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CASE IMAGE

Port-site hernia: A potentially severe complication of minimally invasive surgery

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Key Clinical Message

Recently, the number of minimally invasive surgeries (MIS) is increasing; however, a specific postoperative complication of MIS such as port-site hernia needs to be recognized. A persistent postoperative ileus after MIS is rare and such symptoms need to be recognized as a probable sign of a port-site hernia.

Abstract

Recently, minimally invasive surgery (MIS) approaches for early endometrial cancer have shown non-inferior oncologic outcomes with better perioperative morbidity than open approaches. Nevertheless, port-site hernias are a rare but specific surgical complication of MIS. Knowing the clinical presentation, surgery for port-site hernias could help clinicians manage this condition.

KEYWORDS

endometrial cancer, ileus, minimally invasive surgery, port-site hernia

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A 64-year-old woman underwent total laparoscopic hysterectomy and bilateral salpingo-oophorectomy for endometrial cancer without any intraoperative complications. In this surgery, two 12-mm trocars (umbilical and right lower abdomen) and two 5-mm trocars (middle and left lower abdomen) were used. Port-site fascial closure was performed for two 12-mm port sites using the 2-0 polyglactin 910. No abdominal metastasis was found during the surgery.

She developed an ileus on postoperative Day 1 (POD-1); however, no abnormal laboratory findings were observed. Pain management and fluid therapy were administered as per the diagnosis of non-obstructive bowel dysfunction. On POD-4 laboratory results (white blood cell count, C-reactive protein levels, electrolyte levels, and renal function) were normal and the patient had no sign of infection, but the ileus was not improved. On POD-5, the patient developed sudden right lower abdominal pain with a huge palpable lower abdominal mass. Computed tomography revealed a mass lesion at the right port site, suggesting massive herniation of the small bowel through the right 12-mm-sized port site (Figure 1A,B). During the second surgery on POD-5, we attempted to repair the strangulated hernia (Figure 2A); however, it required 10-cm laparotomy to pull out the struggled ileum. After laparotomy over the previous port site, approximately 55 cm of the ileum was resected owing to necrosis (Figure 2B). For the fascial closure of the port-site hernia, intermittent sutures using 0 poly-p-dioxanone were applied, and mesh-augmented repair was not performed. Subsequently, the patient was discharged without any postoperative complications.

The port-site hernia is a potentially serious complication of minimally invasive surgery (MIS) with a reported

Shinya Matsuzaki, Michihide Maeda and Tsuyoshi Hisa contributed equally to this work.

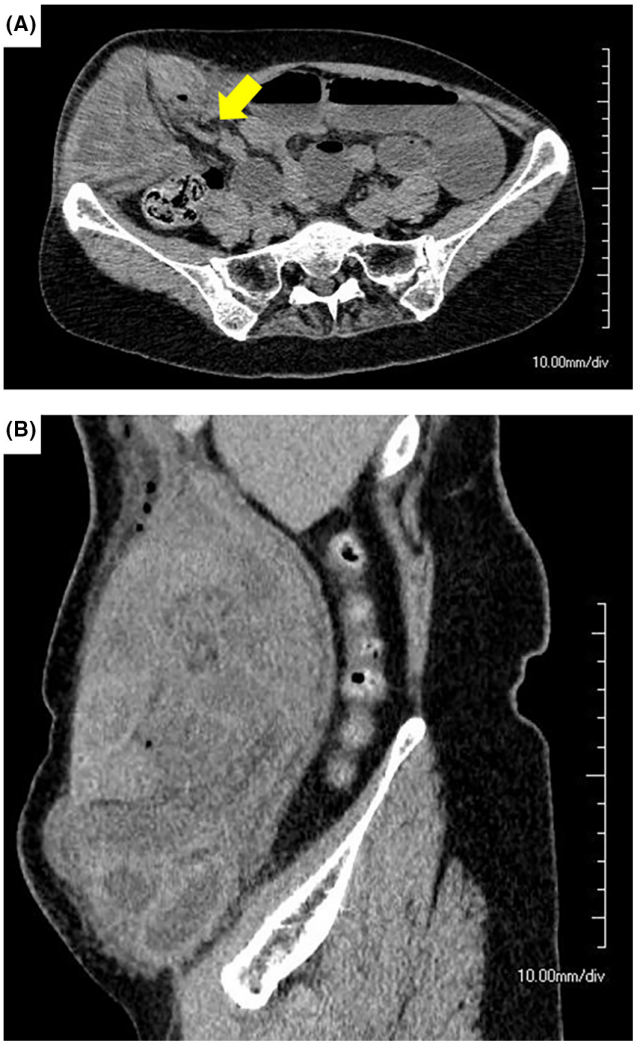

FIGURE 1 Preoperative images of port-site hernia. Horizontal image (A) and sagittal image (B) of plane computed tomography. The patient developed a huge palpable mass and sudden right lower abdominal pain on postoperative Day 5. Computed tomography revealed a 163 × 91 × 63 mm mass. Herniation of the small bowel through the port site was suspected. Yellow arrow indicates the 12-mm port site. (Scale bar: 1 cm/ division of scale).

