common congenital gastro-intestinal diverticulum occurring in 1-3% of population, arises from the anti-mesenteric border of the distal ileum containing all layers. It received blood supply from a the right vitelline artery remnant originating from the superior mesenteric artery. Complicated Meckel's diverticulum is associated with a high mortality rate often caused by diagnostic delay. Complications of Meckel's diverticulum include small bowel obstruction, bleeding and inflammation. Obstruction is more common than bleeding and can occur secondary to small bowel entanglement around a fibrous cord, incarcerated hernial sac, volvulus and intussusception. Diverticulum torsion around its own axis may cause fixation of tip which sporadically becomes strangulated.¹ Strangulation of a Meckel's diverticulum in a hernia such as a Spigelian hernia is very rare.

Spigelian orifice is located at Spigelian point/fascia/aponeurosis which is lateral to the rectus abdominus muscle and medial to semilunar line. Spigelian hernia commonly lies in a 6 cm imaginary wide band superior to the interspinous line called 'Spigelian belt'. Because this region carries the highest intra-abdominal pressures and wider abdominal circumference the Spigelian belt is more prone to develop hernia.² Appendix, stomach. Ovary, testicle, colon, endometrial tissues are commonly found in the sac of Spigelian hernia.³ As a result of variable clinical presentations and interparietal location, the diagnosis of Spigelian hernia is difficult and can be confused with other acute pathologies. Pre-operatively about 50% cases are diagnosed.⁴

Pre-operative diagnosis can be very difficult for a complicated Meckel's diverticulum, but the most useful diagnostic tool is CT abdomen.⁵ However, 99 mTc-pertechnetate scanning is better than other modalities for diagnosing Meckel's diverticulum with 95% of specificity and (80-90) % of sensitivity in paediatric patients but the sensitivity may be reduced in adults.⁶ As the defect of Spigelian hernia has sharp fascial margin, it has risk of strangulation. Therefore, surgery is advised in most cases. Although both open and laparoscopic surgery can be performed in these case, laparoscopic procedures have significantly higher advantages considering length of hospital stay and morbidities. In our case, it was difficult to reduce the incarcerated Meckel's laparoscopically and a small bowel resection needed to be performed, hence conversion to open was performed. Surgery can be performed by either extra-peritoneally or transabdominally. Extra-peritoneal approach with prolene mesh has advantage of saving cost and reducing complications like intestinal obstruction and fistulization.

Also, trans-abdominal extra-peritoneal approach (TEP) reduces risk of disrupting peritoneal layer.⁴ As only 50% of the Spigelian hernia are diagnosed pre-operatively, the remaining half are diagnosed during explorative surgery. Although laparoscopic surgery has its advantages, complex cases might require open repair.⁷

CONCLUSION

We present a case of a rare complication of both a Spigelian hernia and a Meckel's diverticulum. Acute presentations of both pathologies can create diagnostic challenges due to variable clinical presentations and difficult imaging interpretation. Awareness of these complications is helpful and maintaining a high level of suspicion in unusual presentations is important.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

REFERENCES

1. Turgeon DK, Barnett JL. Meckel's diverticulum. Am J Gastroenterol. 1990;85(7):777-81.
2. Hanzalova I, Schäfer M, Demartines N, Clerc D. Spigelian hernia: current approaches to surgical treatment-a review. Hernia. 2022;26(6):1427-33.
3. Martell EG, Singh NN, Zagorski SM, Sawyer MA. Laparoscopic repair of a spigelian hernia: a case report and literature review. JSLS. 2004;8(3):269-74.
4. Mittal T, Kumar V, Khullar R, Sharma A, Soni V, Baijal M, et al. Diagnosis and management of Spigelian hernia: A review of literature and our experience. J Minim Access Surg. 2008;4(4):95-8.
5. Murruste M, Rajaste G, Kase K. Torsion of Meckel's diverticulum as a cause of small bowel obstruction: A case report. World J Gastrointest Surg. 2014;6(10):204-7.
6. Kulaybi SA, Asiri JA, Asiri ZM, Alamri MA, Hassine H, Aamry AI. 99mTc-Pertechnetate in Diagnosis of Meckel Diverticulum in an Adult. J Nucl Med Technol. 2023;51(2):162-3.
7. Anand R, Rahesh J, Ciubuc J, Esparza-Leal K, Schuster A, Jacob R, et al. Gangrenous appendicitis contained within a Spigelian hernia. Proc (Bayl Univ Med Cent). 2020;34(1):104-6.

Cite this article as: Hakim T, Selvendran S, Hariswamy S, Gauri N, Tong E. Rare case of Ischaemic Meckel's diverticulum in spigelian hernia. Int Surg J 2025;12:1806-8.