

5 mm port site hernia causing small bowel obstruction

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Abstract We present a case of acute postoperative small bowel obstruction following laparoscopic ovarian cystectomy. The patient returned to theatre for second look laparoscopy where a 5-mm port-site hernia containing small bowel was found at the site of a previous drain. The hernia was reduced and the defect closed with sutures. This should make surgeons rethink the assumption that herniae do not occur through 5-mm ports. The use of drains, methods of achieving port closure, ways of investigating postoperative ileus, and the treatment of port-site herniae are discussed.

Keywords Port site hernia · Small bowel obstruction · Laparoscopy

Introduction

Port-site hernia occurs in approximately 0.2% of gynaecological laparoscopies [1]. Most gynaecologists do not close the deep fascia in 5mm ports because of the low risk of herniation. We show that port site herniae can occur through 5mm ports and explain when this may occur. We present a case that should make gynaecologists rethink this assumption.

Case report

A 38-year-old gravida 4 para 2 presented to our acute gynaecology service with a 48-h history of left-sided abdominal pain. She was on day 20 of a regular 28-day menstrual cycle and had a BMI of 23. Her past medical history was of a miscarriage and an ectopic pregnancy treated nonsurgically. On examination, there was left lower quadrant and cervical tenderness. Haematological parameters were within normal limits, and she was not pregnant. Transabdominal ultrasound demonstrated a 6.5 cm×4.0 cm complex cyst in a 3.8 cm×3.0 cm left ovary.

She underwent diagnostic laparoscopy which lasted approximately 30 min. Pneumoperitoneum was established with a Veress needle. A 10-mm umbilical camera port and two 5-mm working port sites were made in both lower quadrants. A 4-cm left parafimbrial cyst with smaller cysts surrounding the left ovary were found, and the main cyst excised using LOTUS® ultrasonic scalpel (S.R.A. Developments, UK). A 20Fr Robinson drain (PFM, Germany) was placed in the right lower quadrant port and removed after 24 h with minimal drainage.

Approximately 1 h after drain removal, she complained of pain at the drain site. On day 2, she began to vomit bilious fluid. On examination, she was apyrexial, and her abdomen was distended, and a tender mass was palpable under the right lower quadrant port site that was taken to be a haematoma. A repeat ultrasound demonstrated a 7.4×3.1 cm fluid collection in the right iliac fossa which was taken to represent intraperitoneal haematoma. Abdominal radiograph revealed a few prominent loops of small bowel with no gas in the rectum (Fig. 1). A nasogastric tube was inserted which drained 2.5 L of bilious fluid over 24 h. She was treated for postoperative ileus by elimination of opiate medication and correction of hypokalaemia ($[K]=3.7$ mmol/L). As she did

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Fig. 1 AXR demonstrates a loop of dilated small bowel at the site of right lower quadrant port site

not become febrile, drainage of the intraperitoneal haematoma was not considered necessary. On day 5, her nasogastric aspirates were still over 2 L/day and she was taken back for a second look laparoscopy.

Open 10-mm port insertion was performed through the previous umbilical incision. A new 5-mm port was created in the left lower quadrant, in case there were adhesions or herniae at earlier port sites. At laparoscopy, a pelvic haematoma was found. On closer inspection, a viable loop of terminal ileum was found to have herniated through the right lower quadrant 5-mm port site causing small bowel obstruction (Fig. 2) This was reduced laparoscopically, and the external oblique aponeurosis closed with sutures



Fig. 2 A 5-mm port site hernia containing small bowel

through an enlarged skin incision. The haematoma was washed out and the other ports removed under vision. Three days later, she was discharged from hospital.

Discussion

Port site herniation is a rare problem in laparoscopic surgery. Surgeons anecdotally do not close 5-mm ports, as they assume that herniation is impossible through such a small defect. However, in a retrospective review of 5,300 gynaecological laparoscopies, 11 port site herniae were reported with five of these through 5 mm ports [1]. These herniae occurred between days 2 and 229 postoperatively and contained either small bowel or omentum. These were all reduced at laparoscopy and the external oblique aponeurosis closed by enlarging the skin incision. However, in other rare cases, the appendix and nodules of endometriosis have been reported in port-site herniae [2, 3]. We recommend removing ports under vision to visualise the fascial defect, which may be larger than the skin incision because of the way laparoscopic instruments work as a lever. It is also important to examine port sites postoperatively for herniae. Subtle abdominal radiograph findings include a dilated loop underneath the position of the port site (Fig. 1). This occurs before the proximal bowel distends with air and fluid. We now refer to the combination of a lump under a port site in a patient with small bowel obstruction as the “port site sign”.

Port site closure can be achieved by simple suture, for example, using a Langenbeck retractor to lift the deep fascia; however, the underlying viscera cannot be visualised. However, it is now possible to close ports under direct vision whilst maintaining pneumoperitoneum with devices such as the Carter–Thomason CloseSure® system (Inlet Medical, USA) [4]. This can be used if manipulation has enlarged the fascial defect beneath a port significantly.

This is the second report of a port site hernia occurring following drain removal [5]. In this case, the drain diameter (6.7 mm) was larger than that of the port (5 mm), and we suggest that this was responsible for creating an enlarged fascial defect. Herniation is otherwise extremely rare through 5-mm ports [1]. In open surgery, bowel herniation has similarly been reported through drain sites, notably after large (30Fr) drains are used [6]. We suggest avoiding drains if possible for minor gynaecological procedures, only placing drains through 5-mm port sites and using a maximum of 15Fr drains (5 mm diameter). It is also true that better haemostasis at the time of surgery would eliminate the need for a drain. In fact, the use of a drain did not prevent a pelvic haematoma.

In a questionnaire survey of gynaecologists regarding patients who had experienced ileus or incomplete small bowel obstruction post-laparoscopy, 50% of patients

eventually required a second procedure [7]. The pathology in these patients included: herniation of bowel, perforation of bowel, volvulus and urinoma. Hence, we recommend that ileus that persists for more than 72 h be investigated.

Surgeons vary in their preference for CT imaging or laparoscopy in investigating prolonged postoperative ileus. In a retrospective review of 33 patients with acute small bowel obstruction, laparoscopy safely gave the diagnosis in all cases, and treatment was possible in two thirds [8]. Procedures where vision is poor or those requiring bowel resection or repair of bowel or bladder perforation may necessitate laparotomy. We agree that diagnostic laparoscopy is a safe and valuable tool in investigating prolonged postoperative ileus in patients who have been adequately decompressed with a nasogastric tube and urinary catheter. An open port insertion is essential to prevent bowel injury from adhesions or port-site herniae.

Port-site herniae once diagnosed can be managed either under local anaesthetic or general. If there is no evidence of small bowel obstruction, the port-site can be explored under local anaesthetic, any omentum in the wound reduced with finger pressure or excised and the defect primarily closed in the same manner as the umbilical camera port. Such procedures have been reported to work successfully in over half of simple omental herniations [1]. If the small bowel is caught in the wound, or there is evidence of small bowel obstruction, a general anaesthetic is required to relax the abdominal wall to aid reduction, perform laparoscopy/laparotomy and in case bowel resection is required.

In conclusion we stress the importance of removing ports under vision to inspect the fascial defect, closing fascial defects >5 mm, using a maximum of 15Fr drains through

5-mm ports and examining port-sites postoperatively. Ileus which extends beyond 3 days should be investigated by CT or laparoscopy. Port-site hernia with small bowel obstruction will require a general anaesthetic procedure, whilst those without can be explored under local.

Conflict of interest None

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