



## Case report

## Intestinal metastasis after total laparoscopic radical trachelectomy for stage IB1 cervical cancer: A case report

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## 1. Background

According to the GLOBOCAN 2018 database, cervical cancer ranks fourth for both incidence and mortality, with an estimated 570,000 newly cases and 311,000 deaths in women worldwide (Bray et al., n.d.). Radical hysterectomy with lymph node dissection is the standard treatment modality for early-stage cervical cancer. However, approximately 45% of surgically treated stage IB cervical cancers occur in women younger than 40 years (Noyes et al., 2011). Radical trachelectomy is an acceptable treatment option for these women who wish to preserve their fertility (Reid et al., 2018).

In recent years, with the rapid development of laparoscopic surgery, laparoscopic radical trachelectomy (LRT), as an alternative to vaginal radical trachelectomy (VRT) and abdominal radical trachelectomy (ART), has been introduced, offering improved perioperative outcomes and better cosmetic results (Kim et al., 2010; Kucukmetin et al., 2014). However, a recent phase III study, Laparoscopic Approach to Cervical Cancer (LACC), reported a poorer prognosis with laparoscopic/robotic radical hysterectomy (Ramirez et al., 2018). Here, we present the first report of two isolated rectosigmoid colon metastases after LRT in a stage IB1 cervical cancer patient.

## 2. Case

A 29-year old nulliparous woman presented in May 2017 after cervical mass biopsies at an outside hospital demonstrating squamous cell carcinoma. On physical examination, she was noted to have an

approximately 2.5 cm exophytic lesion confined to cervix, without vaginal fornix and parametria involvement. Blood tests results, including the squamous cell carcinoma antigen (SCCA) and carbohydrate antigen-125 (CA125) were normal. Abdominal computed tomography (CT) and pelvic magnetic resonance imaging (MRI) showed no evidence for metastatic lesions and enlarged lymph node. She was clinically diagnosed as stage IB1 cervical cancer. Considering of age 29 and nulliparity, fertility sparing total LRT together with pelvic lymphadenectomy was performed in May 2017. Movement of the uterine during the surgery was achieved with a cup-type uterine manipulator without head and traction on the round ligament. Resection of the parametria, paracervix, paracolpus, vaginal margins were done in a Type C manner. The upper margin is approximately 1 cm from the cancer according to the frozen section. The colpotomy was performed intracorporeally. The specimen was removed and anastomosis was completed vaginally. The patient recovered well and was discharged 8 days after surgery. Final pathology showed nonkeratinized, poorly differentiated squamous cell carcinoma growing as an exophytic mass measuring 2.5 × 1.5 × 1.5 cm without lymphovascular space invasion (LVSI) or extension to the vagina or parametrium. Depth of cervical stromal invasion was within the inner one third. All surgical margins and all nineteen lymph nodes were negative. The staining of P16 was positive.

There was no evidence of recurrent disease on routine surveillance exams until the tumor biomarker test showed an elevation of CA-125 and SCCA in December 2017. There were no obvious symptoms in patient and the pelvic MRI, carried out in December 2017 showed no evidence of recurrence. In February 2018, the patient began suffering

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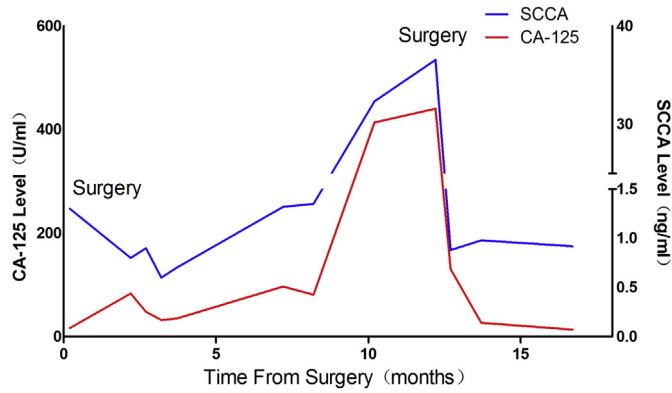
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**Fig. 1.** The level of SCCA and CA-125 during the treatment, noting a remarkable elevation 10 months after primary surgery.

