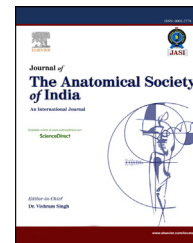




ELSEVIER

Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/jasi

CrossMark

Case Report

Left paraduodenal hernia

Binita Chaudhary ^{a,*}, Utpal Anand ^b, Rajeev Nayan Priyadarshi ^c^a Department of Anatomy, AIIMS, Patna, Bihar, India^b Institute of Gastrosciences, Paras Hai Medical Research Institute, Patna, Bihar, India^c Department of Radiodiagnosis, Indira Gandhi Institute of Medical Sciences, Patna, Bihar, India

ARTICLE INFO

Article history:

Received 27 October 2013

Accepted 7 October 2014

Available online 31 October 2014

Keywords:

Computed tomography (CT)

Hernia

Internal hernia

Paraduodenal

Intestinal obstruction

ABSTRACT

Internal hernias are rare occurrence. Left paraduodenal hernias are the most common type of internal hernia. We report a case of 40-year-old man who presented with symptoms of subacute intestinal obstruction. Computed tomography demonstrated clustered small bowel loops encased within a sac like structure in the left abdominal cavity which is the typical appearance of left paraduodenal hernia. The patient was treated by surgery. We emphasize the importance of a clear anatomic understanding in the preoperative radiological diagnosis and necessary surgical steps involved in treatment of this entity.

Copyright © 2014, Anatomical Society of India. Published by Reed Elsevier India Pvt. Ltd. All rights reserved.

1. Introduction

Internal hernia refers to protrusion of a viscus through a normal or abnormal orifice within the peritoneal cavity. The reported incidence varies from 0.2 to 0.9%.¹ Several types of internal hernias have been described in literature and their nomenclature is based on their anatomic location of origin. Internal hernias may be paraduodenal, foramen of Winslow, pericecal, intersigmoid, transmesenteric and transmesocolic and retroanastomotic.² The left paraduodenal hernia is the most common of all internal hernias and accounts for approximately 53% of all types of internal hernias.³ Most internal hernias are the consequence of congenital anomalies of intestinal rotation and peritoneal attachment.² With the increasing frequency of gastric bypass surgeries, the incidence of transmesenteric hernias has considerably increased

in recent years.³ In this report, we demonstrate the typical multi-detector computed tomography (MDCT) imaging features of left paraduodenal hernia which was further confirmed at laparotomy.

2. Case report

A 40-year-old man presented with intermittent crampy abdominal pain for one year. Episodes of nausea, and vomiting frequently followed the abdominal pain. There was no past history of any other medical or surgical problems. On physical examination he was of normal built. The abdomen was soft with normal bowel sounds, but there was soft mass palpable in left flank. Routine blood tests were normal. The erect and supine abdominal radiograph did reveal any abnormalities. The ultrasonography of abdomen was also

* Corresponding author. Tel.: +91 9661507725.

E-mail address: binitachaudhary18@gmail.com (B. Chaudhary).
<http://dx.doi.org/10.1016/j.jasi.2014.10.001>

