

CASE REPORT

Synchronous single-port access laparoscopic right hemicolectomy and laparoscopic-assisted vaginal hysterectomy with bilateral salpingo-oophorectomy

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Abstract

Laparoscopic surgery through a single incision is gaining popularity with different stakeholders. The advantages of improved cosmetics, decreased postoperative pain and blood loss continue to attract patients from different surgical fields. Multidisciplinary approach to different surgical entities through a single incision has just been introduced. We report the first case of a synchronous single-port access (SPA) laparoscopic right hemicolectomy and laparoscopic-assisted vaginal hysterectomy with bilateral salpingo-oophorectomy through a single incision above the umbilicus in a 48-year-old female with ascending colon mass and uterine mass with good postoperative outcomes. SPA laparoscopic surgery is feasible for multidisciplinary approach in resectable tumors.

INTRODUCTION

The first recorded synchronous laparoscopic surgery was in Zurich, Switzerland last 2006 where Breitenstein *et al.* used the vagina to remove the sigmoid colon and uterus [1]. Similarly, transvaginal extraction of the spleen and uterus was done in a community hospital in Arizona, USA last 2013 [2]. Meanwhile, Fistarol *et al.* from Brazil used a single trocar access port through the umbilicus for an adnexal mass excision and cholecystectomy in 2014 [3]. This case report hopes to shift paradigms encouraging multidisciplinary approach through minimally invasive surgery in a single incision port.

CASE REPORT

This is a case of a 48-year-old female clerk with 3 months of fatigue getting worse with occasional diarrhea. There was no

exertional dyspnea, dizziness, loss of consciousness, rectal bleeding and abdominal pain. Past medical history includes well-controlled Diabetes Mellitus Type 2. Previous surgeries include bilateral tubal ligation. Patient is a nonsmoker and occasional alcoholic drinker. Last Pap smear and mammogram were normal. She is G3P3(3003) with menopause at 46 years old. Family history includes ovarian cancer and hypertension on maternal side.

Physical examination reveals body mass index of 31.8 kg/m², pallor, without abdominal masses or tenderness. Pelvic exam showed parous introitus, atrophy of vaginal mucosa, multiparous cervix, 10-week size uterus, no adnexal masses or tenderness, no discharges.

On initial evaluation, she was transfused 2 units of packed red blood cells due to hemoglobin of 6 g/dl. Other pertinent laboratory findings include carcinoembryonic antigen 6.6 mg/ml, calcium 10.4 mg/dl and fasting blood sugar 202 mg/dl. Colonoscopy done showed an ascending colon mass in the hepatic flexure and a

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rectal polyp. Biopsy revealed fragments of infiltrating moderately differentiated adenocarcinoma and benign hyperplastic polyp, respectively.

Computerized axial tomography scan of the abdomen revealed wall thickening or mass involving the proximal ascending colon with multiple subcentimeter lymph nodes within mesentery adjacent to this portion (Fig. 1). There was no evidence of metastatic disease. A 3.8×3.3 cm hypodense mass located in the central portion of the uterus was also noted (Fig. 2).

A vertical 2 cm incision was made above the umbilicus to facilitate extraction of the mass. A commercial transumbilical single-port access (SPA) was placed (Fig. 3). The ileum, cecum and right colon were mobilized from its retroperitoneal attachments. The omentum was then dissected off the transverse colon, and hepatic flexure was subsequently taken down. Next, the right branch of the middle colic artery and the ileocolic pedicle was isolated and doubly ligated with the laparoscopic blunt tip vessel sealer and divider. Laparoscopic surgical staplers were then used to divide the terminal ileum intracorporeally.

The large bowel including the tumor was brought out through the opening in the anterior abdominal wall (Fig. 4). A side-to-side functional end-to-end ileotransverse colic anastomosis was performed with reloadable surgical staplers (Fig. 5). An enterotomy was made on the terminal ileum and a

colostomy was made on the right transverse colon. Vicryl 3-0 sutures were used to bury the corners of the staple line. The anastomosis and staple line was sprayed with fibrin glue and reduced back into the abdomen.

