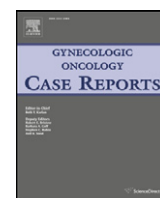


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Case Report

Small bowel perforation 17 months after robotic surgery for endometrial cancer: A case report

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Introduction

Minimally invasive surgery is being used with increasing frequency in gynecological oncology. Many reports have shown minimally invasive surgery to compare favorably with laparotomy in regards to surgical and oncologic outcomes. The Gynecologic Oncology Group (GOG) recently reported the results of a prospective randomized trial (LAP-2) comparing exploratory laparotomy to laparoscopy for the management of endometrial cancer (Walker et al., 2009). They reported no significant differences in intra-operative blood loss, transfusion rates or intra-operative complications between the two groups despite a longer duration of surgery in the laparoscopic group. In addition, there were fewer moderate to severe post-operative adverse events in the laparoscopic group compared with the exploratory laparotomy group. Furthermore, the safety and feasibility of performing robotic surgery in women with endometrial cancer has been noted. To date, there are limited data available on the long-term outcomes and risk of disease recurrence in women undergoing minimally invasive surgery for endometrial cancer.

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Case

A 65-year-old patient presented to her gynecologist with a several month history of intermittent postmenopausal bleeding. An endometrial biopsy was performed showing a grade 2 endometrioid endometrial adenocarcinoma. The patient's family history was significant for her father being diagnosed with bladder cancer at age 90 and her maternal grandfather being diagnosed with colon cancer at age 65. She underwent a robotic hysterectomy and bilateral salpingo-oophorectomy (BSO) with pelvic washings. No evidence of extra-uterine disease was noted. Intraoperative frozen section showed a grade 2 endometrioid adenocarcinoma of the endometrium with less than 50% myometrial invasion, and lymphadenectomy was not performed. The surgery was uncomplicated and the patient was discharged home on postoperative day one. The final pathologic findings were a grade 2 endometrioid endometrial adenocarcinoma measuring 3.0 × 3.0 × 0.8 cm, with 5 of 17 mm of myometrial invasion and lymphovascular space invasion (LVSI) present. The pelvic washings, cervix and adnexa showed no evidence of malignancy. The patient was treated with postoperative vaginal cuff brachytherapy and received five fractions over a 10-day period. A 3.5 cm Delclos dome cylinder was used with the entire length of the dome treated. Therefore, only 2.5 cm of the vaginal apex was treated and the prescription was 6.0 Gy to the surface of the vaginal dome, giving approximately 3.6 Gy to 5 mm per fraction.

The patient was followed every 3 months for surveillance without evidence of disease. Approximately 17 months following her surgery, she presented with nausea, vomiting and abdominal pain. Abdominal X-rays revealed a paucity of gas in the large intestine and rectum and dilated loops of small bowel consistent with early partial small bowel obstruction. Computed tomography (CT) scan findings of the abdomen and pelvis were consistent with a single site of obstruction in the terminal ileum (Fig. 1). She underwent exploratory laparotomy and was noted to have adhesions between loops of small bowel and the right pelvic sidewall as well as the vaginal cuff. Just above the vaginal cuff, there was a contained perforation in the terminal ileum, measuring 1.2 cm in diameter and located 14 cm from the ileocecal valve (Fig. 2). The affected segment of small bowel was therefore transected and a side-to-side anastomosis was performed using a stapler. A complete survey of the abdomen and pelvis revealed no other evidence of recurrent disease.

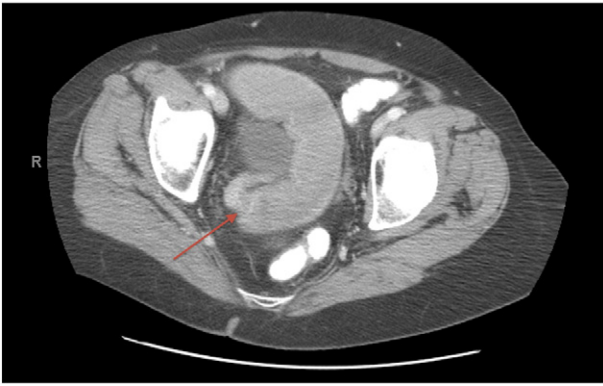


Fig. 1. Computed tomography image of a single site of small bowel obstruction.

