

Leiomyosarcoma of the vagina: A rare entity with comprehensive review of the literature

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ABSTRACT

Primary malignant lesions of the vagina are uncommon, and vaginal sarcomas are even rarer. We describe a rare case of stage I, high-grade leiomyosarcoma of the vagina treated with combined modality treatment. A 39-year-old female presented with vaginal mass and underwent resection. Histopathological examination revealed atypical leiomyoma of the vagina with definite risk of recurrence. Eleven months later, she presented with a recurrent vaginal mass and underwent exploratory laparotomy with total abdominal hysterectomy and bilateral salpingo-oophorectomy plus resection of recurrent tumor and partial vaginectomy. The detailed histopathological examination was suggestive of leiomyosarcoma of the vagina. The patient received adjuvant radiotherapy and chemotherapy. The patient is alive and disease-free 29 months postsurgery. Experience with vaginal leiomyosarcomas is limited. The optimal treatment methods have not yet been established because of the rarity of the tumor. We add another case of leiomyosarcoma of the vagina to the limited existing literature.

Key words: Chemotherapy, leiomyosarcoma, radiotherapy, surgery, vagina

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INTRODUCTION

Carcinomas of the vagina are rare, accounting for only about 2% of gynecologic malignancies. The most common histological type is squamous cell carcinoma (75-90%), followed by adenocarcinoma (5-10%), melanoma (3%) and sarcomas (3%).^[1] Leiomyosarcoma is the most common type of vaginal sarcoma in adult women.^[2,3] Unfortunately, most of the sarcomas are diagnosed at an advanced stage. Histopathological grade appears to be the most important predictor of outcome. It is recommended that smooth muscle tumors >3 cm in diameter, with five or greater mitoses per 10 high-power fields (HPFs),

moderate or marked cytologic atypia and infiltrating margins be classified as leiomyosarcoma.^[4] Herein, we add another case of leiomyosarcoma of the vagina to the available sparse literature.

CASE REPORT

A 39-year-old woman presented with complaints of dyspareunia, vaginal discomfort and difficulty of micturition for 2 years. Pelvic examination revealed a 4 cm × 4 cm firm, globular mass located on the middle part of the right lateral vaginal wall. The mass was freely mobile, without infiltration or fixation to adjacent structures. The cervix was normal. No pelvic or inguinal lymph nodes were palpated. Rectal examination did not reveal any abnormality. Laboratory examination consisting of hematology, liver and renal functions was normal. The biopsy from the mass was suggestive of leiomyoma. The patient then underwent vaginal myomectomy and histopathological examination revealed atypical leiomyoma with a definite risk of recurrence. The mitotic count was as high as 16 mitotic figures/10 HPFs. The surgical margins were free of tumor. The patient was kept on close follow-up with regular pelvic examination and magnetic resonance imaging (MRI) done at 6 months postvaginal

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myomectomy was normal. However, at 11 months follow-up, she presented with recurrence of vaginal growth. MRI was suggestive of a lobulated lesion on the upper and middle part of the right lateral vaginal wall, abutting closely the right cervical lip. The uterus was retroverted and bilateral ovaries were normal. The patient then underwent exploratory laparotomy with total abdominal hysterectomy and bilateral salpingo-oophorectomy plus resection of recurrent tumor and partial vaginectomy. Cytology of the peritoneal washings and biopsies obtained from the ovaries, omentum and pelvic lymph nodes were negative for tumor. The resected mass measured 5 × 3 × 2 cm. Histologically, it was composed of spindle-shaped cells arranged in the form of varying-sized nodules and interlacing fascicles with marked pleomorphism and nuclear atypia [Figure 1a]. The tumor cells comprised of spindle-shaped nuclei with blunt ends, coarse nuclear chromatin and prominent nucleoli [Figure 1b]. Many bizarre cells and multinucleated cells were also seen. Focal myxoid change was also noted. Mitotic activity was approximately 12 per 10 HPFs [Figure 1c] and there was no evidence of coagulative necrosis. The tumor was reaching close to the serosa. Based on the histopathological results, the tumor was diagnosed as a leiomyosarcoma of high grade. The uterus, cervix, bilateral ovaries and fallopian tubes were free of tumor. The patient was staged as stage I high-grade leiomyosarcoma. Postoperatively, the patient received adjuvant chemotherapy with adriamycin and ifosfamide for three cycles followed by pelvic radiotherapy of 50 Gy in 25 fractions and then followed by completion of chemotherapy up to a total of six cycles. The patient continues to be on follow-up in our outpatient clinic every 3 months. Contrast-enhanced computed tomography performed at last follow-up at 29 months did not show any evidence of disease.

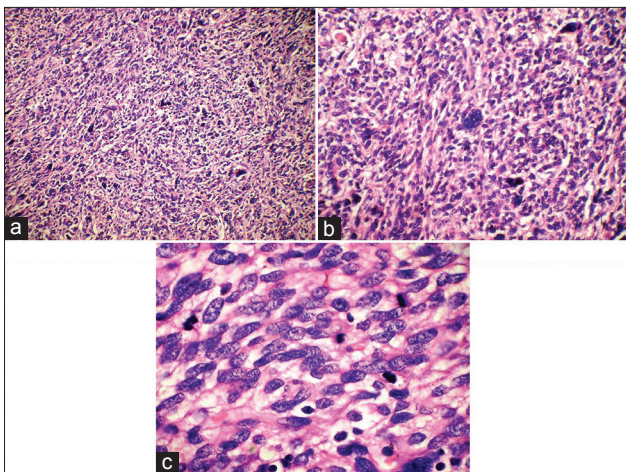


Figure 1: (a) The tumor is composed of fascicles of spindle cells showing marked pleomorphism (×200). (b) The tumor cells comprised of spindle-shaped nuclei with blunt ends, coarse nuclear chromatin and prominent nucleoli. Many bizarre cells and multinucleated cells are also seen (×400). (c) The tumor shows numerous atypical mitotic figures (×1000)

