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Right sided transmesenteric hernia: A rare cause of acute abdomen in adults



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ABSTRACT

INTRODUCTION: Transmesenteric mesocolic hernias are a rare cause of acute abdomen in adults with few reported cases in published literature.

PRESENTATION OF CASE: We report a rare case of a 30-year-old male with right-sided transmesenteric hernia of ileum due to a congenital mesocolic defect resulting in acute abdomen, presenting as acute abdomen. The hernia was reduced, small bowel inspected for gangrene and mesenteric hernia repaired, following which the patient made a good recovery and was discharged 5 days later.

DISCUSSION: The insidious onset of transmesenteric herniae and lack of specific radiological or laboratory investigations reaffirms the importance of surgeons maintaining a high index of suspicion for this surgical emergency.

CONCLUSION: Transmesenteric hernia though rare can present as a case of acute abdomen in an emergency. The diagnosis is purely by a CT scan and close monitoring of the patient's general condition in cases of non-specific abdominal pain is essential to identify the rare deteriorating patient for early surgical intervention and optimal outcome.

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1. Introduction

Internal hernias are a rare cause of acute abdomen and intestinal obstruction in adults. Of internal hernia transmesenteric hernia only constitute an estimated 5–10% of cases.¹ Mesenteric herniation leads to a variable degree of vascular compromise to the herniated bowel with ensuing obstruction, strangulation and bowel ischaemia. In published literature only 36 patients have suffered from bowel obstruction and 9 from ensuing ischaemia secondary to transmesenteric hernia.^{2–16} We report a rare case of a 30-year-old male with right sided transmesenteric hernia of ileum due to a mesocolic defect.

2. Presentation of case

A 30-year-old male, Mr. P, presented to Sri Ramachandra hospital, Chennai with sudden onset, 'crampy', abdominal pain more on the right side, radiating to back. Experiencing some associated nausea he had vomited clear fluid. The patient had experienced no fevers, dysuria, or change of bowel habit, no per rectal or per vaginal bleeding and systematic review was unremarkable. Nine

months ago he had an appendicectomy done with no subsequent problems.

On examination he was haemodynamically stable and apyrexial with a soft abdomen and mild generalized lower abdominal tenderness (right > left). No rebound tenderness or guarding was detected. Blood tests suggested with a borderline raised white cell count. Plain abdominal film showed some faecal loading of the colon but was otherwise unremarkable with no free air under the diaphragm. Initially the patient was treated with analgesia and a CT Scan was ordered (Fig. 1).

CT Scan of the abdomen revealed a transmesenteric hernia on the right side with small bowel loops but no evidence of intestinal obstruction, gangrene or perforation (Fig. 2).

Exploratory laparotomy was performed next day and findings included approximately 1 m of small bowel – ileum herniating through a right-sided transmesenteric defect. The hernia was reduced, small bowel inspected for evidence of gangrene and found to be normal. The mesenteric defect was repaired and rest of the abdomen was also inspected for other internal herniations. Mr. P made a good recovery and was discharged from hospital 5 days later.

3. Discussion

An internal hernia is a protrusion of viscera through a defect or aperture, either mesenteric or peritoneal, and may be either congenital or acquired. Internal abdominal hernias (IAHs) can

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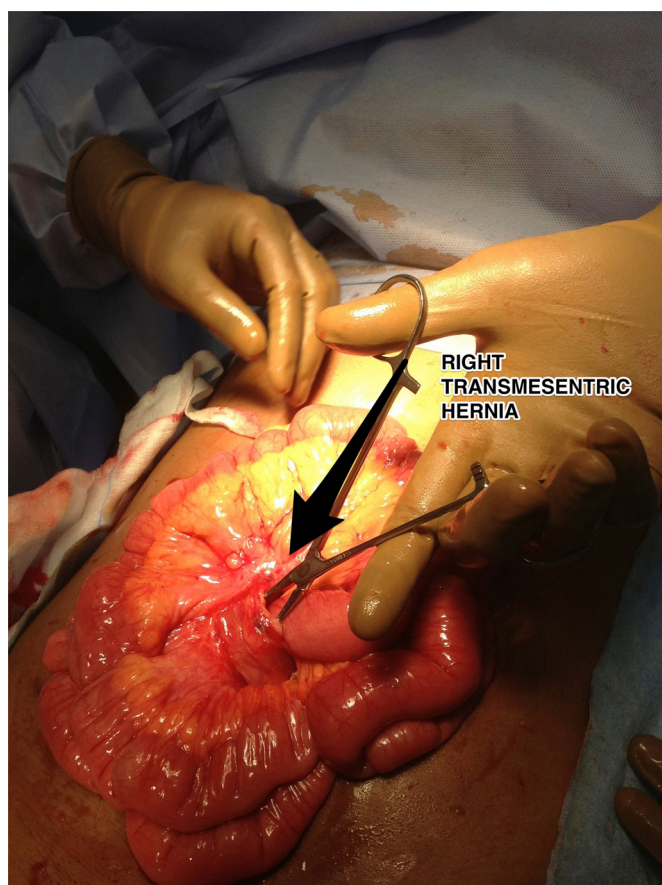


