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Peritoneal hernia following abdominal hysterectomy: A case report

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ABSTRACT

Background: Internal hernias rarely lead to bowel obstruction; they are caused by a natural or unnatural opening within the peritoneal cavity. Defects in the peritoneum are extremely rare. Patients present with features of intestinal obstruction and most cases are diagnosed during surgery.
Case Presentation: A 47-year-old woman with a history of multiple abdominal surgeries had a small bowel hernia through a peritoneal defect of the anterior abdominal wall. She presented with abdominal pain and distension and was taken to the operating room, where findings revealed an intact fascia and small bowel herniation through a midline peritoneal defect.
Conclusion: Herniation of small bowel through the peritoneum is a rare type of internal hernia that can manifest in a patient with extensive history of abdominal surgeries. This type of clinical picture warrants a high degree of suspicion for prompt and proper management. Surgery should not be delayed, to avoid increased morbidity and mortality.

1. Introduction

An incisional hernia refers to an abdominal wall hernia at the site of a previous surgical incision. It can present as a definite hernia, with all the hernia components of the defect, sac, and content, or as a weakness of the fascial wall, with shallow sac and occasional bulge of content. While this complication occurs in 5–10% of patients after abdominal surgery, with only 1% of those cases causing obstruction [1,2], most hernias occur through the fascia, and peritoneal hernias are not ordinarily reported [3]. Prior cases of peritoneal hernia have involved congenital defects, herniation through the peritoneal defect of the pouch of Douglas, and peritoneal pocket hernias after laparoscopic ventral herniorrhaphy [4,5,6].

Peritoneal closure has long been a debated topic. Advantages of peritoneal closure include reducing the risk of infection and wound herniation in addition to approximation of tissues for healing [8]. While prior studies found that peritoneum closure decreases the risk of adhesion [8], recent studies have shown that peritoneum closure has no benefit in relation to the formation of intra-peritoneal adhesion [9]. In addition, because closure increases postoperative pain and increases operating time without changing short-term morbidity, several studies have deemed peritoneal closure not necessary [8–13]. No systematic review has been conducted to study whether the peritoneum should be closed or left open after non-obstetric operations involving laparotomy and there is currently no consensus about the method of closure of the peritoneum (continuous suture versus interrupted suture) [14]. Ultimately, the decision to close the peritoneum after laparotomy has become a decision made by the surgeon based on his or her preference.

2. Case Presentation

A 47-year-old woman, gravida 1 with spontaneous abortion, presented to the emergency department with pain, abdominal distention, and lack of flatus or bowel movement on day 4 after total abdominal hysterectomy of an 18-week-sized leiomyomatous uterus. Her history was notable for menorrhagia of 15 years, a diagnostic laparoscopy, two abdominal myomectomies, a laparoscopic left ovarian cystectomy, and a hysteroscopic myomectomy.

Regarding her surgery, initial entry was made via Pfannenstiel incision but to improve surgical exposure and delivery of the enlarged uterus, a Maylard incision was performed. After hysterectomy, the peritoneum and subsequently the fascia were closed in a running fashion with 0-Vicryl suture. She met all post-operative milestones and was discharged in stable condition on the second post-operative day.

On re-presentation, her vital signs were unremarkable. She looked visibly uncomfortable and complained of significant "gas" pain.

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Examination revealed a soft, mildly tender, distended abdomen with hypoactive bowel sounds and voluntary guarding. The abdominal skin incision site was clean, dry, and intact. Pelvic exam revealed that the vaginal cuff was also intact.

CT imaging was ordered and revealed a small segment of small bowel herniating through the peritoneum but still contained by the fascia (Fig. 1), after which the patient was scheduled for an exploratory laparotomy.

Upon entry through previous abdominal incision, the fascia was found to be intact, with no evisceration of bowel. However, when the fascia was re-opened, the small bowel was seen protruding through a 2 × 2 cm midline defect of the peritoneum. The bowel was healthy, without any sign of injury or strangulation, and was easily reduced into the peritoneal cavity. The decision was then made to open the peritoneum and ultimately close the fascial layer only, in a running fashion with 0-Vicryl suture. Postoperatively, the patient experienced a return of bowel function and was subsequently discharged home in stable condition.

3. Discussion

Hernias occur when the bowel or peritoneum protrudes through the abdominal wall. While most incisional hernias protrude through the fascia, the patient's peritoneal incisional hernia is extremely rare [3]. While a prior case of herniation through a peritoneal defect of the pouch of Douglas has been reported postoperatively, most internal hernias are a result of congenital defects [6]. Risk factors include prior laparotomy, recurrent incision intraoperatively, and poor surgical and disturbed wound healing [2]. Protective factors included nonabsorbable sutures and the use of a transverse incision [7].