The patient's postoperative course was complicated by an ileus, which resolved with conservative management. In addition, she developed a wound infection and separation treated with vacuum assisted closure (V.A.C.®, KCI, San Antonio, Texas). She was discharged home on postoperative day 13. The final pathologic analysis showed a well-differentiated adenocarcinoma invading the wall of the ileum, consistent with patient's prior endometrioid endometrial adenocarcinoma. Tumor cells were located within the bowel wall, within the pericolonic fat, serosa, and submucosa. Focal involvement of the mucosa was noted as well. The remainder of the bowel showed no evidence of disease. The patient was subsequently treated with chemotherapy consisting of six cycles of paclitaxel and carboplatinum. The patient is currently without evidence of disease 22 months after completing therapy.

Discussion

Minimally invasive surgery offers several advantages for the management of women with endometrial cancer. Reported benefits include reduced postoperative morbidity, shorter hospital stay and less postoperative pain, resulting in more rapid recovery and return to normal activity (Walker et al., 2009). Despite these advantages, minimally invasive surgery for the management of endometrial cancer has some limitations including increased duration of surgery and the inability to fully examine the small bowel and mesentery.

In the case presented, the patient developed a small bowel perforation 17 months following robotic surgery and vaginal cuff brachytherapy for presumed early stage endometrial cancer. It remains

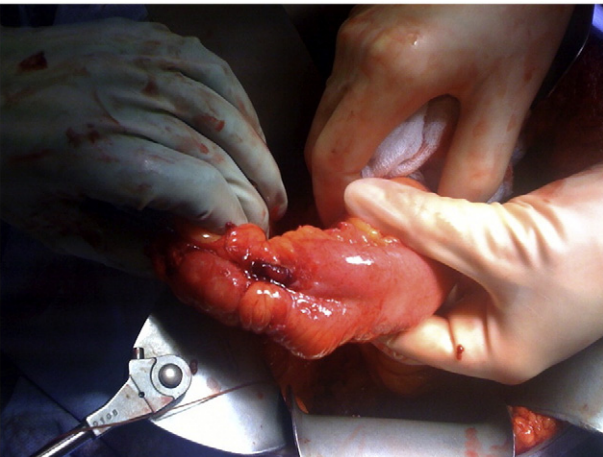


Fig. 2. Small bowel perforation noted at the time of surgery.

unclear if the metastatic implant causing the bowel perforation was present at the time of initial surgery or represents a single site of recurrent disease. In addition, the contributing effect of vaginal cuff brachytherapy is uncertain. Vaginal cuff brachytherapy is used to prevent recurrences in the upper third of the vagina by providing direct radiation to the vaginal cuff with limited spread. It has the advantage of directing the highest possible homogeneous radiation dose to the target tissue, while exposing the normal surrounding structures to minimal radiation (Tuncel et al., 2009). Following hysterectomy, it may be hypothesized that bowel may be more likely to be exposed to radiation treatment. The effects of radiation exposure to large bowel during whole pelvic treatment have been well characterized, and cases of bowel perforation have been reported (Ramirez et al., 2001). However, the effects of vaginal cuff brachytherapy on the bowel are believed to be minimal. At the time of surgical exploration several adhesions were noted between the small bowel and the right pelvic sidewall and vaginal cuff, potentially bringing the small bowel in close proximity to the radiation. However, given that the area of small bowel perforation contained active disease, it appears unlikely that the limited radiation doses to the area contributed to the perforation.

In order to maintain adequate control over the uterus during surgery, we commonly use a manipulator with an inflatable intrauterine balloon (V-Care, ConMed, Utica, NY). Previous studies have proposed that use of an intrauterine balloon may increase the risk of positive peritoneal washing cytology in women with endometrial cancer (Lim et al., 2008). In the current case, the pelvic washings collected after placement of the uterine manipulator were negative for malignancy. It appears unlikely that the use of the uterine manipulator contributed to the recurrent metastatic disease in this case.

In summary, laparoscopic and robotic surgery offers several advantages to women with endometrial cancer and other gynecologic malignancies. Although short-term oncologic outcomes appear similar to laparotomy, longer follow-up is required to confirm that recurrence and long-term survival rates are equivalent. In addition, minimally invasive surgery is limited by the inability to fully examine the small intestine and mesentery. It is unclear in this case if the bowel implant discovered 17 months after the index surgery was due to metastasis or was simply not observed during the patient's initial surgery. While patients are undergoing surveillance following minimally invasive surgery for endometrial cancer, it is important to consider single site metastasis or recurrence as a cause of bowel obstruction.

Informed consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Conflict of interest statement

The authors have no conflicts of interest to declare.

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