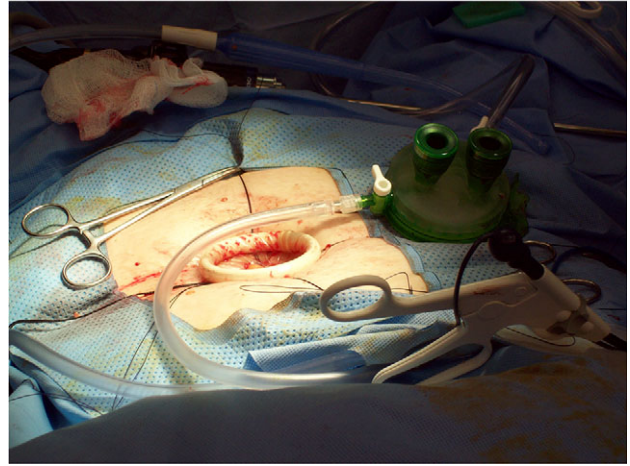


Figure 3: Commercially available SPA.



Figure 1: CT scan of abdomen showing ascending colon mass.

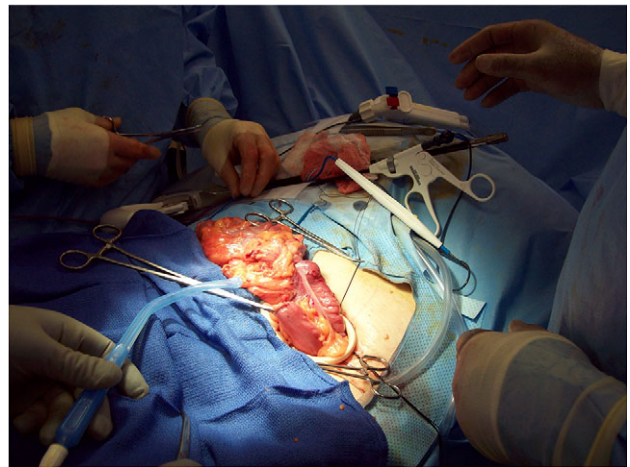


Figure 4: Exteriorization of the ascending colon mass.

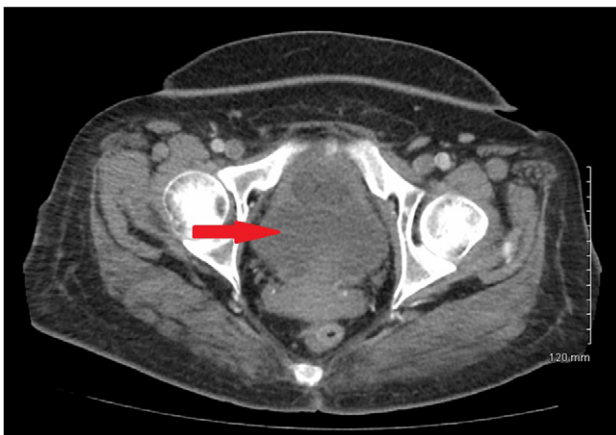


Figure 2: CT scan of pelvis showing uterine hypodense mass.

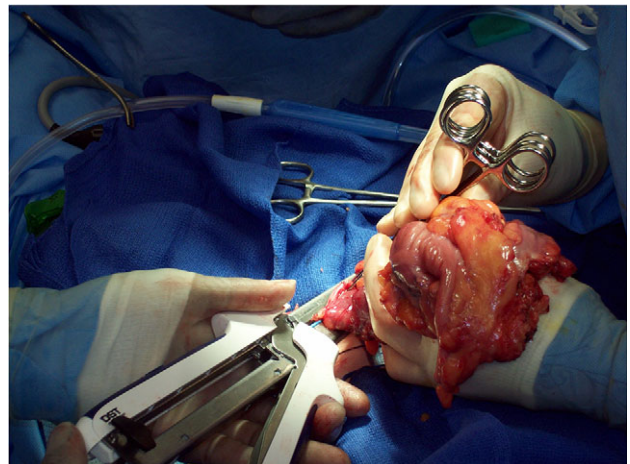


Figure 5: Extracorporeal ileotransverse colic anastomosis.

