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 lymphadectomy 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...
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-oophrectomy 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 perioperative complications, and the patient recovered well from the surgery. Final surgical pathology showed both lesions were metastatic squamous cell carcinoma, with the lesion 1 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 (45 Gy/25 fx/5 w). 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...
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-stage 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 CO2 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 CO2 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 CO2, 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 ≤ 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) (Matsuoi 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 ≥ 2 cm in the United States (Matsuoi 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 ≥ 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 | Mei Qin 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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References

Barlin, J.N., Kim, J.S., Barakat, R.R., 2013. Recurrent cervical cancer isolated to the sigmoid colon: a case report. Gynecol. Oncol. Case Rep. 6, 28–30.

Belval, C.C., Barranger, E., Dubernard, G., Touboul, E., Houry, S., Darai, E., 2006. Peritoneal carcinomatosis after laparoscopic radical hysterectomy for early-stage cervical adenocarcinoma. Gynecol. Oncol. 102, 580–582.

Boyraz, G., Karalok, A., Basaran, D., Turan, T., 2018. Vaginal closure with EndoGIA to prevent tumor spillage in laparoscopic radical hysterectomy for cervical cancer. J. Minim. Invasive Gynecol. https://www.jmig.org/action/showCitFormats?pii=S1553-4650%2818%2930363-7&doi=10.1016%2Fj.jmig.2018.07.015.

Bray, F., Ferlay, J., Soerjomataram, I., Siegel, R.L., Torre, L.A., Jamal, A., 2018. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J. Clin. 68, 394–424.

Cui, R.R., Chen, L., Tergas, A.I., Hou, J.Y., St Clair, C.M., Neugut, A.I., et al., 2018. Trends in use and survival associated with fertility-sparing trachelectomy for young women with early-stage cervical cancer. Obstet. Gynecol. 131, 1085–1094.

Dahm, S., Schweilbach, P., Makan, S., Wobieke, F., Benner, A., Kunz, C., 2005. Influence of different gases used for laparoscopy (helium, carbon dioxide, room air, and xenon) on tumor volume, histomorphology, and leukocyte-tumor-endothelium interaction in intravital microscopy. Surg. Endosc. 19, 65–70.

Denham, U., McAdow, M., Black, J., Hui, P., Azodi, M., 2017. Isolated port site recurrence of node-negative clinical stage IB1 cervical adenocarcinoma. Gynecol. Oncol. Rep. 20, 54–57.

Kim, J.H., Park, J.Y., Kim, D.Y., Kim, Y.M., Kim, Y.T., Nam, J.H., 2010. Fertility-sparing laparoscopic radical trachelectomy for young women with early stage cervical cancer. BJOG 117, 340–347.

Kim, B., Huh, S.J., Kim, B.G., 2013. Port site metastasis after robotic-assisted laparoscopic hysterectomy for uterine cervical cancer: a case report and literature review. Taiwanese J. Obstetr. Gynecol. 52, 558–563.

Kong, T.W., Chang, S.J., Pino, X., Pack, J., Lee, Y., Lee, E.J., et al., 2016. Patterns of recurrence and survival after abdominal versus laparoscopic/robotic radical hysterectomy in patients with early cervical cancer. J. Obstet. Gynaecol. Res. 42, 77–86.

Kucukmetin, A., Biliasis, I., Ramavath, N., Patel, A., Cameron, I., Rathe, A., et al., 2014. Laparoscopic radical trachelectomy is an alternative to laparotomy for young patients with early-stage cervical cancer. Int. J. Gynecol. Cancer 24, 135–146.

Machida, H., Mandelbaum, R.S., Mikami, M., Enomoto, T., Sonoda, Y., Grubbs, B.H., et al., 2018. Characteristics and outcomes of reproductive-aged women with early-stage cervical cancer: trachelectomy versus hysterectomy. Am. J. Obstet. Gynecol. 219, 461.e1–461.e18.

Mangler, M., Lanowski, M., Kohler, C., Vercellino, F., Schneider, A., Speiser, D., 2014. Pattern of cancer recurrence in 320 patients after radical vaginal trachelectomy. Int. J. Gynecol. Cancer 24, 130–134.

Matsuo, K., Machida, H., Mandelbaum, R.S., Mikami, M., Enomoto, T., Roman, L.D., et al., 2018. Trachelectomy for stage IB1 cervical cancer with tumor size > 2 cm: trends and characteristics in the United States. J. Gynecol. Oncol. 29, e85.

Noyes, N., Knopman, J.M., Long, K., Coletta, J.M., Abu-Rustum, N.R., 2011. Fertility considerations in the management of gynecologic malignancies. Gynecol. Oncol. 120, 326–333.

Pareja, R., Rendon, G.J., Vasquez, M., Echeverri, L., Sanz-Lomana, C.M., Ramirez, P.T., 2015. Immediate radical trachelectomy versus neoadjuvant chemotherapy followed by conservative surgery for patients with stage IB1 cervical cancer with tumors ≥2 cm in size: a literature review and analysis of oncological and obstetrical outcomes. Gynecol. Oncol. 137, 574–580.

Ramirez, P.T., Frumovitz, M., Pareja, R., Lopez, A., Vieira, M., Ribeiro, R., et al., 2018. Minimal invasively versus abdominal radical hysterectomy for cervical cancer. N. Engl. J. Med. 379, 1904–1904.

Reid, E., Suneja, G., Ambinder, R.F., Arnd, K., Baiocchi, R., Bart, S.K., et al., 2018. Cancer in people living with HIV, version 1.2018, NCCN clinical practice guidelines in oncology. J. Natl. Comprehens. Cancer Netw. 16, 986–1017.

Schneider, A., Kohler, C., 2015. Locoregional recurrence after laparoscopic radical trachelectomy in patients with early cervical cancer. J. Obstet. Gynaecol. Res. 42, 134–140.

Taiwanese J. Obstetr. Gynecol. 52, 558–563.

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Yoon, A., Choi, C.H., Lee, Y.Y., Kim, T.J., Lee, J.W., Kim, R.G., et al., 2015. Perioperative outcomes of radical trachelectomy in early-stage cervical cancer: vaginal versus laparoscopic approaches. Int. J. Gynecol. Cancer 25, 1051–1057.

Recruitment