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CASE REPORT

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Concurrent chemoradiotherapy and salvage chemotherapy for advanced cervical cancer with a pedunculated cervical leiomyoma: a case report

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Abstract

Although concurrent chemoradiotherapy (CCRT) is an effective treatment for advanced cervical cancer, its use in advanced cervical cancer with a pedunculated cervical leiomyoma remains challenging. The prognosis of recurrent cervical cancer is poor, with a low possibility of complete response (CR). In this present study, after completion of external beam radiotherapy (EBRT) and chemotherapy (weekly cisplatin), we performed the resection of a pedunculated cervical leiomyoma. No malignant cells were identified in the pathological specimen. After the myoma resection, no cervical tumor was observed on follow-up magnetic resonance imaging (MRI). High-dose-rate intracavitary brachytherapy (HDR-ICBT) was also performed. Local control of the cervical tumor was achieved after 30 months of treatment. After CCRT, rectal hemorrhage was observed but was effectively controlled via local intervention. Twenty-four months after CCRT, the patient was given salvage chemotherapy (paclitaxel plus carboplatin) due to lymph node metastasis observed at the outside range of EBRT. Thirty months after CCRT, computed tomography showed that the metastatic lymph nodes had disappeared, and the patient achieved CR. Thus, for advanced cervical cancer with a pedunculated cervical leiomyoma, CCRT could be completed following myoma resection. In addition, salvage chemotherapy for lymph node metastasis might result in CR. In this present case, a gastrointestinal adverse event was observed after radiotherapy and salvage chemotherapy with paclitaxel plus carboplatin achieved CR.

Keywords

Brachytherapy; Chemoradiotherapy; Combined modality therapy; Myoma; Uterine cervical neoplasm

1. Introduction

Cervical cancer is the fourth most common cancer in women worldwide [1]. It occurs near the entrance of the uterus. Uterine leiomyoma is the most common benign tumor of the gynecologic tract, affecting up to 80% of women by age 50 [2]. However, leiomyoma of the cervix is rare, accounting for 0.6% of all cervical lesions [3]. The common symptom of cervical cancer and cervical myoma is vaginal bleeding, which makes them easy to be observed and detected by gynecological examinations.

In general, surgical resection is indicated for early-stage cervical cancer [4], while concurrent chemoradiotherapy (CCRT) is an effective treatment for advanced cervical cancer [5]. However, CCRT is difficult to perform in advanced cervical cancer with a pedunculated cervical leiomyoma because the myoma obstructs the insertion of the applicator in front of the portio to allow brachytherapy. As an alternative, neoadjuvant chemotherapy followed by surgery (NACT + S) was proposed for advanced cervical cancer but was then found to have a higher risk of relapse compared with CCRT [6]. In this study, we report the case of a patient with advanced cervical cancer with a pedunculated cervical leiomyoma treated by CCRT, after which rectal hemorrhage occurred but was successfully controlled locally. Then, 24 months after CCRT, outside the range of EBRT, lymph node metastasis was observed, and the patient was given salvage chemotherapy with paclitaxel plus carboplatin (TC).

2. Case Presentation

A 54-year-old Japanese woman with unremarkable medical history was diagnosed with advanced cervical cancer and a pedunculated cervical leiomyoma, incidentally. Local examination with colposcopy and pelvic examination showed a cervical tumor that invaded the right vaginal wall and right parametrium. Computed tomography (CT) and magnetic resonance imaging (MRI) showed lymph node metastases at the

para-aortic, right obturator and right external iliac regions. Following pathological examination and based on the International Federation of Gynecology and Obstetrics (FIGO) 2008 criteria, she was clinically staged and diagnosed with stage IIB squamous cell carcinoma (SCC) (Fig. 1). Her initial laboratory examination showed an increase in SCC antigen (4.4 ng/mL; normal 0–1.5 ng/mL) and carcinoembryonic antigen (CEA) (10.2 ng/mL; normal 0–5 ng/mL). Her body mass index (BMI) was 35.3 kg/m^2.

