



Case report

Localized leiomyosarcoma of the uterine cervix with rapid lung metastases



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ABSTRACT

Cervical sarcomas are extremely rare tumors associated with a poor prognosis. We report the case of a 63-year-old woman who was admitted to our institution due to abnormal vaginal bleeding and abdominal pain. Physical examination revealed a large cervical mass that was biopsied. Pathological features were compatible with a leiomyosarcoma of the uterine cervix. The patient underwent total abdominal hysterectomy with bilateral salpingo-oophorectomy. All histological and Immunohistochemical findings confirmed the diagnosis of leiomyosarcoma of the cervix. Adjuvant chemotherapy was started but unfortunately the disease progressed and 1 year after completion of the chemotherapy the patient developed lung metastases and eventually died.

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Introduction

Primary sarcomas of the cervix are extremely rare neoplasms. Due to the relative infrequency of this disease, there is a paucity of reports in the literature and the available data regarding the natural history of cervical sarcomas derive from case reports.^{1–7} To date, Bansal et al¹ have published the largest series, the authors identified 323 patients with cervical sarcomas from a total of 33,074 women with invasive cervical neoplasms. Among cervical sarcomas, leiomyosarcomas are exceedingly rare. In the literature, they account for 21% of all cervical sarcomas, representing roughly 0.21% of all invasive cervical cancer cases.¹

We present an unusual case of a cervical leiomyosarcoma with lung metastasis in a postmenopausal woman.

Case Report

A postmenopausal 63-year-old woman, Gravida 9/Para 8 (gravity/parity) (G9P8), presented to the outpatient department with complaints of worsening lower abdominal pain of ~1 month duration. Pelvic examination revealed a large cervical mass and a moderately enlarged uterus (~10 weeks gestation size). A biopsy of the mass was obtained and the pathology report revealed findings compatible with leiomyosarcoma. The endometrial stripe was very difficult to assess by transvaginal ultrasound due to the size of tumor.

Magnetic resonance imaging (MRI) showed a large tumor involving the uterine corpus and cervix, the right parametrium and the paracervical area, measuring 11 × 11 × 14 cm (Fig 1A). A positron emission tomography scan (PET) demonstrated only an isolated increased uptake of the radioactive tracer confined to the lower pelvis. No distant metastases were evident. Laboratory studies including CA-125 were within normal limits.

The patient underwent an exploratory laparotomy. No evidence of ascites, retroperitoneal lymphadenectomy, or metastatic spread

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Fig 1. (A) T2-weighted MRI showing a large cervical tumor measuring $11 \times 11 \times 14$ cm with normal endometrial stripe and uterine corpus; (B) bisection of the uterus and pathological mass. The uterine corpus and the adnexa were atrophic but with a normal appearance. The tumor over the uterine cervix consisted of heterogeneous content with an area of hemorrhagic necrosis; (C) lung metastases shown in the x-ray.

was noted in the abdomen. The uterus, 10 weeks in size, had a mass apparently arising from the cervix. The patient underwent total abdominal hysterectomy, bilateral salpingo-oophorectomy, bilateral pelvic lymphadenectomy, and omentectomy.

The gross surgical specimen confirmed the presence of a primary cervical process. Bissection of both the uterus and the pathological mass showed atrophic but normal appearance of the uterine corpus and adnexa. The tumor over the uterine cervix, measured $11 \times 11 \times 14$ cm, and consisted of a heterogeneous content with an area of hemorrhagic necrosis (Fig 1B). Histologically, tumor cell necrosis was described, and the viable areas were composed of an admixture of elongated spindle cells, with marked cytologic atypia (Figs 2A and 2B). The mitotic index was superior to 10 mitosis per 10 high-power fields (HPF). Morphologically the tumor was Grade 3. The fallopian tubes, ovaries, pelvic lymph nodes, and the omentum were all negative for malignancy. Immunohistochemical studies showed that the tumor was diffusely positive for smooth

muscle actin, focally positive for desmin, and negative for c-kit (Figs 2C and 2D). The final diagnosis was cervical leiomyosarcoma. Following surgery, the patient was given six courses of cisplatin (50 mg/m^2) and ifosfamide (5 mg/m^2) without radiation therapy.

Computed tomography (CT) performed 4 months after completion of the chemotherapy regimen showed no evidence of tumor recurrence. However, 1 year after completing chemotherapy, the patient developed an intermittent productive cough. Chest x-ray (CXR) revealed bilateral pulmonary metastases (Fig 1C). Unfortunately, 6 months later, the pulmonary disease progressed and the patient eventually died due to respiratory failure.

Discussion

As stated previously, leiomyosarcomas of the uterine cervix are exceptionally rare neoplasms. Before the report of Bansal et al¹, there were only 19 cases described in the literature.^{2,4} The Bansal

