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CASE REPOSTS

The Multidisciplinary Approach to Vaginal Leiomyosarcoma, an Extremely Rare Diagnosis - Case Report

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Abstract

Primary vaginal sarcoma is an extremely rare malignant condition within the field of gynecological pathologies. We present the case of a 53-year-old patient with no history of gynecological issues or associated comorbidities who presented to our clinic with recurrent vaginal bleeding during menopause. We want to emphasize the importance of diagnostic management, going through all the necessary steps from local gynecological examination to vaginal biopsy, optimizing results with advanced imaging techniques. Once the histopathological diagnosis of vaginal leiomyosarcoma was established, the therapeutic approach was discussed within a multidisciplinary committee consisting of a gynecologist, surgeon, and oncologist. As a result, the patient underwent tailored surgical intervention relatively quickly after presentation, followed by referral to the oncology department, where she is currently undergoing her third course of adjuvant chemotherapy. Our current objective is the long-term follow-up of the patient and the acquisition of data regarding her survival and quality of life. These facts may contribute in the future to the implementation of standardized therapeutic guidelines for such a rare condition.

Keywords: vaginal sarcoma, malignant condition, vaginal leiomyosarcoma, surgical intervention, chemotherapy.

Rezumat

Sarcomul vaginal reprezintă o patologie malignă extrem de rar întâlnită în sfera patologiilor ginecologice. Prezentăm cazului unei paciente în vârstă de 53 de ani, fără un istoric de afecțiuni ginecologice, fără alte comorbidități asociate, care s-a internat în clinica noastră pentru sângerări vaginale recurente în menopauză. Dorim să subliniem importanța managementului diagnostic, parcurgând toate etapele necesare, de la examen ginecologic local până la prelevarea biopsiei vaginale, optimizând rezultatele cu tehnici imagistice performante. Odată stabilit diagnosticul histopatologic de leiomiosarcom vaginal, conduita terapeutică a fost dezbătută întrunind o comisie multidisciplinară formată din medic ginecolog, chirurg și oncolog. Astfel, pacienta a beneficiat într-un timp relativ scurt de la prezentare, de intervenție chirurgicală, adaptată la particularitățile cazului. Ulterior aceasta a fost îndrumată către serviciul de oncologie, unde în prezent a efectuat a treia cură de chimioterapie adjuvantă. Actualmente, obiectivul nostru este urmărirea pacientei pe termen lung și obținerea de date în ceea ce privește supraviețuirea și calitatea vieții pacientei, date care pot contribui în viitor la implementare unor ghiduri terapeutice standardizate pentru o patologie atât de rară.

Cuvinte cheie: sarcom vaginal, patologie malignă, leiomiosarcom vaginal, chiomioterapie.

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INTRODUCTION

Sarcomas in the genital area represent one of the rare categories of gynecological malignant tumors, characterized by chaotic proliferation of mesenchymal tissues. These tumors account for approximately 3% of all gynecological malignant tumors, with uterine sarcomas being the most common, followed by ovarian sarcomas, while vaginal sarcomas are the rarest.[1,2]

While these tumors are infrequently diagnosed, the outlook for patients with these conditions is typically unfavorable, with a very high mortality rate among them. In recent years, there has been an increase in the incidence of these conditions, likely due to the advancement of paraclinical diagnostic methods.[3]

Regarding uterine sarcomas, it represents approximately 8-10% of malignant uterine tumors. The yearly occurrence rate in the United States is roughly estimated to be between 0.36 and 0.64 per 100,000 people.[4] From a classification standpoint, they can be leiomyosarcomas, undifferentiated uterine sarcomas and endometrial sarcomas. Leiomyosarcomas are the most common type of uterine sarcoma, the 5-year survival rate ranging from 18.8% to 68%, its occurrence is most often de novo, sarcomatous transformation of a leiomyoma being extremely rare.[4] Endometrial sarcomas are further divided in two categories: low grade and, respectively, high grade endometrial sarcoma, these last ones have the poorest prognosis, being the most aggressive among all types of uterine sarcomas.[3,5]

Among the risk factors described in the literature so far, obesity, metabolic syndrome, exposure to estrogen during menopause, previous radiotherapy, and exposure to tamoxifen are mentioned.[6] The clinical manifestations, prognosis, and the choice of appropriate therapeutic management depend on the histopathological type of these tumors. However, the clinical picture is often nonspecific, with the main symptoms being pelvic-abdominal pain, the presence of a pelvic mass, and vaginal bleeding.[7]