After agreeing with the treatment policy and to be part of a prospective observational study, the patient underwent CCRT at a prescribed external beam radiotherapy (EBRT) dose of 50.4 Gy/28 fractions. EBRT was applied to the para-aortic region and whole pelvis. It was completed within 7 weeks without interruption. She was also given chemotherapy with cisplatin (CDDP) at 40 mg/m^2 weekly for 6 weeks. One week after completing EBRT, she underwent a transvaginal resection for pedunculated cervical leiomyoma and recovered well without any surgical complications. No malignant cells were found on pathological examination (Fig. 2). Then, a follow-up MRI found no cervical tumor (Fig. 3), and she was given HDR-ICBT twice, at the prescribed dose of 12 Gy/2 fractions to point A. The rectal dose of HDR-ICBT was assessed based on the International Commission on Radiation Units and Measurements (ICRU) 38 [7].

FIGURE 1. MRI image (T2-weighted image) before myoma resection. Cervical cancer with a pedunculated cervical leiomyoma on the sagittal image. The arrow indicates the cervical cancer lesion, and the triangle indicates the pedunculated cervical leiomyoma.

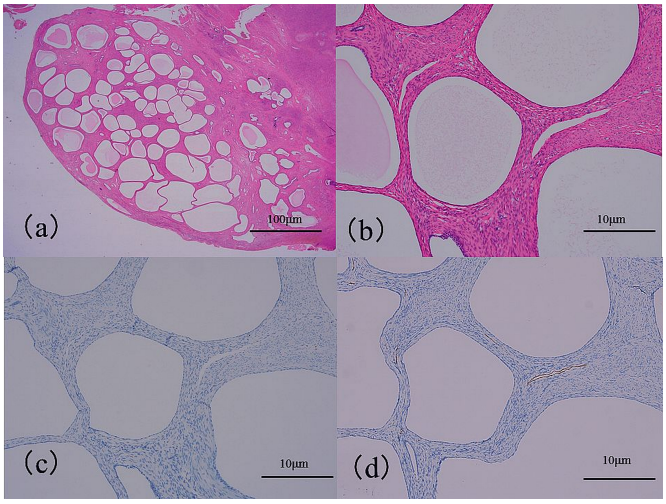

FIGURE 2. Micrograph of the myoma specimen. No malignant cells are found. (a) Hematoxylin-eosin staining (magnification, 12.5 ×); (b) Hematoxylin-eosin staining (magnification, 100 ×); (c) Staining for Calretinin. No Calretinin expression was observed in the lesion (magnification, 100 ×); (d) Staining for D2-40. No D2-40 expression was observed in the lesion (magnification, 100 ×).

FIGURE 3. MRI image (T2-weighted image) after myoma resection. Cervical cancer can not be seen in this sagittal image.

The total rectal dose (EBRT and HDR-ICBT) for this case was calculated as Equivalent Dose in 2 Gy fraction (EQD2):

63.1 Gy. Local control of the cervical tumor was achieved after 30 months of treatment. However, 17 months after CCRT, grade 3 rectal hemorrhage (according to the Common Terminology Criteria for Adverse Events Version 5.0) was observed, for which she was treated with argon plasma coagulation (APC). Then, 24 months after CCRT, lymph node metastasis was observed outside the range of EBRT, and salvage chemotherapy was given using paclitaxel and carboplatin (TC; paclitaxel 175 mg/m^2 over 3 hours and carboplatin area under the curve 5 mg/mL/min on day 1, repeated every 3 weeks) for 6 months.

After the salvage chemotherapy, a follow-up CT showed disappearance of the metastatic lymph nodes and the patient was considered as achieving a complete response (CR) (revised RECIST guideline, Ver. 1.1).

3. Discussion

There were two main observations in this present case. First, after the completion of EBRT and chemotherapy for advanced cervical cancer with a pedunculated cervical leiomyoma, the patient underwent myoma resection followed by brachytherapy and completed CCRT. Second, treatment with paclitaxel plus carboplatin salvage chemotherapy 24 months after CCRT was effective and achieved CR [8].

