Case study

SpontaneousTransomentalHerniaThroughTheGreaterOmentum: case report

Abstract

Transomental internal hernias are an exceptionally uncommon form of internal hernias. However,they can occur even in patients without prior surgical procedures due to age-related omental atrophy.Transomental hernias, whether through the greater or lesser omentum, are infrequent, comprising onlyabout 1-4% of all internal hernias. These hernias are typically observed in individuals over the age offifty. Acquired transomental hernias are more common and often result from previous abdominalsurgeries, such as Roux-en-Y gastric bypass, trauma, or peritoneal inflammation. The postoperativemortality rate for transomental hernias is notably high, reaching 30%, and they are frequentlydiagnosedduringemergencylaparotomies.

In this case report, we describe an extremely rare occurrence of a transomental hernia presentingas small bowel obstruction in a 50-year-old female patient and which was treated successfully in ourCentrebyexplorative laparotomy.

Keywords

Bowelobstruction,Internalhernia,Omentum,Transomentalhernia

Introduction

An internal hernia is characterized by the protrusion of an organ through a normal or abnormalopening within the peritoneal cavity. These hernias can be either congenital or acquired defects inthe peritoneal or mesenteric region of the abdominal cavity and account for approximately 5.8% ofallcasesofintestinalobstruction.Various typesof internalherniasexist,including:

Para-duodenal hernias-53% ofcases, Foramenof Winslowhernias-8%ofcases, Transmesenteric andtransmesocolichernias-8%ofcases, Intersigmoidhernias-6%of cases.Retroanastomotic hernias -5%ofcases.Transomental hernias-1-4%ofcases.[1,2,3,4]

Transomental hernias are indeed the least common among internal hernias. They can becongenital, particularly in paediatric patients, or acquired due to factors such as prior abdominalsurgeries, trauma, or post-inflammatory conditions. Interestingly, transomental hernias through thegreater or lesser omentum can also occur spontaneously in elderly individuals as a result of age-relatedomentalatrophy, without anyhistoryofsurgery,trauma, orinflammation.[4,5]

CasePresentation

On January 1, 2012, a 50-year-old woman was admitted to our centre due to complaints ofabdominal pain, abdominal distension, and vomiting that had persisted for two days. Her vital signswere all within normal ranges. During the physical examination, her abdomen appeared distendedand produced a tympanic sound upon percussion. The patient experienced tenderness in theepigastric region, but there was no rebound tenderness, and hyperactive bowel sounds wereaudible. Notably, there were no visible surgical scars on her abdomen, and laboratory tests showednormalresults.AplainabdominalX-rayrevealed dilatedsmallbowel loopswithair-fluidlevelsinthe

abdomen, suggestingintestinal obstruction.Abdominal ultrasonographyconfirmed the presenceofsmallbowel obstruction.

In response to this emergency, a laparotomy was promptly performed. The procedure revealed astrangulated segment of the small bowel herniating through a defect in the greater omentum,measuring 10x4 cm and having a triangular shape. Typically, the hernia orifice is a narrow, slit-likeopening, up to 10 cm in size, located at the periphery of the greater omentum. The strangulatedsmall bowel was carefully released, and it was found to be viable, eliminating the need for bowelresection. Partial omentectomy was performed to relieve the strangulation of small bowel. Thepostoperativecoursewasuneventful andthepatientwas dischargeon8th post-operativeday. **(Fig1-6)**