Among the available diagnostic methods, we can mention transvaginal ultrasound, MRI, computerized tomography, PET-CT, and endometrial biopsy.[8] Additionally, recent data indicate an association with an elevated level of lactate dehydrogenase in cases of uterine sarcomas. The marker CA 125 is also elevated, but its specificity is low, given the numerous benign conditions that can also lead to its elevation.[9] However, in most cases, the diagnosis is established postoperatively based on the histopathological examination.[4] Recent data from the literature underline the importance of developing molecular biology tests, which in the near future will significantly contribute to the early preoperative diagnosis of uterine sarcomas and guide new therapeutic approaches.[8]

Malignant primary tumors of the vagina are a rare entity, most often malignancy processes within this anatomical structure are represented by secondary lesions of the uterine body or cervix, as well as neighboring organs such as the rectum or urinary bladder.[10] Vaginal sarcomas can be divided into several categories, namely leiomyosarcomas, endometrial sarcomas, rhabdomyosarcomas, and malignant mixed Müllerian tumors.[11] Vaginal sarcomas are encountered in approximately 3% of all malignant tumors of the female genital tract, leiomyosarcoma being the most common type among the histopathological types described to date.

Rhabdomyosarcomas are primarily seen in childhood and adolescence, representing the most common type of soft tissue neoplasm encountered in this age group. Regarding genital rhabdomyosarcomas, the embryonal subtype is most frequently identified, accounting for approximately 50% of cases.[1,12]

The stage at the time of diagnosis and the histopathological type are two constants that influence the prognosis and subsequent course of the disease.

CASE REPORT

We present the case of a 53 year-old patient who was admitted to the Department of Obstetrics and Gynecology of University Emergency Hospital of Bucharest for vaginal bleeding that occurred three weeks ago. The patient did not have any documented comorbidities, and her most recent gynecological assessment had taken place two years prior. From the patient's gynecological history, we note that menarche began at the age of 15, menopause occurred at the age of 50, and she has had one vaginal birth and three miscarriages.

The local clinical examination revealed a uterus of normal size but increased consistency, supple adnexal areas, a cervix with a macroscopically normal appearance. However, a firm, immobile formation of approximately 2/2 cm was palpated on the posterior vaginal wall. Blood tests were conducted, and the results were within normal limits, except for a slightly elevated C-reactive protein level. It was decided to perform a biopsy of the detected vaginal formation during the gynecological examination.

The histopathological result of the sampled tumor fragments was vaginal sarcoma. Immunohistochemistry tests supported the diagnosis of leiomyosarcoma, spindle cell, with a differentiation score of 2, marked atypia (presence of monstrous nuclei), areas of coagulative necrosis, and over 8-10 mitoses per 10 high-power fields. Subsequently, imaging tests were performed, including pelvic MRI with contrast, thoracic-abdominal-pelvic CT, cerebral CT, rectoscopy.

The pelvic MRI showed a uterus measuring 48/33 mm, with heterogeneous myometrium due to the presence of multiple fibroid nodules, hyperintensity on suppression sequences with diffusion restriction, a gadolinium-enhancing lesion located in the posterior left vaginal fornix, without pelvic lymphadenopathy. Computerized tomography did not reveal secondary lesions in the pulmonary, skeletal, hepatic, or cerebral areas. Rectoscopy followed by biopsy did not indicate the possibility of rectal invasion.

A total hysterectomy with bilateral salpingo-oophorectomy was performed, along with extensive excision of the vaginal tumor with rectal mucosa dissection. The patient's postoperative course was favorable under specialized care, and she was discharged seven days after surgery in good overall condition, with stable hemodynamics and respiration, and no local complications at the surgical site.

The definitive histopathological result of the specimen revealed uterine body measuring 4.5/2.5/4 cm, with multiple intramural leiomyomas, and numerous foci of adenomyosis. Additionally, a substance deficiency was observed in the right uterine horn with a maximum diameter of 1.5 cm. Low-grade squamous intraepithelial neoplasia with numerous koilocytotic cells is noted at the anterior lip of the cervix. No tumor invasion is identified in the adipose tissue surrounding the perirectal fat. Tissue samples from the vaginal tumor reveal malignant mesenchymal tumor proliferation with numerous atypical mitoses and cyto-nuclear pleomorphism. The final histopathological diagnosis is established as poorly differentiated sarcomatous tumor. Immunohistochemistry confirms the final diagnosis of high-grade leiomyosarcoma.