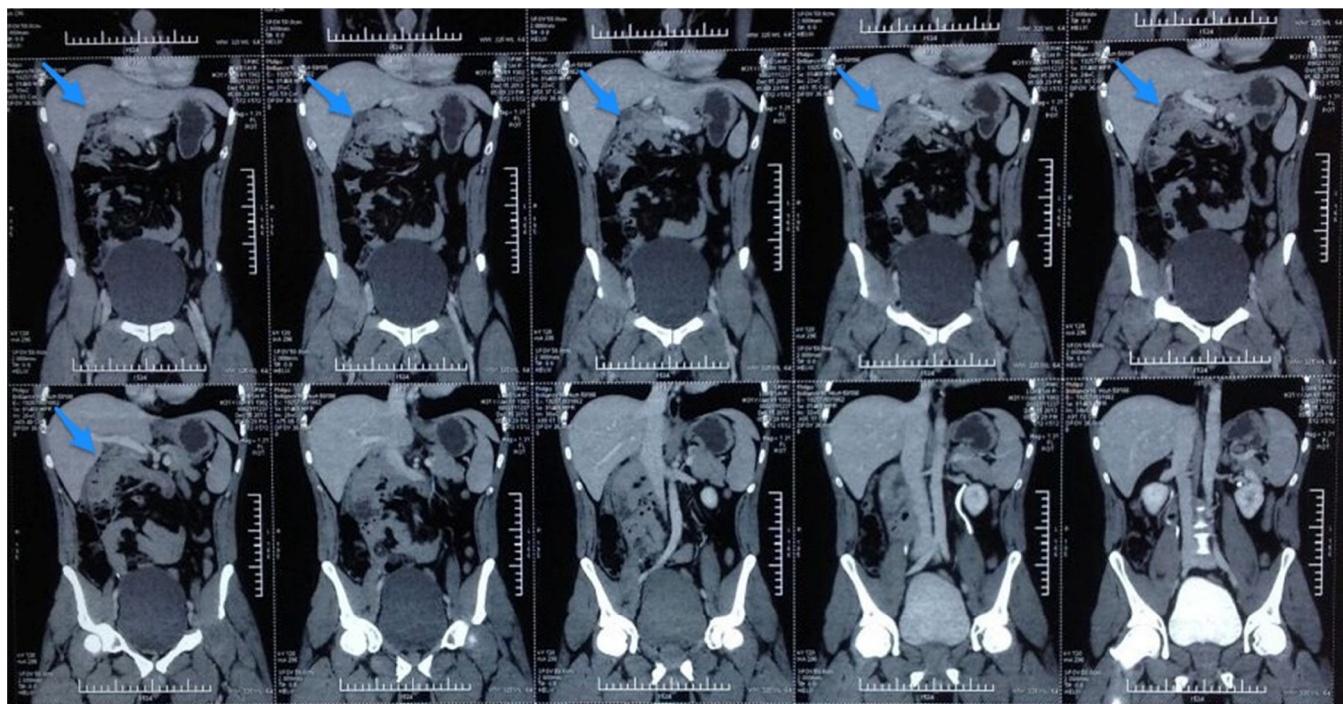
Fig. 1. Intra operative figure of the right transmesenteric hernia shown by the instrument (black arrow).

be classified as either retroperitoneal or formed from congenital anomalous openings, the latter lacking a true peritoneal sac. Retroperitoneal hernias can be subdivided into paraduodenal (30–53% of IAH), Winslow's foramen (8% of IAH), paracecal (6% of IAH) and intersigmoid hernias (5% of IAH), whereas hernias formed from congenital anomalous openings can be categorized as transmesenteric (5–10% of IAH), broad ligament (4–7%) or transomental hernias (1–4%). Transmesenteric hernias (TMHs) are the most common internal hernias in children, and are mainly caused by openings in the mesentery of the small bowel (71% of TMH) and less by mesocolic defects (26% of TMH).^{21,22}

The pathogenesis of mesenteric defects is uncertain with one popular hypothesis suggesting the cause may be prenatal intestinal ischaemia and subsequent thinning of the mesenteric leaves, because prenatal intestinal ischaemia is associated with bowel atresia in 5.5% of the paediatric population.¹⁸ Alternatively a genetic aetiology has been suggested given the association between transmesenteric hernia and other anomalies including cystic fibrosis and hirschprung disease.¹⁷