from tenesmus. The bimanual examination showed no obvious abnormalities in the vagina and uterine, while the rectal examination revealed a fixed lesion at the anterior rectal wall. The rectal mucosa was smooth. The pelvic MRI showed two lesions were located in the rectum and sigmoid colon respectively (Fig. 2A, B) and tumor biomarker test showed a remarkable elevation in both CA125 and SCCA (Fig. 1). The positron emission tomography and computed tomography (PET/CT) also revealed two hypermetabolic isolated lesions at sigmoid and rectum respectively and showed no evidence of distant metastatic

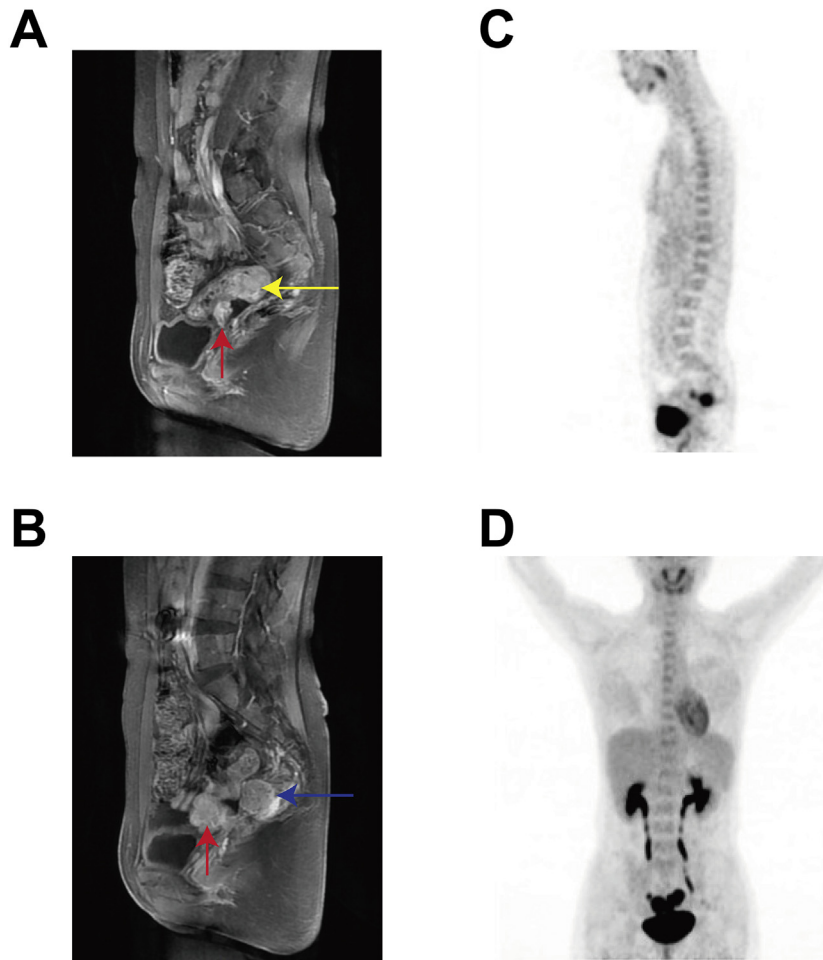
disease (Fig. 2C, D). Colonoscopy revealed two lesions located at 6 cm (lesion 1) and 15 cm (lesion 2) from the anal verge. Lesion 1 occupied one third circumferential of the lumen and was covered with smooth mucosa. Lesion 2 occupied semi-circumferential of the lumen and the colon mucosa was involved. The pathology of the biopsies of lesion 2 showed poorly differentiated squamous cell carcinoma with CDX2 negative and P16 positive, which suggested its cervical origin.

Considering only two isolated foci of recurrence, the decision of surgery was made. In April 2018, the patient underwent laparotomic hysterectomy with bilateral-salpingo-oophorectomy and rectosigmoid resection with closure of the anorectal stump and formation of an end colostomy (a Hartmann procedure). Intraoperative exploration showed no obvious evidence of metastases to other sites. There were no peri-operative complications, and the patient recovered well from the surgery. Final surgical pathology showed both lesions were metastatic squamous cell carcinoma, with the lesion1 measuring 4.5 cm and lesion 2 measuring 2 cm and both invaded the anterior colon wall from serosa to submucosa (Fig. 3); the intestinal margins, uterine corpus, bilateral fallopian tubes and ovaries were free of tumor.

