JCOMS eISSN:2783-3127 https://journalofcoms.com

Journal of

Current Oncology and Medical Sciences

Vol. 5, No. 4

Case report Free Access

Mullerian adenosarcoma of the uterus in a premenopausal woman: case report and literature review

Siddharth Arora [1]*, Kirti Ranjan Mohanty [2], Kriti Grover [3], Mansi Dey [4], Sandeep Ramawat [1]

[1] Rohilkhand Medical College and Hospital, Bareilly, Uttar Pradesh, India

[2] Yashoda Hospitals, Malakpet, Hyderabad, Telangana 500036, India

[3] Department of Pathology, Rohilkhand Medical College and Hospital, Bareilly, Uttar Pradesh, India

[4] Mahamana Pandit Madan Mohan Malviya Cancer Centre, Varanasi, Uttar Pradesh, India

Abstract

Introduction: Müllerian adenosarcoma is a rare biphasic uterine tumor, typically low-grade but with a worse prognosis when associated with sarcomatous overgrowth, deep myometrial invasion, or lymphovascular space invasion (LVSI). Despite being first described in 1974, reported cases remain limited.

Case Presentation: A 40-year-old premenopausal woman presented with abnormal uterine bleeding. Pelvic MRI showed a bulky uterus with a possible polypoidal growth or endometrial carcinoma. Endometrial biopsy suggested simple cystic hyperplasia. She underwent hysterectomy, and histopathology confirmed uterine adenosarcoma.

Discussion: Although rare, uterine adenosarcoma should be considered in patients with abnormal uterine bleeding and uterine masses. Its biphasic morphology and potential for sarcomatous overgrowth make diagnosis and prognosis difficult. Hysterectomy with bilateral salpingo-oophorectomy remains the standard treatment. The patient's loss to follow-up after 24 weeks highlights the need for long-term monitoring.

Conclusion: Uterine adenosarcoma, though uncommon, must be included in the differential diagnosis of uterine growths. Early diagnosis and surgical management are vital, and further research on prognostic markers and adjuvant therapies is warranted.

Keywords: Adenosarcomas, Surgery, Chemotherapy, Uterus

Corresponding Authors: Siddharth Arora

✉ Email: drsiddhartharora25@gmail.com

Received: 2025.9.2, Accepted: 2025.11.29

Introduction

Mullerian adenosarcoma, described as early as in 1974 by Clement and Scully, is a relatively uncommon tumor. This rare tumor presents as a biphasic malignant mesenchymal tumor (1). Uterine adenosarcoma constitutes 5% of uterine sarcomas (2). They are characterized by a benign epithelial component and a malignant mesenchymal component. Adenosarcoma is typically a low-grade tumor and behaves like low-grade sarcoma unless it is associated with a sarcomatous overgrowth (3). Mullerian adenosarcoma shows a less indolent course than its counterpart carcinosarcoma (4). Prognosis is dependent on multiple factors, specifically features of invasiveness. Stage, the presence of sarcomatous overgrowth, and myometrial invasion have been reported to significantly impact prognosis (1). The most common age group affected is perimenopausal and postmenopausal women, but few cases have been reported in the relatively younger age group (5).

In contrast to uterine carcinosarcoma, the majority of tumors are found early and have a favorable prognosis. Stage I and stage III tumors have a five-year survival rate of roughly 80% and 50%, respectively. Clear management guidelines are lacking. The lacunae can be attributed to the rarity of uterine adenosarcoma, and the available literature, which is primarily based on population-based analyses and retrospective case series. Due to the rarity of this disease, there is a lack of guidelines for the management of uterine adenosarcoma.

Case presentation

A 40-year-old premenopausal lady presented 4 years ago with abnormal bleeding. On evaluation A USG Abdomen done was suggestive of a bulky uterus with endometrial hyperplasia (endometrial thickness of 58mm [Figure 1] and a left ovarian follicular cyst measuring 3.9 x 3.1 cm. Laparotomy was abandoned in view of intraoperative findings of an adherent bulky uterus to the bowel. She was managed conservatively and monitored with serial ultrasounds suggestive of thickened endometrium in addition to a bulky uterus. She experienced intermittent bleeding over the last 3 months.