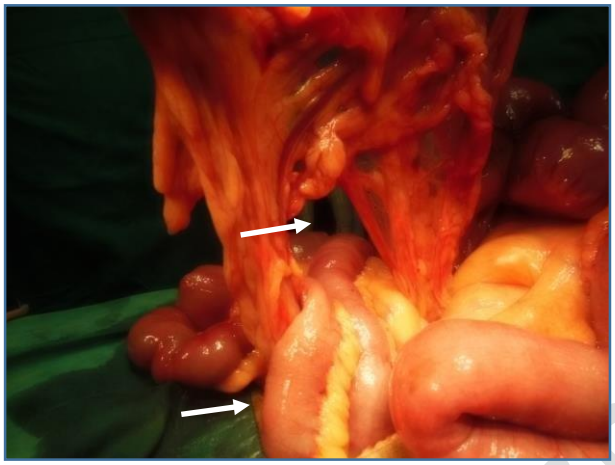

Fig-1 Intraoperative photograph showingtransomentalhernia

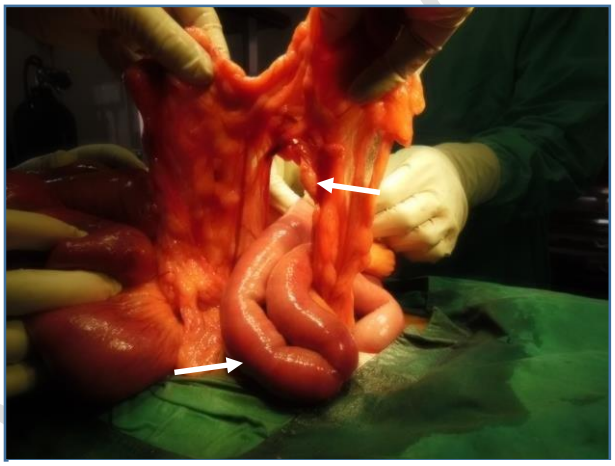

Fig-2Intraoperativephotographshowing transomentalherniawithbowelherniation

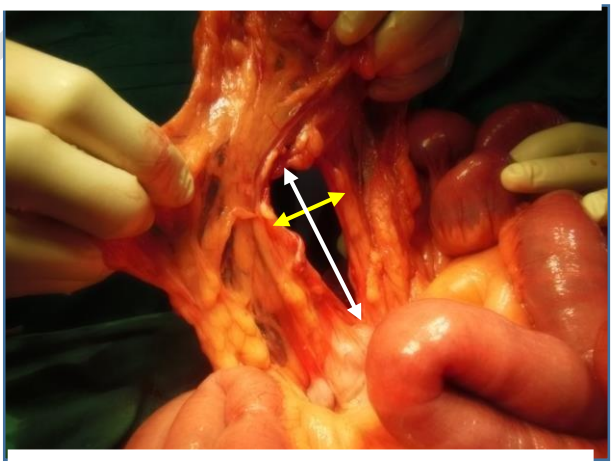

Fig-4Intraoperativephotographshowing triangulartransomentaldefect

Fig-6Partialomentectomydone

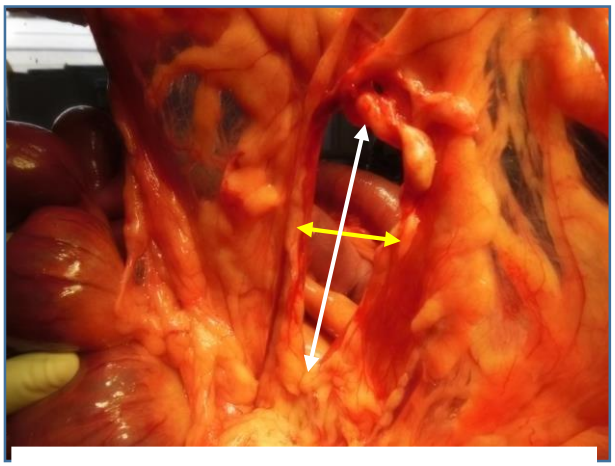

Fig-3Intraoperativephotographshowing triangulartransomentaldefectofsize10x4cm

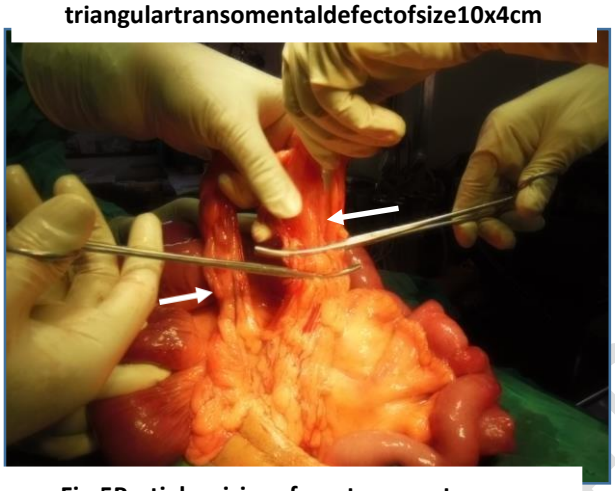

Fig-5Partialexcisionofgreateromentum

Discussion

The overall incidence of internal hernias ranges from approximately 0.2% to 0.9%. These herniasaccount for 0.6% to 5.8% of all cases of intestinal obstruction, with transomental herniasconstituting 1-4% of all internal hernias. To gather information, we conducted a PubMed searchusing the keyword "Transomental Hernia" for reports published between 1960 and 2017, identifying24cases,includingour25thcase,whichinvolvedherniationthroughthegreateromentum.[1,2, 3]

Congenital transomental hernias are relatively common in children, whereas in adults,transomental hernias are typically reported in individuals over 50 years old. In adults, internalhernias through the greater and lesser omentum can occur spontaneously due to senile atrophy,with or without a history of surgery, trauma, or inflammation. Yamuguchi's classification categorizestransomentalhernias asfollows:[2,3,4]

1. Type A – Herniation within the peritoneal cavity through the greater omentum to peritonealcavity.
2. Type B– Herniationwithintheperitonealcavity intotheomentalbursato peritonealcavity.
3. Type C– Herniationwithintheperitonealcavity involvingthe omental bursa.