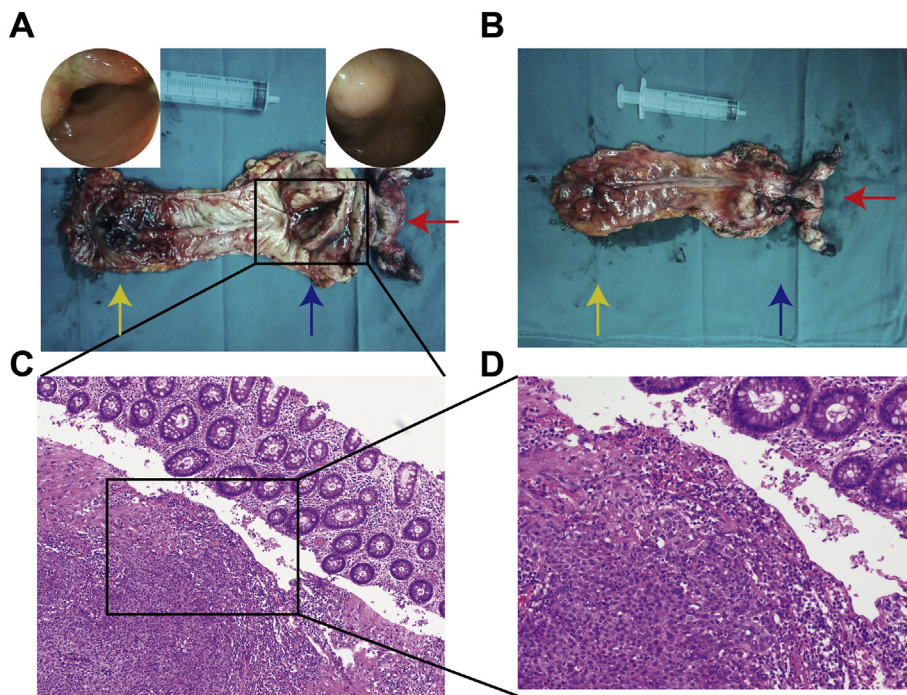
Postoperatively, the patient received concurrent weekly cisplatin chemotherapy and pelvic radiation(45Gy/25fx/5w). The treatment was completed in June 2018. At the last follow-up in September 2018, the patient reported no symptoms and no evidence of disease.

**3. Discussion**

As far as we know, this is the first reported recurrent cervical



**Fig. 2.** MRI scan showed lesions at sigmoid (A) and rectal colon (B) after 10 months of the primary surgery and PET/CT revealed no distant disease (C, D). Yellow and blue arrow represented the sigmoid and rectal lesion respectively. Red arrow represented the uterine. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)



**Fig. 3.** Gross and Colonoscopy examination showed two isolated lesions at rectum and sigmoid colon from mucosal side (A) and serous side (B). Microscopic examination demonstrated squamous differentiation of the lesion (C, D). Yellow and Blue arrow represented the sigmoid and rectal lesion respectively. Red arrow represented the uterine. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article.)

cancer, with simultaneous two-isolated rectal and sigmoid colon metastases after total LRT for stage IB1 cervical squamous cell carcinoma. En bloc resection of the recurrent foci and postoperative adjuvant concurrent chemoradiotherapy (CCRT) were administered to our patient. Barlin et al. ever reported a similar case of isolated recurrent cervical cancer in the sigmoid colon arising 2 years after primary robotic-assisted LRH and treated by partial sigmoid resection with a primary anastomosis followed by CCRT (Barlin et al., 2013). Due to rareness of isolated recurrent cervical cancer after LRT in the rectosigmoid colon, no standard treatment is recommended for this particular setting. With a longer follow-up time and the availability of survival information about these two patients, we may gain some experience in treating such cases.