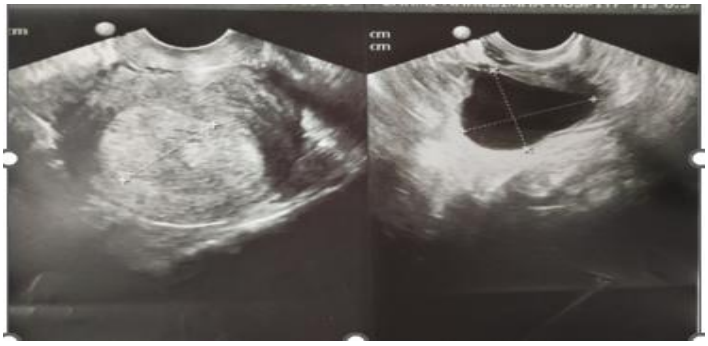

Figure 1. USG Abdomen: It shows a bulky uterus with endometrial hyperplasia.

MRI of the whole abdomen (plain and contrast) was suggestive of a bulky uterus with a large, ill-defined irregular T1 iso or hypo, T2/STIR hyperintense lesion measuring 77x65x86mm showing restricted diffusion with central degeneration at the superior aspect in the endometrium, indenting and thinning of myometrium-likely malignant polypoidal lesion/endometrial malignancy. Mildly bulky left ovary with small simple cysts [Figure 2].

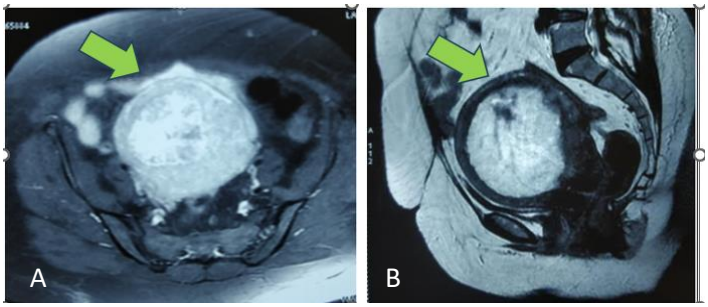

Figure 2. MRI of the whole abdomen (plain and contrast) 2a: Axial view showing a large ill-defined lesion in the endometrium with central degeneration likely representing a polypoidal lesion or endometrial malignancy. 2b: The sagittal view shows an ill-defined lesion in the endometrium with central degeneration and thinned myometrium.

The Pap smear done was normal. Endometrial biopsy was suggestive of simple cystic hyperplasia. She was taken up for surgery. Intraoperatively It was observed that the uterus was 20-week-sized, adherent to the rectum, and in close relation to the right ureter. Inter-loop adhesions with an ileal loop adherent to the abdominal wall with a gangrenous segment were additional findings. Given her intraoperative findings

she has to undergo ureteric stenting beside TAH-BSO. Additionally, she was planned for ileal resection with end-to-end ileal anastomosis. Her postoperative course was uneventful. Postoperative histopathology was suggestive of mullerian adenosarcoma with low-grade malignant potential. Microscopic examination revealed a tumor measuring 10 x 9 x 5 cm with biphasic histology having both epithelial and stromal components and a mitosis of 4-5/10 high power fields (HPF) [Figure 3a-3d]. It did not exhibit any myometrial invasion nor was it found associated with heterologous elements, or sarcomatous overgrowth. Ovaries and cervix appeared normal. The patient was maintained on regular follow-up and experienced a notable absence of disease for up to two years before being lost to follow-up.