The Maylard incision, used in this case, is a transverse incision indicated during hysterectomy when additional exposure of the abdominal, pelvic, and retroperitoneal cavities is required [15,16,17]. It is associated with a low rate of hernia formation and low rate of mortality, and, ordinarily, the peritoneum is not closed with this surgical approach [18]. The use of knots and sutures during peritoneal closure in transabdominal preperitoneal laparoscopic hernia repair has been rarely associated with herniation; however, factors such as previous abdominal surgery or inflammation are more likely involved [19,20]. This patient's extensive history of abdominal surgeries may have contributed to the peritoneal herniation. It is also proposed that another contributing factor to the formation of the patient's hernia was the "conversion" of her original Pfannenstiel incision to the Maylard incision, as the Maylard incision is performed higher up on the abdominal wall and does not involve fascial dissection from the rectus abdominis muscles.

This case report documents a rare occurrence of peritoneal hernia after total abdominal hysterectomy, during which a Maylard incision along with peritoneal closure were employed. Surgeons must take care to thoroughly inspect peritoneal and/or fascial closures. While peritoneal closure may have contributed to her hernia formation, it is important to not discount her extensive history of abdominal surgeries as a key contributor. Thus, even though hernia through a peritoneal defect with intact fascia is an extremely uncommon type of internal hernia and its preoperative diagnosis is difficult, a high degree of suspicion based on CT findings and history of abdominal surgery may be necessary for prompt management.

Contributors

Caroline S. Kwon participated in the direct care of the patient and was involved in the conception of the case report, drafting the article, making the figures, and incorporating critical edits.

Jennifer Dai was involved in performing background research for the article and crafting the discussion.

Mark V. Sauer assisted with all critical edits, particularly related to the discussion points and important intellectual content to learn from this case.

All authors approved of the final article.

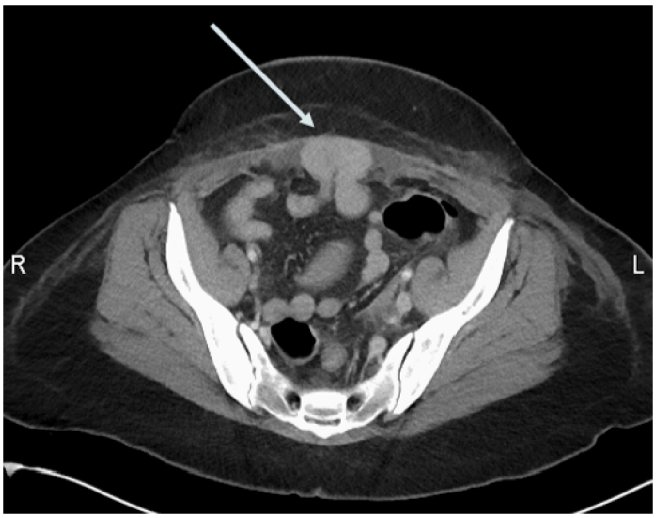

Fig. 1. CT scan of the abdomen showing a midline peritoneal hernia (arrow). Note the presence of bowel loops in the hernia sac extending to but contained within fascial surface.

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Patient consent

Obtained.

Provenance and peer review

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Conflict of interest statement

The authors declare that they have no conflict of interest regarding the publication of this case report.

References

[1] M. Mudge, L.E. Hughes, Incisional hernia: a 10 year prospective study of incidence and attitudes, Br. J. Surg. 72 (1) (1985 Jan) 70–71, https://doi.org/10.1002/bjs.1800720127. 3155634.

[2] J. Höer, G. Lawong, U. Klinge, V. Schumpelick, Einflussfaktoren der Narbenhernienentstehung. Retrospektive Untersuchung an 2.983 laparotomierten Patienten über einen Zeitraum von 10 Jahren [Factors influencing the development of incisional hernia. A retrospective study of 2,983 laparotomy patients over a period of 10 years], Chirurg 73 (5) (2002 May) 474–480. German.

[3] A. Coda, M. Bossotti, F. Ferri, R. Mattio, G. Ramellini, A. Poma, F. Quaglino, C. Filippa, A. Bona, Incisional hernia and fascial defect following laparoscopic surgery, Surg. Laparosc. Endosc. Percutan. Tech. 9 (5) (1999 Oct) 348–352. Corrected and republished in: Surg Laparosc Endosc Percutan Tech. 2000 Feb;10 (1):34–8, 10803397.

[4] S. Xianqing, S. Wei, L. Zhixian, Laparoscopic repair of a congenital internal hernia due to peritoneal aperture, Asian J. Surg. 44 (10) (2021 Oct) 1328–1329, https://doi.org/10.1016/j.asjsur.2021.06.039. Epub 2021 Jul 27, 34330589.

[5] S. Narayanan, T. Davidov, Peritoneal pocket hernia: A distinct cause of early postoperative small bowel obstruction and strangulation: a report of two cases following robotic herniorrhaphy, J. Minim. Access Surg. 14 (2) (2018) 154–157, https://doi.org/10.4103/jmas.JMAS_174_17.