Our case falls under Type A. It's important to note that transomental hernias carry a highmortality rate of 30%.Abdominal CT scans are considered the gold standard for assessing bowelobstruction and internal hernias. These scans can reveal characteristic signs such as the "Beak Sign"and "Whirl Sign," which indicate a swirling pattern of the mesenteric vessels. Surgical treatmenttypically involves reducing the herniated intestinal segment, and if there is gangrene present, bowelresection becomes necessary. In recent years, laparoscopic surgery has become a common approachfordiagnosingandtreatingtransomentalhernias.[5,6,7]

Conclusion

Spontaneous transomental hernias are exceptionally uncommon. The primary treatment fortransomental hernias involves a surgical approach, which can be carried out using either laparoscopyor laparotomy. The essential steps in the surgical procedure include reducing the herniated boweland addressing the omental defect. This may involve closing the defect or performing anomentectomytoprevent thepossibilityoffutureherniation’s.

Ethical Approval:

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

Consent

As per international standard or university standard, patient(s) written consent has been collected and preserved by the author(s).

References

1. Buainain LA, Kaundinya KB, Hammed FN. Transomental hernia - An enigmatic case reportcausing bowel obstruction in a virgin abdomen. Int J Surg Case Rep. 2020;66:88-90. doi:10.1016/j.ijscr.2019.11.034.Epub2019Nov27.PMID:31816511; PMCID:PMC6908993.

2. Lee SH, Lee SH. Spontaneous Transomental Hernia. Ann Coloproctol. 2016 Feb;32(1):38-41.doi:10.3393/ac.2016.32.1.38.Epub2016Feb29.PMID:26962535;PMCID:PMC4783511.

3. Koichi Inukai, Nobuhiro Takashima, HirotakaMiyai, Minoru Yamamoto, Kenji Kobayashi,Moritsugu Tanaka, Tetsushi Hayakawa, Two patients with spontaneous transomental herniatreated with laparoscopic surgery: a review, *Journal of Surgical Case Reports*, Volume 2018,Issue 4,April2018, rjy070,https://doi.org/10.1093/jscr/rjy070

4. Crispín-Trebejo B, Robles-Cuadros MC, Orendo-Velásquez E, et al. Internal abdominal hernia:Intestinal obstruction due to trans-mesenteric hernia containing transverse colon. Int J SurgCaseRep.2014;5(7):3968.PubMed |Google Scholar

5. Fujimoto, Y., Ohya, Y., Hayashida, S. et al. Laparoscopic surgery for two patients withstrangulated transomental hernias. surg case rep 6, 53 (2020).https://doi.org/10.1186/s40792-020-00815-y

6. Kundaragi NG, Vinayagam S, Mudali S. Stretched bowel sign in combined transmesocolic andtransomental internal hernia: A case report and review of literature. Indian J Radiol Imaging2014;24:171-4.

7. Newsom B.D., Kukora J.S. Congenital and acquired internal hernias: unusual causes of smallbowelobstruction. Am.J.Surg.1986;152:279–285. [PubMed][GoogleScholar]

8. Otuu O, Eni EU, Nweke OO, Enweremadu CK. Spontaneous transomental hernia: An interestingintraoperative cause of intestinal obstruction. J Case Rep Images Surg2021;7:100087Z12OO2021

9. Bensardi F, Ouchane M, Bouali M, et al. Strangulated transomental hernia: case report andliterature review.GastroenterolHepatol Open Access. 2022;13(5):165–166. DOI:10.15406/ghoa.2022.13.00517

10. Haruna, Takahiro & Matsuda, Akihisa & Koizumi, Michihiro& Yamada, Takeshi & Shinji, Seiichi& Yokoyama, Yasuyuki& Takahashi, Goro&Hotta, Masahiro & Iwai, Takuma & Hara, Keisuke &Takeda, Kohki& Yoshida, Hiroshi. (2020). Development of transomental hernia shortly afterlaparoscopic colonic surgery: a case report. Surgical Case Reports. 6. 10.1186/s40792-020-0783-6.