The patient did not undergo regular cervical screening with pap tests and tumor markers (Carbohydrate Antigen 19-9: CA 19-9 and CA125), which could explain the advanced cervical cancer diagnosis at presentation. Histological examination of the lesion confirmed the presence of squamous cell carcinoma.

In general, the diagnosis of uterine tumors is done with pap tests or diagnostic imaging. However, differential diagnosis was necessary for this case to differentiate between other lesions such as cervical adenocarcinoma and endometrial cancer. An increase in CA19-9 and CA125 levels are helpful indicators for diagnosing cervical adenocarcinoma and endometrial cancer [9–11].

In cases of myoma, it is necessary to differentiate between uterine leiomyoma and uterine leiomyoblastoma, which can be determined by assessing the morphology of the lesion. In this present case, the tumor was diagnosed as cervical leiomyoma based on the characteristics of the post-resected specimen (Fig. 2).

The pedunculated cervical leiomyoma of this present case was found to obstruct the insertion of the applicator during brachytherapy. Based on previous research, brachytherapy was recommended after myoma resection. The preceding case was treated only with radiation (EBRT and brachytherapy) [12]. To the best of our knowledge, this is the first case report of CCRT of the para-aortic region and whole pelvis after myoma resection. Given the clinical stage of this case, CCRT was given with the expectation of improving her overall survival (OS), as compared with NACT + S [13], which was shown to be beneficial as the cervical tumor was effectively controlled for 30 months.

In postmenopausal women, a decrease in estrogen and progesterone secretion may decrease myomas size. For such conditions, conization was shown to be a promising treatment as a minimally invasive approach [4].

In this present case, surgical treatment was not selected because the cervical tumor had invaded the right vaginal wall and right parametrium and due to the presence of lymph node metastases at the para-aortic, right obturator, and right external iliac regions. Thus, due to the advanced stage of the disease and the patient's risk of cancer dissemination during pretreatment for myoma manipulation was considered.

In addition, the chemotherapy regimen at the time of recurrence was also carefully considered because of the poor prognosis of cervical cancer [14], and the prescribed salvage chemotherapy regimen was beneficial. Regarding the irradiation dose of EBRT, 50.4 Gy/28 fractions were selected because the patient's condition was close to CR at the time of MRI imaging, and there were no malignant cells in the resected pathological specimen. For this reason, boost irradiation was not performed. Therefore, in this case, the total rectal dose (EBRT and HDR-ICBT) was calculated as EQD2:63.1 Gy.

Previous literature showed that the risk of rectal disorders may increase significantly over EQD2:100 Gy [15]. In this present case, we found rectal bleeding 17 months after CCRT. Therefore, paclitaxel and cisplatin (TP) or bevacizumab as salvage chemotherapy was not considered due to the associated high risks of intestinal disorders, and thus, TC was selected [16].

Salvage chemotherapy with bevacizumab was another tempting option. However, because this patient had rectal hemorrhage, it was not selected as bevacizumab may lead to serious adverse events affecting the gastrointestinal tract [17].

In this present case, various treatment methods related to tumor control (CCRT, operation, HDR-ICBT, salvage chemotherapy) were required. CCRT was completed after performing myoma resection. On the other hand, rectal bleeding (grade 3) was observed after CCRT.

Therefore, reducing the risk of gastrointestinal disorders by carefully selecting the salvage chemotherapy regimen is important to improve patients' outcomes. In this case, the TC regimen was beneficial as the patient achieved CR despite lymph node metastasis and gastrointestinal disorders.

AUTHOR CONTRIBUTIONS

FI, HN, MI, and KT—collected the data. FI—wrote the manuscript. SH and TF—conceptualized the project and reviewed the manuscript. All authors contributed to editorial changes in the manuscript. All authors read and approved the final manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This clinical case report was approved by the Fujita Health University Ethical Review Board (HM-16-372). The patient provided informed consent and agreed to publication of the details of this case.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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