[6] P.W. Choi, Small bowel obstruction caused by internal hernia through a peritoneal defect of the pouch of douglas: report of a case and review of the literature, Case

Rep. Surg. 2017 (2017) 9819270, https://doi.org/10.1155/2017/9819270. Epub 2017 Jul 5. PMID: 28758042; PMCID: PMC5516733.
[7] N.C. Hodgson, R.A. Malthaner, T. Ostbye, The search for an ideal method of abdominal fascial closure: a meta-analysis, Ann. Surg. 231 (3) (2000 Mar) 436–442, https://doi.org/10.1097/00000658-200003000-00018. PMID: 10714638; PMCID: PMC1421016.
[8] D.M. Duffy, G.S. di Zerega, Is peritoneal closure necessary? Obstet. Gynecol. Surv. 49 (12) (1994 Dec) 817–822, https://doi.org/10.1097/00006254-199412000-00005. PMID: 7885658.
[9] A. Mohammadi Tofigh, M.H. Jafarzadeh, Comparison of peritoneal closure versus non-closure after non-infected elective laparotomy with a midline incision: a randomized clinical trial, Shiraz E-Med J 22 (9) (2021), https://doi.org/10.5812/semj.108419 e108419.
[10] G.H. Lipscomb, F.W. Ling, T.G. Stovall, R.L. Summitt Jr., Peritoneal closure at vaginal hysterectomy: a reassessment, Obstet. Gynecol. 87 (1) (1996 Jan) 40–43, https://doi.org/10.1016/0029-7844(95)00362-2. PMID: 8532263.
[11] J.B. Sharma, Closure of the peritoneum is not necessary in obstetric and gynecologic surgeries, Acta Obstet. Gynecol. Scand. 81 (1) (2002 Jan) 80–87, https://doi.org/10.1034/j.1600-0412.2002.810115.x. Erratum in: Acta Obstet Gynecol Scand 2002 May; 81(5): 476, 11942893.
[12] Y.C. Cheong, N. Bajekal, T.C. Li, Peritoneal closure–to close or not to close, Hum. Reprod. 16 (8) (2001 Aug) 1548–1552, https://doi.org/10.1093/humrep/16.8.1548. PMID: 11473941.
[13] E.D. Kane, M. Leduc, K. Schlosser, N. Parentela, D. Wilson, J.R. Romanelli, Comparison of peritoneal closure versus non-closure in laparoscopic trans-abdominal preperitoneal inguinal hernia repair with coated mesh, Surg. Endosc. 32 (2) (2018 Feb) 627–637, https://doi.org/10.1007/s00464-017-5712-9. Epub 2017 Aug 4, 28779253.
[14] K.S. Gurusamy, E. Cassar Delia, B.R. Davidson, Peritoneal closure versus no peritoneal closure for patients undergoing non-obstetric abdominal operations, Cochrane Database Syst. Rev. 2013 (7) (2013), https://doi.org/10.1002/14651858.CD010424.pub2. CD010424. Published 2013 Jul 4.
[15] B.F. Helmkamp, H.B. Krebs, The Maylard incision in gynecologic surgery, Am. J. Obstet. Gynecol. 163 (5 Pt 1) (1990 Nov) 1554–1557, https://doi.org/10.1016/0002-9378(90)90625-h. 2146878.
[16] S. Manusook, K. Suwannarurk, D. Pongrojpaw, K. Bhamarapravatana, Maylard incision in gynecologic surgery: 4-year experience in Thammasat University Hospital, J. Med. Assoc. Thail. 97 (Suppl. 8) (2014 Aug) S102–S107. 25518301.
[17] Z. Ghanbari, B.H. Baratali, T. Foroughifar, M.D. Pesikhani, M. Shariat, Pfannenstiel versus Maylard incision for gynecologic surgery: a randomized, double-blind controlled trial, Taiwan J. Obstet. Gynecol. 48 (2) (2009 Jun) 120–123, https://doi.org/10.1016/S1028-4559(09)60270-9. 19574171.
[18] E. Ortiz Molina, B. Díaz de la Noval, M.J. Rodríguez Suárez, R. Hernández Pailos, F. García Sánchez, J. García González, Maylard's incision: how to make an easy incision for complex pelvic abdominal surgery, Int. J. Gynecol. Cancer 30 (1) (2020 Jan) 154–155, https://doi.org/10.1136/ijgc-2019-000876. Epub 2019 Oct 23, 31645427.
[19] S. Bringman, P. Blomqvist, Intestinal obstruction after inguinal and femoral hernia repair: a study of 33,275 operations during 1992–2000 in Sweden, Hernia. 9 (2005) 178–183.
[20] U.A. Dietz, S. Menzel, J. Lock, A. Wiegering, The treatment of incisional hernia, Dtsch. Arztebl. Int. 115 (3) (2018 Jan 19) 31–37, https://doi.org/10.3238/arztebl.2018.0031. Erratum in: Dtsch Arztebl Int. 2018 Feb;115(6): 98. PMID: 29366450; PMCID: PMC5787661.