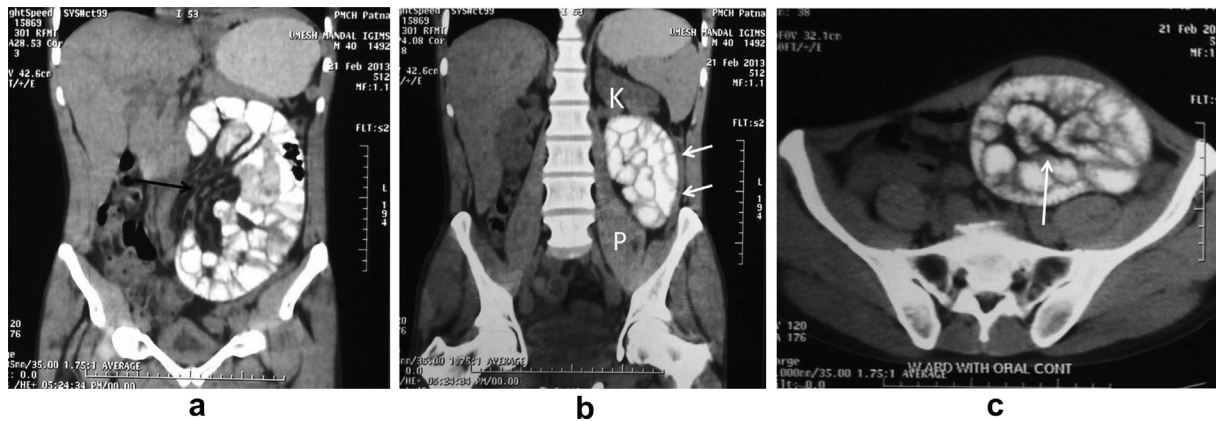


Fig. 1 – (a) Unenhanced CT image with coronal reconstruction demonstrates reniform shaped encased small bowel loops in left aspect of abdomen. Note the engorged mesenteric vessels (arrow) along the neck of hernial sac points the origin of hernia located in the left paraduodenal fossa. **(b)** Coronal reconstruction image at level more posterior to (a), shows retroperitoneal location of herniated bowel loops in triangle formed by the left psoas muscle medially (P), descending colon laterally (arrow) and the left kidney superiorly (K). **(c)** The axial section at the level of iliac fossa clearly demonstrate the stasis of contrast material within the encased jejunal loops which are grouped together in the left iliac fossa (arrow).

unremarkable. Upper gastrointestinal endoscopy and colonoscopy were normal.

The patient underwent unenhanced CT because he was allergic to the intravenous contrast material. Unenhanced CT using 16-slice scanner with oral contrast revealed encapsulated cluster of small-bowel loops in the left aspect of abdomen. The cluster of jejunal loops was abnormally located in the left retroperitoneal compartment in a triangle formed by the left psoas muscle medially, descending colon laterally and the left kidney superiorly. The sac appeared reniform in shape and fatty hilum consisted of engorged and stretched mesenteric vessels pointing the hernia orifice [Fig. 1a–c]. A diagnosis of left paraduodenal hernia was made based on this characteristic CT appearance.

At laparotomy, it was observed that most of the jejunal and ilial loops were lying within a large sac. Manual reduction of the herniated bowel from the hernia sac into the peritoneal cavity was difficult due to small hernia neck. A wide incision was made over the sac and the entire herniated small bowel was reduced under the free margin of the sac [Fig. 2]. The inferior mesenteric vein and ascending left colic artery were palpated in the free margin of sac. The hernia orifice was about 8 cm wide [Fig. 3]. The orifice was closed with continuous absorbable sutures. The recovery was uneventful and the patient was discharged on day 3. He is asymptomatic at one year follow-up.

3. Discussion

A clear anatomic understanding of this hernia is important not only in making correct preoperative radiological diagnosis but also in surgical treatment because improper anatomic identification of the structures involved may lead to serious technical errors.⁴ Left paraduodenal hernia results from the herniation of bowel loops through a left paraduodenal fossa (fossa of Landzert). The fossa of Landzert is found in

approximately 2% of autopsy specimens.³ This fossa is located to the left of the fourth part of duodenum and is formed by peritoneal folds elevated by underlying inferior mesenteric vein and left ascending left colic artery. Small intestine may herniate through the orifice posteriorly and downward toward the left, lateral to the ascending limb of the duodenum, extending into the descending mesocolon and left portion of the transverse mesocolon. The free edge of the hernia thus contains the inferior mesenteric vein and the ascending left colic artery.³ The sac is formed by the mesentery of the descending colon (i.e. the descending mesocolon). The posterior wall is formed by the posterior abdominal wall. It has been emphasized by Mayers MA that the herniated loops may be located at a distance away from the paraduodenal fossa; in our case the sac was located in the descending mesocolon extending down to the level of left iliac fossa in a triangle

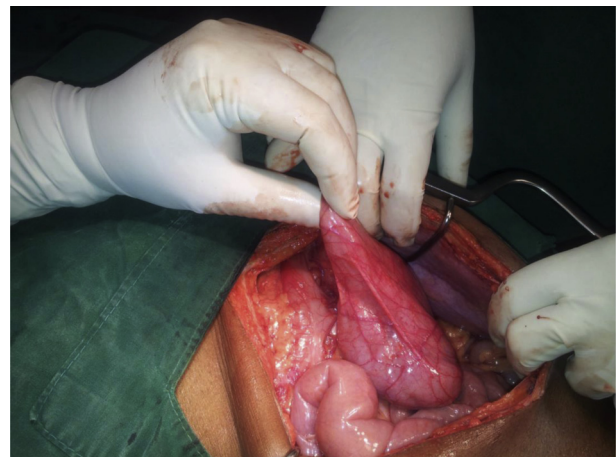


Fig. 2 – A wide incision was made over the sac and the entire herniated small bowel was reduced under the free margin of the sac.

