Jejunal obstruction due to a variant of transmesocolic hernia: a rare presentation of an acute abdomen

Duminda Subasinghe, Chathuranga Tisara Keppetiyagama and Dharmabandhu N Samarasekera

Abstract

Background: Internal hernias include paraduodenal, pericecal, through foramen of Winslow, intersigmoid and retroanastomotic hernias. These hernias could be either congenital or acquired after abdominal surgery. They account for approximately 0.5-5 % of all cases of intestinal obstruction.

Case presentation: A 48-year-old female was admitted to casualty with a history of abdominal distension and vomiting of 3 days duration. An abdominal X-ray supine film showed multiple small bowel loops with air fluid levels. On surgery she was found to have a transmesocolic hernia. The defect in the transverse mesocolon was repaired.

Conclusion: The clinical signs and symptoms of lesser sac hernia are non-specific. These rare lesser sac hernias can be lethal. Therefore, immediate diagnosis and surgery is essential. Although a rare entity, they account for significant mortality form intestinal obstruction. We report an extremely rare case of an internal abdominal hernia through the transverse mesocolon, in a young woman.

Keywords: Internal hernia, Transmesocolic, Intestinal obstruction

Background

Internal hernia is protrusion of a viscus or part of a viscus through anatomical or pathological opening within the limits of peritoneal cavity. They could be either congenital or acquired. There are several main types of internal hernias based on the location as described by Meyers [1]. Specifically these include paraduodenal, pericecal, foramen of Winslow, transmesocolic, intersigmoid and retroanastomotic hernias. Although the overall incidence of internal hernias are low (0.2–0.9 %) and they accounts only for 0.5 %–5 % of cases of intestinal obstruction, the overall mortality exceeds 50 % if strangulation is present [2, 3]. Transmesocolic hernia is an extremely rare type of internal hernia. Transmesocolic hernia accounts for approximately 5–10 % of all internal hernias [4]. The defects of the mesentery are mostly due to congenital, surgical, traumatic, inflammatory or idiopathic in origin. Although a rare entity, they account for significant mortality form intestinal obstruction. Usually these are detected during surgery for acute abdomen or during an autopsy [5].

Case presentation

We report a case of transmesocolic herniation of jejunal loops into supracolic compartment with intestinal obstruction which was diagnosed intraoperatively.

A 48-year-old female was admitted to casualty with a history of abdominal distension and vomiting of 3 days duration. She had no past history of any gastrointestinal surgery but had undergone lower segment caesarean section 21 years earlier. The caesarean section was uneventful without any iatrogenic injury. On admission, she had bilious vomiting. Physical examination revealed tachycardia, generalized abdominal distension, rebound tenderness and rigidity over left upper quadrant. There was no evidence of organomegaly or free fluid and her external hernia orifices were normal. Her bowel sounds

* Correspondence: samarasekera58@yahoo.co.uk
3 University Surgical Unit, The National Hospital of Sri Lanka, 28/1, Ishwari road, Colombo 06 Colombo, Sri Lanka
Full list of author information is available at the end of the article

© 2015 Subasinghe et al; licensee BioMed Central. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly credited. The Creative Commons Public Domain Dedication waiver (http://creativecommons.org/publicdomain/zero/1.0/) applies to the data made available in this article, unless otherwise stated.
were sluggish. Digital rectal examination revealed an empty rectum. Laboratory investigation on admission revealed a normal full blood count with a white blood cell count of 5000/mm³ and normal renal and liver functions. Her serum potassium on admission was 3.5 mmol/l and she was started in intravenous potassium supplements. An abdominal X-ray supine film showed multiple small bowel loops with air fluid levels without free air under the dome of the diaphragm (Fig. 1). Surgical exploration revealed significant amount of free fluid in the peritoneal cavity and ischemic small intestine. On further exploration, we found the DJ flexure in the supracolic compartment and almost all the jejunum and proximal ileum herniating through a small defect about 5 × 6 cm in the transverse mesocolon. Jejunal loops were contained inside a thick walled hernial sac (Fig. 2) which was extending into the supracolic compartment. The hernia sac with contents was extending into the lesser sac. The contents were reduced and the sac was opened and repaired (Fig. 3). Paraduodenal fossae were found to be normal during the surgery (Fig. 4). The defect in the transverse mesocolon was repaired. Small bowel showed features of viability and therefore, was not resected. The patient was discharged on post operative day 14. Her post operative period was uneventful. She also underwent a contrast study of the small bowel at post op day 10 which showed normal small intestine (Fig. 5).

Discussion and conclusion
The clinical signs and symptoms of lesser sac hernia are non-specific and include abdominal pain, nausea, vomiting and distension. These rare lesser sac hernias can be lethal. Therefore, immediate diagnosis and surgery is essential. In the literature, only few cases of internal hernias have been documented [6]. The anomaly of transmesocolic herniation, which was first reported by Rokitansky in 1836 is an extremely rare type of internal hernia [2]. According to the literature, herniation into the lesser