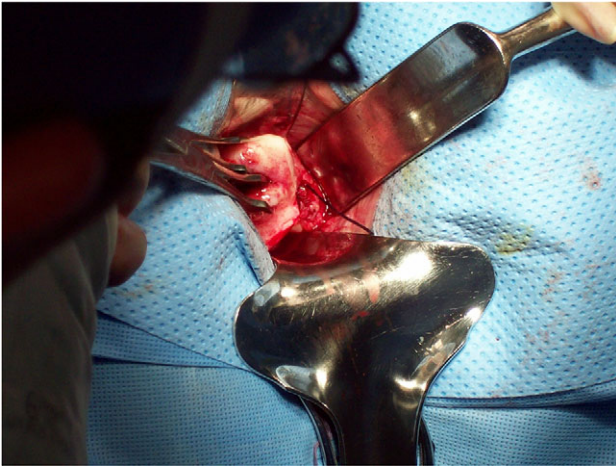


Figure 6: Dissection of uterosacral ligament vaginally.

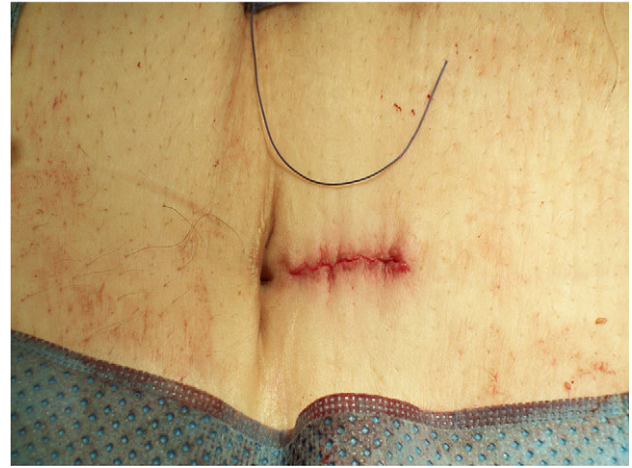


Figure 8: Skin closure.

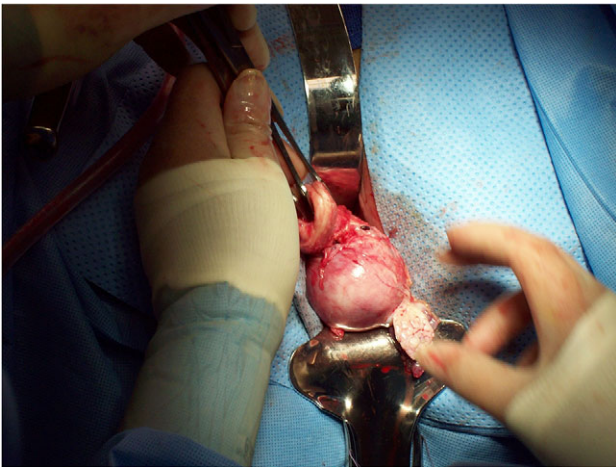


Figure 7: Completion of vaginal hysterectomy.