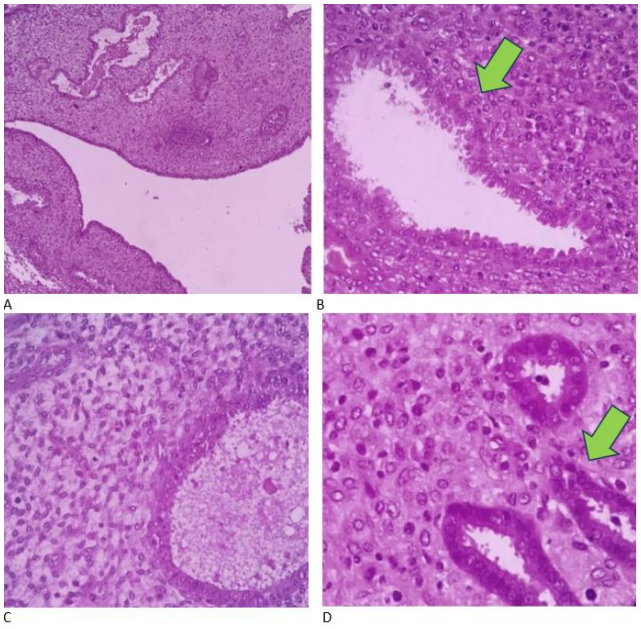

Figure 3. Hematoxylin and eosin stain A: Low power view showing both epithelial and mesenchymal components; B: Epithelial component showing mucinous metaplasia with moderate atypia; C – Epithelial component showing cystic changes and stromal component showing nuclear pleomorphism; D- High power mitotic view showing malignant stromal features and atypia in the glandular component, mitotic figures are also appreciated.

Discussion

Mullerian adenosarcomas are rare biphasic tumors. These tumors are composed of malignant and benign epithelial components. The uterus is the most common site (5), but it can also arise from extrapelvic sites. These tumors can present as pelvic masses (37%) or as uterine polyps (22%). Endometriosis, use of tamoxifen, or previous pelvic irradiation pose as risk factors. The most typical presentation is bleeding per vagina. Other presenting features are an enlarged uterus, pelvic mass, recurrent uterine polyp, or mass protruding through the external os. Macroscopically, it appears as an exophytic and polypoid mass with an average size of 5 cm, although tumors with a maximum size of 50 cm tumors have been reported.

DNA damage caused by oxidative stress has been hypothesized as an underlying mechanism associated with malignant transformation in patients with endometriosis. Though there is a paucity of data, there are few reports associating prolonged tamoxifen as a risk factor (6). The association could be explained due to the endometrial estrogen agonist effect. Deep myometrial invasion, sarcomatous overgrowth, heterologous elements, LVSI, and advanced stage have been associated with worse prognosis and recurrence (1, 2). Sarcomatous overgrowth is defined as the presence of pure sarcoma occupying at least 25% of the tumor (4). A retrospective review by Amy Carroll et al. identified risk factors and the impact of adjuvant treatment. Authors found that PFS and OS were longer in patients with sarcomatous overgrowth in stage I. Distant recurrences to the lung and liver are reported as high as up to 45%, especially in cases with sarcomatous overgrowth. Our case lacked sarcomatous overgrowth, which likely contributes to a more favorable clinical outcome.

Microscopically, the tumor shows benign glandular epithelium with malignant stroma. It appears as a broad leaf-like structure. The stromal cellularity is more around the glands, forming “periglandular cuffs.” Immunohistochemically both epithelial and mesenchymal markers such as CD10, SMA, desmin, CD34, ER and PR are typically positive. CD10 and WT1 are both nonspecific yet common histological markers. According to the World Health Organization (WHO), a mitotic rate of 2/10 HPF favors adenosarcoma. MDM2 and CDK4 amplification are often observed with TP53 mutation associated with aggressive behavior and sarcomatous overgrowth.

Adenofibroma and adenosarcoma are different pathologic and clinical entities. Both belong to the same family of mixed mesodermal tumors. There are fewer mitotic figures in adenofibroma. Histologic characteristics found in adenosarcoma include myometrial invasion, histologically malignant heterologous mesenchymal components, and noticeable stromal cell atypia.

TAH-BSO forms the basis of the treatment modality. There is a paucity of data on additional lymphadenectomy. Fertility-sparing surgery has yet to find its place and has no role in view of the increased risk of recurrence. It's still unknown what adjuvant treatment is best for this group of people in order to improve results. For patients with uterine adenosarcoma who are at high risk of recurrence, more information is required to identify risk factors for recurrence and to help choose the most effective adjuvant treatment regimens. Adjuvant radiotherapy appears to have a role in better pelvic control and a decrease in local recurrence, but the data are limited. In the Surveillance, Epidemiology, and End Results (SEER) database, only 111 of 544 patients received radiotherapy, with no significant effect on overall survival (7).

Systemic chemotherapy is suggested for adenosarcoma with sarcomatous overgrowth or with the possibility of high recurrence, commonly using doxorubicin or a combination of gemcitabine/docetaxel, trabectedin, or platinum. Amy et al.'s retrospective study, Uterine Adenosarcoma: an Analysis on Management, Outcomes, and Recurrence Risk Factors, featured a 15-year-old patient who remained disease-free for almost eleven years post adjuvant chemotherapy. Very few case reports establish the use of adjuvant chemotherapy (8, 9). Those treated with doxorubicin and ifosfamide showed longer PFS.