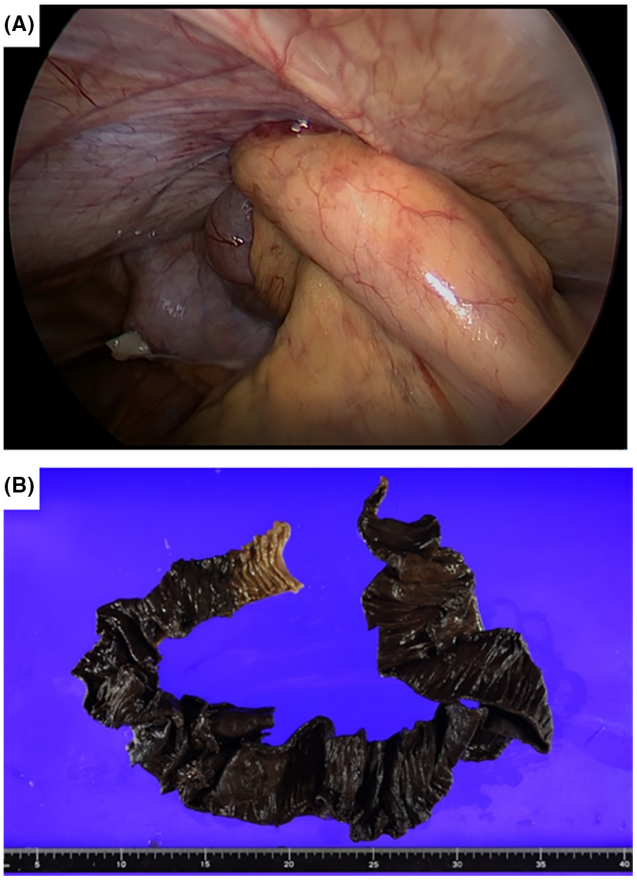

FIGURE 2 Intraoperative and resected specimen of port-site hernia. (A) Intraoperative image during the second minimally invasive surgery reveals herniation of the small bowel. Since the bowel was stacked at the port site, repair of the herniation by pulling out the bowel was challenging. Laparotomy at the port site was performed to pull out the stacked small bowel. (B) Following herniation repair, approximately 55 cm of the small bowel was resected due to necrosis that could not be treated conservatively and thus a side-to-side anastomosis was performed.

incidence of 0.5–2%.[1,2] A previous American Association of Gynecologic Laparoscopists surgery study of 840 port-site hernia showed that approximately 85% of cases occurred at sites >10 mm; thus, the larger port should be noted as a risk factor for port-site hernias.[2] Although the size of the trochar requiring fascial closure remains controversial, several studies have suggested a >10-mm size for the closure of port sites.[2]

Despite fascial closure of the port site, our case developed to port-site hernia due to the ileus. We consider that postoperative ileus may lead to increased abdominal pressure, and this may cause wound dehiscence with massive 12-mm port-site hernias. Therefore, our report creates awareness regarding the possibility of port-site hernias in women who develop ileus after MIS. We believe that the early use of whole abdominal ultrasonography or computed tomography in women with ileus after MIS has the potential to reduce the perioperative morbidity regarding port-site hernias.

We need to recognize that the repair of port-site hernias is challenging in some cases. Our case has shown that the repair of a strangulated hernia is difficult and needs laparotomy and resection of necrotic bowel. In women with massive port-site hernias, the necessity of laparotomy and resection of the necrotic bowel should be recognized. As a previous randomized controlled study has shown that prophylactic mesh-augmented abdominal wall closure after emergent laparotomy is safe,[3] the role of mesh-augmented abdominal wall closure during the repair of port-site hernias ought to be examined in future studies.

AUTHOR CONTRIBUTIONS

Shinya Matsuzaki: Conceptualization; project administration; writing – original draft. **Michihide Maeda:** Conceptualization; project administration; writing – original draft. **Tsuyoshi Hisa:** Conceptualization; project administration; writing – original draft. **Shoji Kamiura:** Conceptualization; project administration; writing – original draft.

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None.

CONFLICT OF INTEREST STATEMENT

The authors report no conflicts of interest concerning the materials or methods used in this study or the findings specified in this paper. The authors have no competing financial interests related to this study.

DATA AVAILABILITY STATEMENT

The data of case presentation are available from the corresponding author upon reasonable request.

CONSENT STATEMENTS

The patient provided written informed consent for the publication of the details of the clinical image.

ETHICS APPROVAL

The Osaka International Cancer Institute Institutional Review Board approved this study (No. 22102).

PATIENT CONSENT

The patient provided written informed consent for the publication of the details of the clinical image.

PERMISSION TO REPRODUCE MATERIAL FROM OTHER SOURCES

Not applicable.

CLINICAL TRIAL REGISTRATION

Not applicable.

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