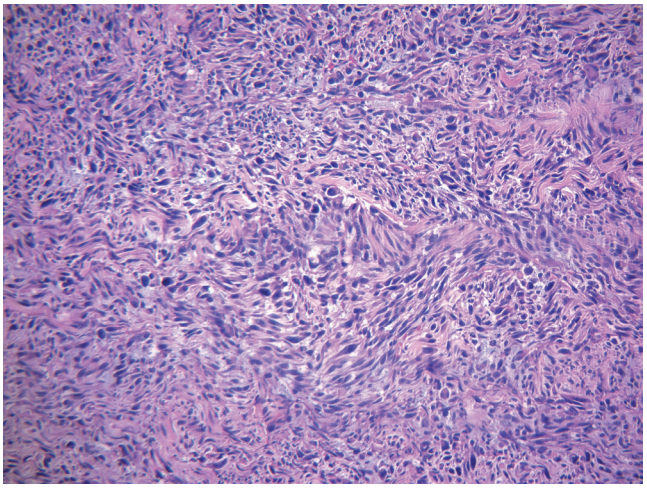

Figure 1. Tumor proliferation consisting of large spidlle or epithelioid cells, with marked pleomorphism. The cells are arranged in bundles of various sizes. HE stain 20x.

The collection of the obstetrics and gynecology clinic of the Bucharest University Emergency Hospital

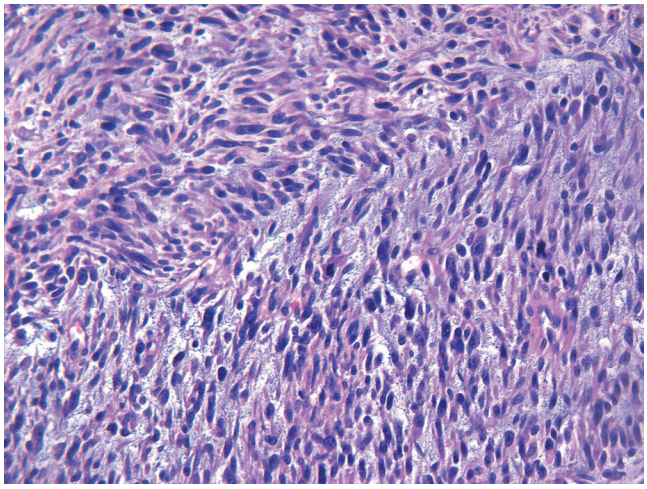

Figure 2. Microscopic detail showing tumor cells with tachychromatic and elongated nuclei. Atypical mitoses are also observed. HE stain, 40X

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After discharge, the patient was referred to the oncology department to continue the therapeutic management according to the specialized guidelines. Currently, the patient is undergoing chemotherapy.

DISCUSSIONS

Vaginal sarcoma is a rarely encountered pathology, accounting for 3% of malignant tumors described at this anatomical site. Among the previously mentioned histopathological types, leiomyosarcoma is the most common, representing two-thirds of vaginal sarcoma cases. The diagnosis is often incidental, as the clinical presentation is nonspecific.[11,13]

Signs and symptoms observed in patients diagnosed with vaginal sarcoma include the presence of a vaginal mass, spontaneous or post-coital vaginal bleeding, dys-

pareunia, pain during defecation, urinary difficulties, or, in many cases, patients are asymptomatic.[11] Among the risk factors associated with vaginal sarcoma are previous exposure to radiation therapy and certain genetic syndromes such as neurofibromatosis and Li-Fraumeni syndrome.[13] In the current diagnostic management, imaging modalities such as MRI, CT, and PET-CT help with the TNM classification, determining local extension, as well as the presence of secondary lesions of the tumor. The disease progresses both locally by invading adjacent structures and through hematogenous dissemination.[11]

Therapeutic management of vaginal sarcomas is not standardized compared to other frequently diagnosed genital neoplasms. Therefore, there are no well-established therapeutic plans yet, given the low incidence of these tumors. Surgical intervention is the primary therapeutic option, often followed by adjuvant chemotherapy or radiation therapy to reduce the chances of local tumor recurrence.[10] The type of surgical intervention varies from wide excision of the tumor to pelvic exenteration, depending on the disease stage, the risk of recurrence, and the patient's clinical status.[13,14] In the case of our patient, total hysterectomy with bilateral salpingo-oophorectomy and excision of the tumor along with the posterior vaginal wall was chosen. This decision was made considering the tumor's location (left posterior vaginal fornix), the presence of uterine fibroids, and the patient's menopausal status. This approach aimed to optimize the risks of future recurrence, and the treatment plan continues with adjuvant chemotherapy based on doxorubicin, isofosfamide, and mesna regimens.