Hormone therapy [gonadotrophin-releasing hormone (GnRH) analogues, selective estrogen receptor modulators (SERMs), or progesterone] may benefit low-grade sarcoma without sarcomatous overgrowth. Molecularly, approximately 70% of adenosarcomas exhibit mutations in the PI3K/AKT/PTEN pathway (10). This pathway is a viable target for the development of novel therapeutics due to the high frequency of mutations seen in adenosarcomas. PTEN suppresses tumors by inhibiting the PI3K/AKT pathway. When PTEN is deactivated, AKT is uncontrollably activated, which promotes cell division. For recurrent or metastatic disease, systemic chemotherapy and hormonal therapy remain the treatments of choice.

Conclusion

Surgery, including fertility sparing, should be discussed in early presentation. In premenopausal women with uterine adenosarcoma, ovarian preservation seems like an acceptable option in the absence of extensive involvement, especially considering the generally low rates of ovarian metastases that have been documented to date. There isn't a lot of data available to help direct therapy, and the ones that are available are primarily from small retrospective case series. Total abdominal hysterectomy with bilateral salpingo-oophorectomy remains the cornerstone of treatment, while the role of lymphadenectomy, radiotherapy, and chemotherapy continues to evolve. Hormonal therapy may be beneficial in select low-grade cases. Advances in molecular profiling, particularly involving the PI3K/AKT/PTEN pathway, may offer future therapeutic targets. The aim of presenting this case is to make surgeons aware of the possibility of adenosarcoma in the uterus at premenopausal age and the importance of histopathological differentiation.

Author contribution

SA , KG and **KM** wrote the manuscript.

KG , SR and **MD** prepared figures.

All authors reviewed manuscript.

Conflicts of interest

There are no conflicts of interest.

Funding

There is no funding.

References

1. Clement PB, Scully RE. Mullerian adenosarcoma of the uterus-A clinicopathological analysis of 100 cases

with a review of the literature. Hum Pathol 1990;21(4):368–81.

2.Friedlander M.L., Covens A., Glasspool R.M., Hilpert F., Kristensen G., Kwon S., Selle F., Small W., Witteveen E., Russell P. Gynecologic Cancer InterGroup (GCIG) consensus review for mullerian adenosarcoma of the female genital tract. Int. J. Gynecol. Cancer. 2014;24(9 Suppl. 3): S78–S82.

3. Clement PB. Mullerian Adenosarcoma of the uterus with sarcomatous overgrowth - A clinicopathological Analysis of 10 cases. Am J Surg Pathol. 1989;13(1):28–38.

4. Krivak TC, Seidman JD, McBroom JW, MacKoul PJ, Aye LM, Rose GS. Uterine adenosarcoma with sarcomatous overgrowth versus uterine carcinosarcoma: comparison of treatment and survival. Gynecol Oncol.2001;83 : 89–94.

5. D'Angelo E, Prat J. Uterine sarcomas: a review. Gynecol Oncol. 2010 ;116 (1):131–139.

6. Friedlander ML, Covens A, Glasspool RM, Hilpert F, Kristensen G, Kwon S, Selle F, Small W, Witteveen E, Russell P. Gynecologic Cancer InterGroup (GCIG) consensus review for mullerian adenosarcoma of the female genital tract. International Journal of Gynecological Cancer. 2014 Nov 1;24:S78-82.

7. Arend R, Bagaria M, Lewin SN, Sun X, Deutsch I, Burke WM, Herzog TJ, Wright JD. Long-term outcome and natural history of uterine adenosarcomas. Gynecol Oncol. 2010 Nov;119(2):305-8.

8. Odunsi K, Moneke V, Tammela J, et al. Efficacy of adjuvant CYVADIC chemotherapy in early-stage uterine sarcomas: Results of long-term follow-up. Int J Gynecol Cancer 2004;14:659-64

9. Shahidsales S, Farazestanian M, Sharifi-sistani N, et al. The uterine adenosarcoma in a young woman treated by tah/bos and combined adjuvant therapy: A case report. Acta Med Iran 2020; 58:138-41.

10.Nathenson MJ, Ravi V, Fleming N, Wang WL, Conley A. Uterine Adenosarcoma: a Review. Curr Oncol Rep. 2016 Nov;18(11):68.