DISCUSSION

Smooth muscle tumors, although rare, are reported to be the most common benign and malignant mesenchymal tumors in adult women, and leiomyosarcoma is the most common vaginal sarcoma in adult women. They may originate in any part of the vagina and are mostly submucosal. The literature on vaginal sarcoma consists principally of few case reports and small case series. About 71 cases have been reported in the English literature so far.^[2,3,5-9] The rarity of these tumors has contributed to the paucity of information regarding the clinical features, mode of management and prognosis of patients. Most patients with vaginal leiomyosarcoma present with an asymptomatic vaginal mass, but may also experience vaginal, rectal or bladder pain, vaginal discharge or bleeding, difficulty in micturition or, rarely, dyspareunia. The vaginal leiomyosarcoma spreads by local invasion and hematogenous metastasis. The average age at diagnosis is about 50 years, with a range extending from 21 to 86 years.^[3]

Most sarcomas arise *de novo*, with malignant transformation of a benign mesenchymal tumor being a very rare event. The potential mechanism of malignant transformation from leiomyoma to leiomyosarcoma is still debated. However, in our case, the swelling has recurred at the same site after 11 months. Miyakawa *et al.*,^[10] have described that the sarcomatous degeneration of a leiomyoma of the uterus occurs in less than 1% of all cases. Vaginal leiomyomas can be treated by surgical resection. Because of the risk of recurrence and future transformation of leiomyoma to leiomyosarcoma, as well as diagnosis as malignant after surgery, these tumors should be removed completely. The primary treatment for vaginal smooth muscle tumor is resection of disease with adequate margins and of the site of possible uterine sarcoma, but the extent of resection may not be related to clinical course.^[11] Peters *et al.*,^[2] found that only patients treated with pelvic exenteration had long-term survival, and suggested that exenteration be considered in patients able to tolerate the procedure. In the review of the literature by Ciaravino *et al.*,^[3] 66 cases of vaginal leiomyosarcoma were identified, of which 48 had follow-up data. The overall probability of 5-year survival was 43%. They also supported considering pelvic exenteration as a treatment option and emphasized that tumor grade should remain a consideration in patient management. In the same study, younger age, low stage and surgical resection, compared with chemotherapy or radiotherapy, were demonstrated to be associated with a better prognosis. Stage was shown to be an independent predictor of survival. Moreover, there was no difference in survival between patients who had undergone surgery followed by adjuvant radiotherapy and/or chemotherapy and patients who had been treated with surgery alone.

The role of adjuvant radiotherapy and chemotherapy is not clearly defined in vaginal sarcomas, primarily due to the limited number of case reports and series, and even fewer data are available regarding chemotherapy used as the primary treatment rather than as salvage therapy at recurrence. Adjuvant radiation therapy seems to be indicated in patients with high-grade sarcomas, low-grade recurrent tumor and if the tumor extends beyond the surgical margins. Postoperative radiotherapy has been used for the management of soft tissue sarcomas to reduce the incidence of local recurrences. In most series, patients treated with adjuvant radiation presumably had higher risk factors thus biasing the data against radiotherapy. However, a phase III randomized trial in stage I and II uterine sarcomas reported that postoperative pelvic radiotherapy did not improve the overall survival for leiomyosarcoma when compared with observation.^[12] The largest series on vaginal sarcomas reported to date included 17 cases, of which 10 were leiomyosarcoma, four were mixed mesodermal tumors and three were other sarcoma types. Of all, 35% had received prior radiotherapy. These results underscore the importance of local therapy because pelvis was the first site of recurrence in all 14 treatment failures and the only site of failure in 50%. There were only three survivors seen, and all three had undergone exenterative surgery. The 5-year survival rate was 36% in patients with leiomyosarcoma.^[2] Hensley reinstated the need for primary surgery plus adjuvant radiation to decrease local recurrence rates for high-grade lesions and for cases in which the surgical margins were positive for tumor, adding a recommendation for chemotherapy for persistent and recurrent disease.^[13]

The role of adjuvant chemotherapy is also controversial; however, it has been utilized because of the high risk of systemic relapse. In the recent updates of meta-analysis, Pervaiz *et al.*,^[14] analyzed 18 trials with a cohort of 1953 patients. This update showed that a combination of ifosfamide and adriamycin resulted in risk reduction of death from 41% to 30%. The authors concluded that there is marginal efficacy of chemotherapy in localized resectable soft tissue sarcoma with respect to local recurrence, distant recurrence and overall survival. These benefits are further improved by the addition of ifosfamide to doxorubicin regimen. Ngan *et al.*,^[11] found that neither chemotherapy nor radiotherapy seemed to affect the outcome in late or recurrent disease.

Our case report describes a stage I, grade III leiomyosarcoma of the vagina treated with combined modality treatment.

The rarity of vaginal leiomyosarcoma has contributed to the paucity of information regarding the appropriate management and prognosis of these patients. The treatment options must be individualized and tailored to the needs of each individual patient. Each case must be reported in the literature to add more to our understanding of this rare disease.

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