Radical trachelectomy is already a well-accepted management option for women wishing to preserve their fertility. In addition, two large retrospective studies also showed that the proportion of women with early-staged cervical cancer who underwent radical trachelectomy significantly increased and survival is similar between trachelectomy and hysterectomy (Cui et al., 2018; Machida et al., 2018). However, close attention should be paid to the surgical approach. LACC reported higher recurrence rates and poorer survival in women who underwent minimally invasive radical hysterectomy compared to abdominal radical hysterectomy for early-stage cervical cancer (Ramirez et al., 2018), although it's still controversial. Kong et al. (2016) compared the recurrent rates of two different colpotomies after laparoscopic/robotic radical hysterectomy in early cervical cancer patients. This study showed that, compared with vaginal colpotomy (VC), laparoscopic intracorporeal colpotomy (IC) represented a negative prognostic factor. Disease recurrence was higher in the IC group than in the VC group (16.3% vs 5.1%,  $P = .057$ ), indicating that exposure of the cervical mass to circulating CO<sub>2</sub> during intracorporeal colpotomy may result in tumor spillage into the intraperitoneal space (Kong et al., 2016). Some studies suggested that helium might be an alternative for CO<sub>2</sub> in establishing pneumoperitoneum (Dahn et al., 2005). In addition to following the general principle of tumor-free operation, two German clinicians, after consulting a patient with pelvic relapse after LRT, suggested that the vaginal cuff must be closed during the laparoscopic procedure (Schneider and Kohler, 2015). Instruments like Endo-GIA has been applied in minimally invasive surgery in a report to prevent the

tumor contaminant to the cavity (Boyraz et al., 2018). Furthermore, the use of manipulator might also contribute to the local recurrence in cervical cancer patients (Ramirez et al., 2018), especially for fertility sparing patients. As far as we know, uterine suspension with suture line was tried to avoid using manipulator in some centers in China (data unpublished). Thus, studies for alternative of CO<sub>2</sub>, manipulator and equivalent to Wertheim clamp in laparoscopic surgery may be required in the future, to confer a better oncologic safety.

The National Comprehensive Cancer Network (NCCN) guidelines suggest that trachelectomy may be a reasonable fertility-sparing treatment option for stage IA and IB1 (tumor size  $\leq 2$  cm) cervical cancer (Reid et al., 2018). Nonetheless, some clinicians thought that LRT and ART, with more radical parametria resection, is oncologically safe for patients with stage IB1 and a large tumor size (2–4 cm) (Matsuo et al., 2018; Yoon et al., 2015). Moreover, recent study showed a gradual increase in the utilization of trachelectomy for patients with stage IB1 cervical cancer with tumors  $\geq 2$  cm in the United States (Matsuo et al., 2018). Given that more women in this subgroup required adjuvant therapy, which may consequently reduce fertility, and current studies are limited by both sample size and follow-up, further studies are needed before trachelectomy can be considered a safe treatment option for women with tumors  $\geq 2$  cm (Pareja et al., 2015). In addition to considering the tumor size, patients with G3 tumors and adenosquamous or adenocarcinoma should be informed that grading and histologic type are risk factors for prognosis (Barlin et al., 2013; Kong et al., 2016; Belval et al., 2006; Kim et al., 2013; Deshmukh et al., 2017; Mangler et al., 2014).

According to our experience and a review of the literature, we think that patients should have a meticulous preoperative preparation (history and physical, blood tests, imaging study and thorough explanation) for fertility-preserving surgery. The correct indication and oncologic precautions are more important than the type of approach. Thus, fertility-sparing surgery should be carried out more cautiously through laparoscopic unless improvement has been made to prevent tumor contamination.

#### Conflicts of interest

The authors declare no conflicts of interest.

**Author contribution section**

Manuscript	Meiqin Zhang	Wenbin Shen	Yan Huang	Yuqi Zhou	Bin Chang
Conception	√	–	–	–	–
Data Collection	–	√	√	–	–
Data Analysis	–	√	√	–	√
Responsible Surgeon and Pathologist	√	√	√	√	√
Statistical Analysis	–	–	–	–	–
Manuscript Preparation	√	√	–	–	–
Patient Recruitment	√	√	–	√	–

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