Fig. 1 Dilated jejunal loops on X ray abdomen supine film

Fig. 2 Sac of the transmesocolic hernia
sac can be classified into three basic types according to the site of the aperture [7, 8]. Type 1 is a hernia through the foramen of Winslow, type 2 is a hernia through a defect in the lesser or greater omentum and type 3 is a hernia through a defect in the transverse mesocolon. Our patient had type 3 transmesocolic hernia. Type 3 is usually secondary to abdominal trauma or prior abdominal surgery with the creation of a Roux-en-Y loop [9, 10]. Approximately 5–10% of all internal hernias occur through defects in the mesentery of the small bowel and almost 35% of transmesocolic hernias are observed among paediatric age group, mainly those aged between 3 and 10 years [3]. In adults, however most mesenteric defects are the result of previous gastrointestinal operations, abdominal trauma or intra peritoneal inflammation [11–13]. Our case was a rare presentation in an adult without a history of trauma or previous bowel surgery. Gomes et al. [3] and described a patient with congenital transmesenteric type internal hernia presented with intractable colick epigastric pain. Frediani et al. [6] has described a transmesocolic hernia presented with small intestinal obstruction. Agresta et al. [4] has described two patients presented with acute small intestinal obstruction due to internal hernia during
immediate post operative period following laparoscopic hernia repair.

Although tansmesocolic hernia is a difficult preoperative diagnosis, CT abdomen might help the diagnosis by peripherally located small bowel, and lack of omental fat between the loops and the anterior abdominal wall [14, 15]. Congenital tansmesocolic hernias are extremely rare and to date only few cases of transmesocolic hernias were reported in the literature [3, 6, 16].

In conclusion, diagnosis of intestinal obstruction caused by a congenital mesocolic hernia remains difficult preoperatively despite the techniques currently available, so it is important to consider the possibility of a transmesocolic hernia in a patient with ileus even with no past history of gastrointestinal surgery.

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

Competing interests
The authors declare that they have no competing interests.

Authors’ contributions
All authors contributed to management of the patient and contributed equally towards drafting of the manuscript. DNS and DS provided overall supervision and edited the final version of the manuscript. All authors have read and approved the final manuscript.

Acknowledgement
The authors acknowledge all the ward staff who took care of our patient.

Author details
1 General Surgery, University Surgical Unit, The National Hospital of Sri Lanka, Colombo, Sri Lanka. 2 Gastrointestinal Surgery, University Surgical Unit, The National Hospital of Sri Lanka, Colombo, Sri Lanka. 3 University Surgical Unit, The National Hospital of Sri Lanka, 28/1, Ishwari road, Colombo 06 Colombo, Sri Lanka.

Received: 11 February 2015 Accepted: 4 May 2015
Published online: 08 May 2015

References
1. Meyers MA. Dynamic radiology of the abdomen: normal and pathologic anatomy. 4th ed. New York, NY: Springer; 1994.
2. Newsom BD, Kokas JS. Congenital and acquired internal hernias: unusual causes of small bowel obstruction. Am J Surg. 1986;152:279–85.
3. Gomes R, Rodrigues J. Spontaneous adult transmesenteric hernia with bowel gangrene. Hernia. 2011;15:343–5.
4. Agresta F, Mazzarolo G, Bedin N. Incarcerated internal hernia of the small intestine through a re-approximated peritoneum after a trans-abdominal pre-peritoneal procedure – apropos of two cases: review of the literature. Hernia. 2011;15:347–50.
5. Parsons PB. Paraduodenal hernias. Am J Roentgenol Radium Ther Nucl Med. 1953;69:563–89.
6. Frediani S, Almberger M, Iaconelli R, Aventurieri G, Manganaro F. An unusual case of congenital mesocolic hernia. Hernia. 2010;14:105–7.
7. Li JC, Chu DW, Lee DW, Chan AC. Small-bowel intestinal obstruction caused by an unusual internal hernia. Asian J Surg. 2005;28:62–4.
8. Okayasu K, Tamamoto F, Nakanishi A, Takanashi T, Maehara T. A case of incarcerated lesser sac hernia protruding simultaneously through both the gastrocolic and gastrohepatic omentum. Radiat Med. 2002;20:105–7.
9. Blachar A, Federle MP, Dodson SF. Internal hernia: clinical and imaging findings in 17 patients with emphasis on CT criteria. Radiology. 2002;218:68–74.
10. Blachar A, Federle MP, Biancatelli G, Peterson MS, Oliver 3rd JH, Li W. Radiologist performance in the diagnosis of internal hernia by using specific CT findings with emphasis on transmesenteric hernia. Radiology. 2001;221:422–8.
11. Uchijama S, Imamura N, Hidaka H, Maehara N, Nagaike K, Ikenaga N, et al. An unusual variant of a left paraduodenal hernia diagnosed and treated by laparoscopic surgery: report of a case. Surg Today. 2009;39:533–5.
12. Shaffner Lde S, Pennell TC. Congenital internal hernia. Surg Clin North Am. 1971;51:1335–9.
13. Mock CJ, Mock Jr HE. Strangulated internal hernia associated with trauma. AMA Arch Surg. 1958;77:881–6.
14. Tauro LF, Vilay G, D’Souza CR, Ramesh HC, Shetty SR, Hegde BR. Mesocolic hernia: an unusual internal hernia. Saudi J Gastroenterol. 2007;13:141–3.
15. Blachar A, Federle MP. Internal hernia: an increasingly common cause of small bowel obstruction. Semin Ultrasound CT MR. 2002;23:174–83.
16. Wu SY, Ho MH, Hsu SD. Meckel’s diverticulum incarcerated in a transmesocolic internal hernia. World J Gastroenterol. 2014;20(37):13615–9.