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*Source / Izvornik:* **Libri Oncologici : Croatian Journal of Oncology, 2018, 46, 20 - 23**

**Journal article, Published version**

**Rad u časopisu, Objavljena verzija rada (izdavačev PDF)**

<https://doi.org/10.20471/LO.2018.46.01.03>

*Permanent link / Trajna poveznica:* <https://urn.nsk.hr/urn:nbn:hr:220:232684>

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*Download date / Datum preuzimanja:* **2024-09-08**



*Repository / Repozitorij:*

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## RARE CASE OF EARLY-ONSET DRAIN-SITE HERNIA AFTER LAPAROSCOPIC SURGERY

MARIO PULJIZ<sup>1</sup>, LUKA MARČELIĆ<sup>1</sup>, ILIJA ALVIR<sup>1</sup>, IVICA MAMIĆ<sup>1</sup>, DAMIR DANOLIĆ<sup>1</sup>, LUCIJA ŠUŠNJAR<sup>1</sup>, DARKO TOMICA<sup>2</sup>, VESNA STEPANIĆ<sup>3</sup>

<sup>1</sup>Clinical Department of Gynecologic Oncology, University Hospital for Tumors, Sestre milosrdnice University Hospital Center, Zagreb, Croatia

<sup>2</sup>Department of Gynecology and Obstetrics, General Hospital Scheibbs, Scheibbs, Austria

<sup>3</sup>Department of Gynecology and Obstetrics, University Hospital Merkur, Zagreb, Croatia

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### Summary

Port site hernia is very rare but serious complication after laparoscopic procedures. In clinical practice drain is often placed in 10 mm or larger trocar port sites. We report a case of 61-year-old woman who underwent laparoscopy and developed small bowel herniation and incarceration in a 12 mm port site in which 24 Fr drain was inserted leaving real free space of approximately 4 mm. There are only a few case reports with the similar pathology. Priority should always be on the adequate fascial closure of port sites. Smaller trocar insertion sites (<10 mm) should be used as insertion sites for drains.

KEY WORDS: *laparoscopy complications, drain-site, herniation, fascial closure*

### HERNIJACIJA KROZ DRENAŽNI OTVOR KAO RIJETKA RANA -KOMPLIKACIJA LAPAROSKOPIJE

#### Sažetak

U kliničkoj praksi abdominalni dren se često postavlja na mjesta insercije troakara promjera većih od 10 mm, te je pojava hernije, kao vrlo rijetke ali ozbiljne komplikacije ovih zahvata moguća. U prikazanom slučaju, na mjestu insercije troakara promjera 12 mm lijevo postavljen je dren veličine 24 Fr koji je dodatno reducirao prostor dostupan za hernijaciju na oko 4 mm. Kroz ovaj otvor ipak je došlo do hernijacije i inkarceracije tankog crijeva, što je opisano u svega nekoliko slučajeva. Smatramo kako je važno odgovarajuće zatvaranje defekata fascije na mjestu postavljanja troakara i postavljanje abdominalnog drena na mjestu insercije troakara promjera manjih od 10 mm.

KLJUČNE RIJEČI: *laparoskopija – komplikacije, abdominalni dren, hernijacija, zatvaranje fascije*

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### INTRODUCTION

Laparoscopic surgeries in gynecologic oncology have evolved greatly since its introduction into the field. In the appropriately selected cancer patients, it showed benefits over conventional open method both intra and postoperatively, with similar outcomes (1,2). Lower morbidity and mor-

tality rate, less postoperative pain and improved postoperative recovery as well as shorter hospital stay and reduced costs are the main arguments in favor of this approach. It is associated with a low frequency of complications, but is a procedure that is not without risk (3,4). Some of the complications that can occur include lesions of bowel, blood vessels, urinary tract, air embolism, cardiac

arrhythmia, abdominal wall and omental injuries (5). Small bowel incarceration as a complication of port site drainage following laparoscopy is extremely rare but potentially life-threatening complication (5-7). Drain site hernia is considered to be one variety of port site hernia (8). The first report in the literature of a port site hernia in the context of gynecological surgery originates from 1968 (9). Complications can vary from herniation of omentum to delayed hernia formation or even intestinal entrapment, furthermore complicated by incarceration, strangulation and necrosis. The port site or the trocar site hernia is well known, but data about the drain site hernia after laparoscopic procedures are insufficient and informal (6). We present a rare case of early-onset drain-site hernia in a woman undergone laparoscopic radical hysterectomy with pelvic lymph node dissection for a cervical cancer.