Three main types of transmesenteric internal hernias are seen. The first and most common is the transmesocolic, which has been documented to occur in 0.7–3.25% of patients after laparoscopic Roux-en-Y gastric bypass surgery.²³ The second type of transmesenteric internal hernia occurs when bowel prolapses through a defect in the small-bowel mesentery. Finally, the third type, known as the Peterson type, has also been described and involves the herniation of small bowel behind the Roux loop before the small bowel eventually passes through the defect in the transverse mesocolon.²⁴

Although surgeons attempt to close the defects created, they can be incompletely closed or can have a breakdown or a pulling of the suture material through the mesocolic fat.^{25,23} Enlargement of the mesenteric defect can occur with repeated herniation. Transmesenteric hernias are more likely than other subtypes to develop



BLUE ARROWS IN THE CT SCAN FILM SHOW THE BOWEL LOOPS IN THE RIGHT TRANSMESENTERIC HERNIA

Fig. 2. CT Scan figure depicting the bowel loops in the right transmesenteric hernia in the patient.

volvulus and strangulation or ischaemia, the incidence of which is reported to be as high as 30% and 40%, respectively, with mortality rates of 50% for the treated groups and 100% for the nontreated subgroups.^{26–29} Volvulus and strangulation or ischaemia may be partly caused by the usual small aperture of the defect (2–5 cm) in addition to the lack of encapsulation of the herniated loops, allowing a large length of small bowel to herniate through the mesenteric defect.^{26,29}

CT Scan shows that the mesenteric vascular pedicle is characteristically engorged, stretched, and crowded; in addition converging mesenteric vessels are located at the entrance of the hernial sac and there is displacement of the main mesenteric trunk.^{23,24}

Only 13 adult case reports (male:female ratio 5:8) of bowel obstruction secondary to mesenteric defects have been documented in published literature,^{2–13} one of which was diagnosed at autopsy⁵, and 4 of which were documented to have developed bowel ischaemia.^{2–4,11} Subgroup analysis of 10 of these adult case reports reveals an age range of 19–68 years, a mean age of 33 years and a wide spectrum of clinical presentations ranging from diarrhoea and vomiting with the patient not appearing 'particularly ill' and non-specific abdominal signs to severe abdominal pain, shock and unexpected death.^{2–5,7,8,11} In 4 of these 10 cases CT scanning was utilized pre-operatively to aid diagnosis,^{4,8,11} and in 1 patient who was pregnant a plain abdominal film demonstrated early signs of intestinal obstruction prompting surgical intervention.⁷ Of these 10 patients there were reportedly 2 patient mortalities^{5,11} and the other 8 patients made uncomplicated recoveries following operative intervention.

A retrospective review in Mississippi between 1970 and 1983 identified 8 patients with small bowel obstruction secondary to congenital internal herniation of which 5 patients had developed gangrenous bowel.¹³ Furthermore in a 10-year retrospective review of management of internal hernia in Taiwan 6 patients suffering from transmesenteric herniae were identified, with rebound tenderness, advanced leucocytosis³ and a high level of manual band form (>6%) being identified as positive predictive factors for bowel ischaemia.¹⁵

Nine patients suffering with congenital mesenteric hernia were identified in a recent 7-year retrospective review of internal hernia in Turkey, which included acquired hernia had become the most prevalent type of internal hernia and carried a significantly higher post-operative mortality rate.¹⁶

Preoperative diagnosis of transmesenteric herniae is difficult due to a lack of specific radiological or laboratory findings to confirm a surgeon's clinical suspicion. Misdiagnosis and subsequent delayed exploration may lead to bowel ischaemia and subsequent mortality, prognosis being directly correlated with the delay in diagnosis and treatment.

4. Conclusion

We report a rare case of a 30-year-old male with a right sided spontaneous transmesenteric hernia of ileum with no associated gangrene of bowel caused by a congenital mesocolic defect. The insidious onset of this surgical emergency reaffirms the importance of surgeons maintaining a high index of suspicion for a transmesenteric hernia in patients with non-specific clinical and radiological signs. Close monitoring of the patient's general condition in cases of non-specific abdominal pain is essential to identify the rare deteriorating patient for early surgical intervention and optimal outcome.

Conflict of interest

No conflicts of interest.

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Ethical approval

None.

Author Contributions

Dr. C. Kaliyappa: Head of Unit where patient was admitted, diagnosed and operated. One of the main surgeons in the procedure.

Dr. Kaundinya Kiran Bharatam: Assistant Professor in the unit where the patient was diagnosed, admitted and treated. One of the main surgeons in the procedure. Responsible for the write up of the article.

Dr. Raja Reddy: Senior resident in the unit where the patient was admitted, diagnosed and treated. Responsible for the photography and also for the write up of the article.

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.

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