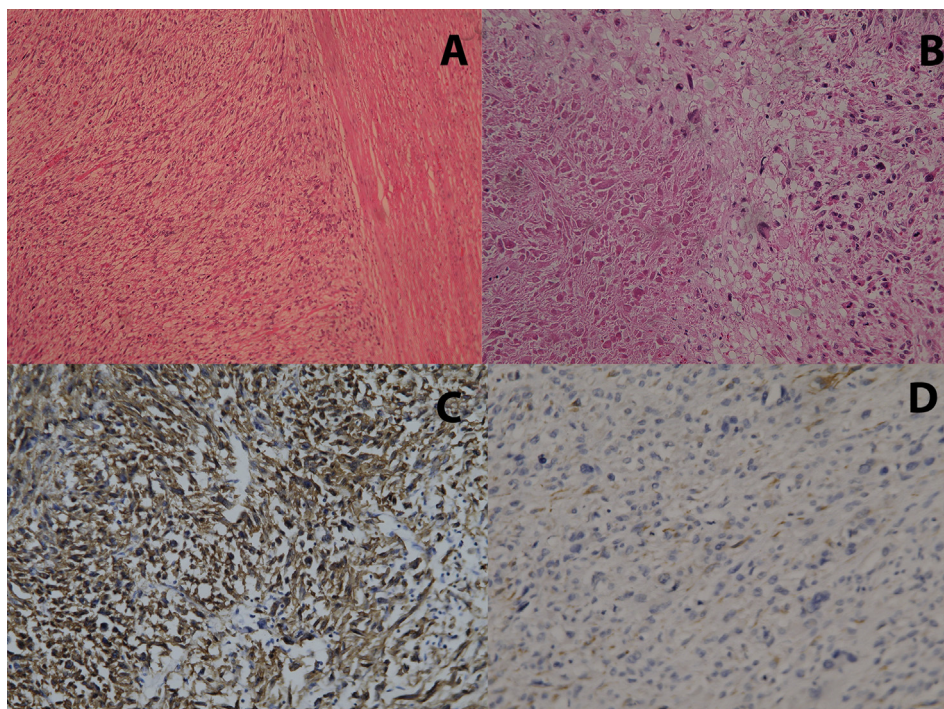


Fig 2. (A) In low-power field, the tumor (left) is well circumscribed and some atypical cells can be seen [Hematoxylin and eosin (H&E) stain, $40\times$]; (B) high-power field reveals frequent mitosis and necrosis (H&E stain, $200\times$); (C) the tumor is diffusely positive for smooth muscle actin; (D) the tumor is focally positive for desmin.

et al¹ report added 67 cases of leiomyosarcomas of the cervix, henceforth, the incidence of this neoplasm is thought to be around 0.21% of all invasive cervical malignancies.

As a group, cervical leiomyosarcomas occur in a wide age range, but they tend to arise in the perimenopausal period, with the average age of diagnosis ranging between 19 and 79 years.^{1–3} The most common presenting symptoms are abnormal vaginal bleeding and a cervical mass. These tumors are typically large (up to 12 cm), poorly circumscribed masses that either protrude from or expand the cervicovaginal canal in a circumferential manner.

Several factors have been consistently found to demonstrate value as prognostic indicators in patients diagnosed with uterine leiomyosarcoma. Most important among these are tumor stage, grade, and mitotic index. Other factors that are also described in the literature include tumor size, age, and menopausal status. Bearing this in mind, postmenopausal status, stage, older age (>51 years), and large tumor size (>5 cm) are associated with a reduced likelihood of survival.⁴

The histological criteria for the diagnosis of cervical leiomyosarcoma comprise a spectrum of morphologic findings similar to those seen in their corpus counterparts. Microscopically, the key features may include, hyper- and hypocellular areas of elongated spindle cells. Infiltrative margins may be present and vascular invasion can also be found. The most important diagnostic criteria are tumor cell necrosis, mitotic index $\geq 10/10$ HPF, and diffuse to moderate cytologic atypia.

Differential diagnosis includes secondary involvement of the cervix by uterine corpus leiomyosarcoma and other rare neoplasms. Malignant melanoma, either primary or metastatic may be excluded due to the expression of S100 and other melanocytic markers. Pleomorphic rhabdomyosarcoma may also occur in older women but they are usually seen in association with carcinosarcoma (high-grade malignant glandular elements).⁸ Poorly differentiated carcinoma may exhibit a spindle cell growth pattern but immunostains for desmin may help in the diagnosis.⁹ A series of cervicovaginal malignant peripheral nerve sheath tumors are rare but occur in the same age group as leiomyosarcoma, however, some degree of S100 staining is present and markers that suggest an alternate line of differentiation can also be found.⁸ Extracardiac rhabdomyoma may occur in the cervix or vagina but although spindle cells may be present, typically cytologic atypia, tumor cell necrosis, and mitotic figures are absent.⁹

As the number of reported cases in the literature is exceedingly small, there is no established optimum means of management of cervical leiomyosarcomas.⁴ Bearing in mind that the management of cervical leiomyosarcomas may be extrapolated from their corpus counterpart, abdominal hysterectomy with bilateral salpingo-

ophorectomy (in postmenopausal women), or ovarian preservation in premenopausal women (the rate of ovarian metastasis is low) should be the standard treatment for cervical leiomyosarcoma. Although routine pelvic lymphadenectomy should only be carried out in women with clinically advanced leiomyosarcoma, due to the size of the tumor we chose to perform pelvic lymphadenectomy.

With regard to adjuvant therapy, there is no firm evidence that adjuvant radiation therapy or chemotherapy is of benefit to patients with uterine sarcomas.³ Data from the literature refer to both nonimproved and improved survival (although statistically nonsignificant) with adjuvant radiotherapy.⁴ However, the use of postoperative radiation therapy may reduce the pelvic relapse rate by ~50% and should be considered in patients at high risk for local recurrence (tumors >5 cm, high mitotic index, and high grade tumors).⁷

Most patients with advanced disease are considered candidates for chemotherapy due to this tumor's tendency to metastasize hematogenously. Several chemotherapy regimens have been considered for patients with advanced leiomyosarcoma of the uterus, including doxorubicin and ifosfamide, single-agent paclitaxel, and a combination of paclitaxel and carboplatin.³

In summary, because there is so little experience with cervical leiomyosarcomas, its ultimate prognosis remains unclear. In our patient the first response either to the surgery and the chemotherapy was apparently favorable however, the patient developed lung metastases. Thus, more cases and a longer follow-up are needed to fully understand the clinical behavior of this tumor.

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