## CASE REPORT

A 61 year-old woman was admitted to our department for laparoscopic radical hysterectomy with pelvic lymph node dissection for cervical cancer. The intervention has been performed according to a standardized procedure. After induction of anesthesia, carbon dioxide pneumoperitoneum was created using Veress needle insertion technique. Pneumoperitoneum was created and maintained at a pressure of 12 mmHg. The 12 mm trocars were inserted in infraumbilical site and in left lower abdominal quadrant site. 5 mm trocar was inserted in the right lower abdominal quadrant site. Pelvic and abdominal cavity were inspected with laparoscope and showed no visible pathology. The lateral peritoneum on each side was opened and bilateral pelvic lymph node dissection was performed as usual manner. The specimen was removed through the left trocar port. The resection of the upper third of vagina was achieved with a unipolar electrode. Then the uterus, bilateral adnexa, part of the parametria and upper third of vagina were removed vaginally. The closure of vaginal cuff was intracorporeally with interrupted sutures. Accurate abdominal washing was performed and complete hemostasis was secured. Umbilical 12 mm trocar site was closed and 12 mm trocar site in the left lower abdominal quadrant was used to insert 24 Fr drain.

After drain placement the free space in the port site was approximately 4 mm. The patient had uneventful postoperative recovery until the 4th postoperative day, when she suffered nausea and abdominal pain. She received analgetic and antiemetic therapy. On the 5th day after surgery symptoms increased and vomiting appeared. Patient had absence of stool since the surgery. During abdominal palpation there was diffuse tenderness without presence of rigidity or distension of abdomen. During auscultation peristaltic sounds were heard. C-reactive protein was 57,5 mg/L and hemoglobin was 101 g/L. On daily basis since the operation approximately 300-500 mL of serous fluid was draining. In drained fluid there were increased levels of creatinine which was suggestive of an intraperitoneal urinary leak possible because of injury of urinary tract that could occur during the surgery. On the 6th postoperative day CT urography was performed and showed no signs of urinary tract injury. However, CT scan showed dilatation of small bowel loops up to 4 cm as a result of bowel obstruction. The extended loops were followed to the left pelvis where subcutaneously next to inserted drain was present herniated small bowel loop. Distally of herniation bowels were of normal size. Radiographic examination confirmed ileus due to incarceration of small intestine, so emergency laparotomy was performed. It showed incarcerated small bowel loop herniating through drain site located in the left lower abdominal quadrant. Incarcerated intestine was hyperemic and edematous but no necrosis was detected. Drain was removed and after reduction bowel loop recovered and presented its normal vitality and motility. The drain was inserted in new incision site in right hemiabdomen and fascial defect of the left trocar port side where drain was inserted was closed. During postoperative period patient had increased levels of white blood cells count, C-reactive protein and trombocytes that maintained until 10th day after the surgery. The patient fully recovered and was discharged 14 days after the second surgery.

## DISCUSSION

Laparoscopic equipment and techniques have developed considerably over recent years which led to widespread acceptance of laparoscopic

py in new indications, including its emerging role in gynecological oncology. Parallel to the development of new techniques, that could also expose patients to new, specific complications (1,9). Chapron et al. report an overall complication rate of 4.64 per 1000 gynecologic laparoscopies. The complication rate was significantly related with complexity of procedure (4).