A retrospective clinical study conducted by Yin Wang, Young-Wen Huang, and Yan-Fang Li from Sun Yat-Sen University Cancer Centre between 1997 and 2012 identified 8 patients over the age of 17 diagnosed with vaginal sarcoma, with an average age of disease onset being 44 years. Four of the patients were in stage I of the disease. The results show that surgical intervention is the primary therapeutic method, and the grade and stage of the tumor are the two constants that most significantly influence the subsequent course of the disease.[15]

Another retrospective study conducted by Hua Yuan and Tonghui Wang at the Department of Gynecological Oncology of Cancer Hospital, Chinese Academy of Medical Sciences, National Cancer Center, included a total of 15 patients diagnosed with vaginal sarcoma between 2000 and 2020, with an average age of 48 years. The study found surgical intervention as the primary therapeutic method, with a 2-year survival rate of 80% and a 5-year survival rate of 66.7%. Eleven of the patients underwent surgical intervention as the initial therapeutic choice, while 7 of these patients subsequently received adjuvant chemotherapy or radiation therapy.[16]

CONCLUSIONS

Sarcoma of the vagina is one of the rarest neoplasms diagnosed in the female genital tract. Each case described in the literature has unique characteristics worthy of study, considering the lack of concrete data regarding therapeutic management, prognosis, and risk factors. Therefore, the decision to choose the appropriate treatment approach for each patient is currently based on clinical status and patient-specific details, as well as the disease stage, with the aim of extending the window of recurrence prevention. Long-term patient follow-up is essential for obtaining data on both short-term and long-term survival, as well as the quality of life after the administered treatment.

References

1. Francis M, Dennis NL, Hirschowitz L, Grimer R, Poole J, Lawrence G, et al. Incidence and Survival of Gynecologic Sarcomas in England. International Journal of Gynecological Cancer. 2015 Jun;25(5):850–7.
2. Libertini M, Hallin M, Thway K, Noujaim J, Benson C, van der Graaf W, et al. Gynecological Sarcomas: Molecular Characteristics, Behavior, and Histology-Driven Therapy. Vol. 29, International Journal of Surgical Pathology. SAGE Publications Inc.; 2021. p. 4–20.
3. Lange SS, Novetsky AP, Powell MA. Recent advances in the treatment of sarcomas in gynecology. Discov Med. 2014 Sep;18(98):133–40.
4. Pérez-Fidalgo JA, Ortega E, Ponce J, Redondo A, Sevilla I, Valverde C, et al. Uterine sarcomas: clinical practice guidelines for diagnosis, treatment, and follow-up, by Spanish group for research on sarcomas (GEIS). Ther Adv Med Oncol. 2023;15:17588359231157644.
5. Koh WJ, Greer BE, Abu-Rustum NR, Apte SM, Campos SM, Cho KR, et al. Uterine Sarcoma, Version 1.2016. Journal of the National Comprehensive Cancer Network. 2015 Nov;13(11):1321–31.
6. Uterine Sarcomas. In: Diagnostic Pathology: Molecular Oncology. Elsevier; 2016. p. 8-232-8–239.
7. Bužinskienė D, Mikėnas S, Drąsutienė G, Mongirdas M. Uterine sarcoma: a clinical case and a literature review. Acta Med Litu. 2019 Apr 15;25(4):206–18.
8. Gantzer J, Ray-Coquard I. Gynecological sarcomas: What's new

in 2018, a brief review of published literature. Vol. 30, Current Opinion in Oncology. Lippincott Williams and Wilkins; 2018. p. 246–51.
9. Zhang F, Liu Y, Quan Q, Meng Y, Mu X. Diagnostic Value of Preoperative CA125, LDH and HE4 for Leiomyosarcoma of the Female Reproductive System. Cancer Manag Res. 2021;13:4657–64.
10. Keller NA, Godoy H. Leiomyosarcoma of the Vagina: An Exceedingly Rare Diagnosis. Case Rep Obstet Gynecol. 2015;2015:1–4.
11. Marcos-Figueiredo P, Moreira D de S da C, Morim MG, Pereira JL, Salgado LS. When an unexpected diagnosis occurs: A vaginal premenopausal sarcoma. Revista Brasileira de Ginecologia e Obstetricia. 2018 Jan 1;40(1):47–52.
12. Magné N, Pacaut C, Auberdiac P, Jacquin JP, Chargari C, Chauleur C, et al. Sarcoma of vulva, vagina and ovary. Vol. 25, Best Practice and Research: Clinical Obstetrics and Gynaecology. 2011. p. 797–801.
13. Moukhlissi M, Ben Sghier A, Serji B, El Harroudi T, Bennani A, Dahbi Z, et al. A giant primary vaginal sarcoma: A report case and literature review. Radiol Case Rep. 2023 May;18(5):1872–6.
14. Ciaravino G, Kapp DS, Vela AM, Fulton RS, Lum BL, Teng NNH, et al. Primary leiomyosarcoma of the vagina. A case report and literature review. International Journal of Gynecological Cancer. 2000 Jul 3;10(4):340–7.
15. Wang Y, Huang YW, Li YF. Primary vaginal sarcoma: Experience of a regional cancer center in China. Journal of Obstetrics and Gynaecology Research. 2015 Sep 1;41(9):1463–8.
16. Yuan H, Wang T. Primary vaginal sarcoma in a single center. Gynecol Oncol Rep. 2022 Dec;44:101122.