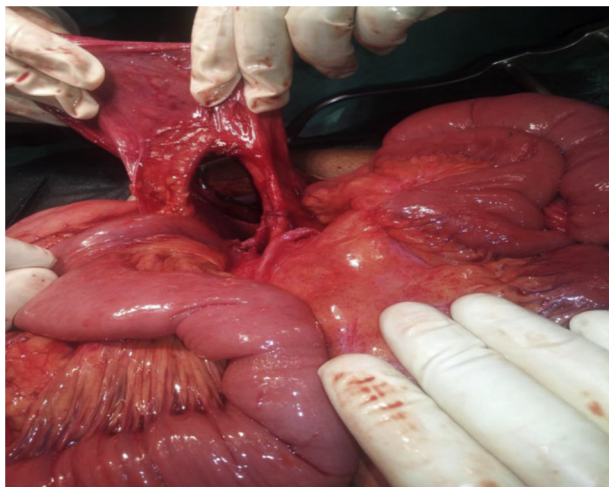


Fig. 3 – The inferior mesenteric vein and ascending left colic artery were palpated in the free margin of sac. The hernia orifice was about 8 cm wide.

formed by the left psoas muscle medially, descending colon laterally and the left kidney superiorly.³

The majority of presentations occur between the 4th and 5th decades of life.⁵ The symptoms are the usual ones of small bowel obstruction, with crampy abdominal pain, nausea, vomiting and distension. Symptom severity depends on the duration and reducibility of the hernia. Clinically, these patients may be asymptomatic or present with abdominal signs and symptoms of intestinal obstruction including crampy abdominal pain, nausea, vomiting and distension. Physical examination may be normal in cases of small hernia, unless the clustered bowel loops form a palpable mass as in our case within sac. Incarceration and strangulation of the involved loop is the most dreaded complication are not uncommon. Because the loops are encased, incarceration and strangulation of the involved loops are the most dreaded complications and necessitate early radiological diagnosis and surgery.

The paraduodenal hernias are notoriously difficult to diagnose by radiological examinations. In the past, small-bowel oral contrast study was the mainstay of preoperative diagnosis. However, MDCT has become the investigation of choice in these patients because of its availability, speed, and multiplanar reformatting capabilities (Review). Left paraduodenal hernia is suspected if the small bowel loops are abnormally clustered in left hypochondrium. In addition to these findings,

MDCT can demonstrate mesenteric vessel abnormalities, with engorgement, crowding, twisting, and stretching providing an important clue to the diagnosis. The classic location of sac has been described in left upper quadrant lying between the pancreas and stomach to the left of the ligament of Treitz. It has been emphasized by Mayers MA, that though the hernia orifice is paraduodenal in a location but the herniated loops can present at a distance away from the orifice.³ In our case, we observed the sac lying in retroperitoneal compartment in a triangle formed by the left psoas muscle medially, descending colon laterally and the left kidney superiorly.

The preoperative diagnosis helps the surgeon to take necessary steps of surgery. The steps of operation include adequate incision, reduction of the hernia content and repair.⁵ A careful inspection of the vascular pattern, contents of the hernia sac and identification of the boundary of orifice is important.

4. Conclusion

Paraduodenal hernias are rare. Contrast enhanced MDCT with oral contrast is the investigation of choice. Anatomical understandings of the hernia sac and the boundary of orifice is of paramount importance in preoperative diagnosis and surgical management.

Conflicts of interest

All authors have none to declare.

REFERENCES

1. Blachar A, Federle MP, Dodson SF. Internal hernia: clinical and imaging findings in 17 patients with emphasis on CT criteria. *Radiology*. 2001;218(1):68–74.
2. Martin LC, Merkle EM, Thompson WM. Review of internal hernias: radiographic and clinical findings. *AJR*. 2006;186:703–717.
3. Mayers MA. Internal abdominal hernias. In: Mayers MA, ed. *Dynamic Radiology of the Abdomen*. 5th ed. New York, NY: Springer-Verlag; 2000:711–748.
4. Bartlett MK, Wang C, Williams WH. The surgical management of paraduodenal hernia. *Ann Surg*. 1968;7:249–254.
5. Khan MA, Lo AY, Vande Maele DM. Paraduodenal hernia. *Am Surg*. 1998;64:1218–1222.