Hernia at the site of entry of a trocar is a uncommon but serious complication. In related articles it is referred to as a trocar or port site hernia (5,6). Tonouchi et al. recognized the first report in the literature of a port-site hernia by Fear in 1968. in his large series on laparoscopy in gynecological diagnosis (5). Although this complication has been recognized for few decades, its significance could become more important with the increasing number of patients treated by laparoscopic surgery. Tonouchi et al. suggested a classification in which port site hernia is divided into three types. The early onset type presents few days after operation, often presenting as a small bowel obstruction, the late onset develops over several months and the special type presents dehiscence of the whole abdominal wall (5,9). In everyday clinical practice 12 mm or 10 mm trocar site is commonly used as the site for drain positioning (6,9). Ramalignam et al. consider drain site hernia as a variety of port site hernia (8). The incidence of port site hernia is estimated to be between 0.65-2.80 % (5,9). Different risk factors for development of port site hernia include preexisting fascial defects, leaving the fascial defect open, stretching the port site for retrieval of specimen, extensive manipulation of the trocar, prolonged duration of surgery, obesity, chronic obstructive airway disease, diabetes, renal failure (5,6). Also two studies suggested the use of drain placed through a port site as a risk factor for port site hernia (9).

The main risk factor for the development of port site hernia seems to be trocar size, more than 86% of hernias occurred in sites where the diameter was at least 10 mm. Visceral herniation through 5 mm port site are considered to be extremely rare and are only reported as case reports, mostly in children. Most hernias appears at the site of mid-line trocars, especially at umbilical sites (5,6,9). Suction effect during the removal of the drain can also facilitate herniation (6). In our case, herniation occurred while the drain was still in place and further reduced space available for herniation at

approximately 4 mm. There are only few cases described in literature similar to our case. Moreaux et al. reported two cases of drain site herniation after laparoscopic surgery in gynecology in a 5 mm port site in which drain was inserted, but herniation occurred after drain removal (10). Ramalignam et al. also described cases of drain site herniation after the removal of drain after pediatric laparoscopy (8). Manigrasso et al. described small bowel herniation after laparoscopic left colectomy through a port site in which a drain was inserted leaving real free space of 2 mm (6).

Today it is common practice to close fascial defects created by 10 mm or larger trocar sites. Surgeons do not routinely close port site of 5 mm because it is believed that such small defect is not enough for formation of hernia (5,6,9). However, Sanz-Lopez et al. insisted that trocar site greater than 5 mm should be closed at the fascial level (11). Some authors suggested closure of 5 mm ports sites only during prolonged procedures with excessive manipulation (5,6,9). Also, drain should not be regularly placed in port sites larger than 10 mm and port sites smaller than 10 mm should be used for that purpose. It is reported by some authors that 10 mm and larger nonbladed trocar sites do not require closure of fascia, except in midline port sites. Switching from sharp cutting device to coneshaped trocar could lower frequency of port site hernia to 0,17%. Problem can be also adequate closure of fascial defect in some patients. If fascial defects cannot be close in a usual manner, some surgeons recommended that it will be advantageous to use one of new techniques as a fascial closure device, a spinal cord needle, a 2 mm trocar, a suture carrier or a Deschamps needle in order to close the fascia and the peritoneum together (5).

In conclusion, our case report suggests review of common practice in which drain is placed in 10 mm or 12 mm port size especially in cases of prolonged surgeries with extensive manipulation with the trocar. In our case real free space after drain placement was approximately 4 mm and herniation still occurred. Priority should always be on adequate fascial closure of port sites in order to prevent complications like herniation. Also, smaller trocar insertion sites (<10 mm) should be used as insertions sites for drains. Surgeons and gynecologists should be aware of this complication and also take it into consideration in differential diagnosis of ileus.

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*Corresponding author: Luka Marcelić, Department of Gynecologic Oncology, University Hospital for Tumors, Sestre milosrdnice University Hospital Center, Ilica 197, 10 000 Zagreb, Croatia. e-mail: luka.marcelic2@gmail.com*