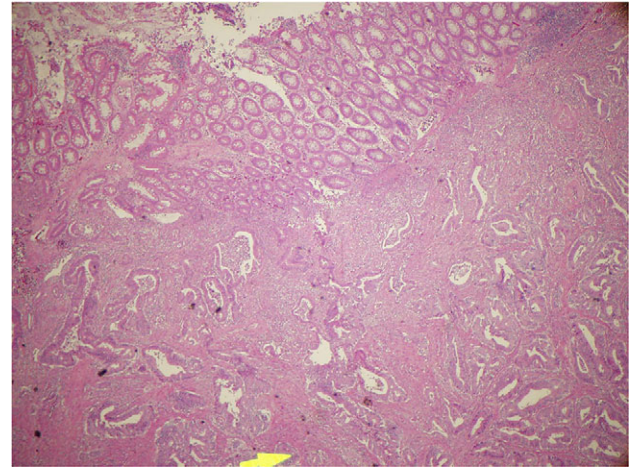


Figure 9: Mucous producing adenocarcinoma.

Vaginal examination was then done to place the speculum into the vagina and put a single tooth tenaculum on the anterior lip of her cervix and an Acorn uterine manipulator at the cervix to use for manipulation of the uterus during the laparoscopic portion. Repositioning the patient for the laparoscopic approach through the SPA, the infundibulopelvic ligament, round ligament, fallopian tubes and ovaries were first divided. The broad ligaments were dissected down to the level of the uterine arteries to mobilize the structures. Hysterectomy and bilateral salpingo-oophorectomy were then completed vaginally (Figs 6 and 7). The vaginal cuff was closed by baseball stitches first then with running interlocking stitch of chromic. The cuff was closed from the superior angle to inferior angle and the uterosacral ligaments were approximated to help with vaginal vault support.

The single access port was removed from the umbilicus, and the stay sutures were approximated from 9 o'clock to 3 o'clock and from 12 o'clock to 6 o'clock. Individual figure of eight sutures were placed at the fascia to avoid gaps and herniation. The skin was closed with subcuticular suture of Vicryl (Fig. 8).

Gross examination of the ascending colon showed a fungating, friable, centrally ulcerated mass 3.5 cm from the distal surgical margin that is almost circumferential and $7.5 \times 4.8 \times 2.1$ cm in greatest dimensions. Histopathologic examination revealed infiltrating well to moderately differentiated, mucous producing

adenocarcinoma, extending through the muscle wall and microscopically into the pericolon adipose tissue with metastasis to 1/34 regional lymph nodes (Fig. 9).

Gross examination of the uterus revealed 273 g measuring $7.5 \times 5.5 \times 5$ cm with a posterior myometrial white whorled nodule. Histopathologic examination reveals uterine leiomyoma and a benign endometrial polyp with cystic change. Final diagnosis was ascending colon adenocarcinoma Stage IIIB (T4a, N1,M0) and uterine fibroids. Postoperative course was unremarkable. Patient is currently on chemotherapy.

DISCUSSION

This is the first time, a synchronous right hemicolectomy, hysterectomy and bilateral salpingo-oophorectomy was performed through a SPA laparoscopic route. The first reported case of single incision right hemicolectomy (SIRH) was in July 2008. In 2009, Ramos-Valadez *et al.* recorded the first series of SIRH in consecutive unselected 13 patients with benign or malignant pathology [4]. Hirano *et al.* showed satisfactory lymph node harvest and resection margin and reduction in conversion rate to laparotomy with single incision laparoscopic colectomy compared with multiport conventional laparoscopic colectomy. However, there were no significant differences in short-term clinical outcomes [5].

Since the first laparoscopic hysterectomy was described in 1989 by Reich *et al.*, initial experiences with SPA laparoscopic-assisted vaginal hysterectomy (SPA-LAVH) were documented in different countries with good postoperative outcomes [6–8]. Choi *et al.* [9] and Kim *et al.* [10] showed decreased blood loss and visual analog scale—based pain scores 24 and 36 h after surgery with SPA-LAVH compared with multiport access.

Despite the numerous advantages of SPA laparoscopic surgery, more studies are needed to determine its safety and applicability to other surgical entities especially when performing synchronous procedures.

CONCLUSION

SPA laparoscopic surgery is feasible for multidisciplinary approach in resectable tumors and achieving good postoperative outcomes.

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