Content available at: https://www.ipinnovative.com/open-access-journals

IP International Journal of Medical Paediatrics and Oncology

Journal homepage: https://www.ijmpo.com/

Case Report

Primary malignant melanoma of cervix - Few rare cases with review of literature

Hema A Venkatappa[1]*, Geeta V Okaly Patil[1], Suma Mysore Narayan[1], Pooja H Upase[1], Sandhya N[1]

[1]Dept. of Pathology, Kidwai Memorial Institute of Oncology, Bengaluru, Karnataka, India

Abstract

Primary melanoma of the female genital tract, particularly the cervix, is indeed an extremely rare condition. The rarity contributes to significant challenges in early diagnosis and effective treatment. The literature notes fewer than 100 documented cases, which makes every new case report valuable for broadening the understanding of this malignancy. These reports often highlight unique diagnostic criteria, treatment strategies, and outcomes, offering critical insights into managing such a rare condition.

Keywords: Uterine cervix, Malignant melanoma, Melanocyte

Received: 18-04-2024; **Accepted:** 29-05-2025; **Available Online**: 10-07-2025

This is an Open Access (OA) journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprint@ipinnovative.com

1. Introduction

Primary malignant melanoma indeed comprises less than 2% of all tumors in the female genital tract.[1] In 1959, Cid documented that melanocytes are present in the cervical epithelium in approximately 3.5% of women. This finding is significant as it provides a plausible origin for Primary Malignant Melanoma of the Cervix (PMMC).[2] In females, approxiately 3% of malignant melanomas occur in the genital tract, with the majority being located in the vulva or vagina. The cervix, by contrast, is an exceptionally rare site for melanoma within the genital tract. The estimated incidence of malignant melanoma in the female genital tract is approximately 1.6 cases per million, further emphasizing the extreme rarity of PMMC.[3] Since 1889, approximately 81 cases of PMMC have been documented in the literature for its extreme rarity. The prognosis is generally poor, regardless of the stage at diagnosis.[4] We present a detailed report on the clinical and histopathological features of PMMC, an exceptional rarity.

2. Case Presentation

2.1. Case 1

A 34-years-old female presented with complaints of white discharge and bleeding per vagina for 2 months. Per speculum examination showed bulky cervix with an exophytic growth of 6x6cm approximate size with hyperpigmented patches in the cervix and the anterior vaginal wall extending till introitus. CECT showed there was 5.2x5x4.8cm heterogeneously enhancing lesion without any significantly enlarged pelvic/inguinal lymph node. Patient had been evaluated outside and reported as poorly differentiated squamous cell carcinoma on cervical biopsy. Following this, she had received external beam radiation therapy (EBRT) and intravenous cisplatin outside. The biopsy slides were reviewed at our hospital. On histopathology, the cells were arranged in sheets, exhibit moderate nuclear pleomorphism with round vesicular nucleus and prominent nucleoli. Differentials considered were poorly differentiated carcinoma and lymphoma. Immunohistochemistry revealed tumor cells were positive for Melan A, HMB45, and SOX10 staining (**Figure 1**F,G,H) and negative for CK5/6, p63, and shows retained nuclear expression of INI1. The immunomorphological diagnosis

*Corresponding author: Hema A Venkatappa
Email: hamsaav47@gmail.com

https://doi.org/10.18231/j.ijmpo.2025.013
© 2025 The Author(s), Published by Innovative Publications.

was malignant melanoma. Patient underwent total abdominal hysterectomy with bilateral salpingectomy and left oophorectomy with excision of vaginal melanotic patches. On gross examination, cervix was bulky. On serial slicing of cervix, an infiltrative grey-brown tumor was identified infiltrating more than half of the cervical stroma and extending into the lower uterine segment (**Figure 1**A). On microscopic examination, the tumor showed sheets of atypical cells with extracellular and intracellular melanin pigment deposition. (**Figure 1**B,C,D,E) Vaginal melanomatous patches showed foci of dispersed dysplastic melanotic cells in the basal layer of the stratified squamous epithelium. The final diagnosis for the patient was primary maligant melanoma of cervix.

2.2. Case 2

A 34-year-old, female patient was evaluated at our hospital for bleeding per vagina and pain abdomen for one month. MRI pelvis showed a well- defined, hyperintense lesion involving the cervix measuring 7.4x6.3x4.7cm. Urinary bladder, rectal wall, bilateral parametrium and lateral pelvic wall were not involved. Pelvic and retroperitoneal lymph nodes involvement were not seen. Cervical biopsy was done and microscopic examination showed sheets of atypical cells with prominent eosinophilic nucleoli.

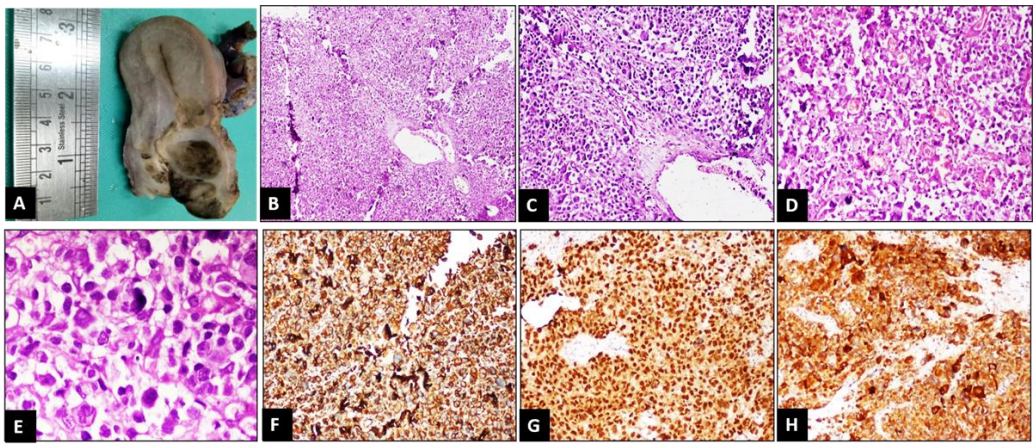

Figure 1: Case 1: A: Grossly, cut surface of cervix shows grey brown tumor. Histomorphological and immunohistochemical features of PMMC; **B:** At low power, there is diffusely infiltrating tumor; **C:** Lower power also illustrates sheets of atypical cells; **D:** Lower showed areas of necrosis with apoptotic bodies; **E:** At high-power, individual cells show prominent 1-2 nucleoli; **F:** Tumor cells are positive for vimentin; **G:** Tumor cells are positive for S0X10; **H:** Tumor cells are positive for Melan-A.

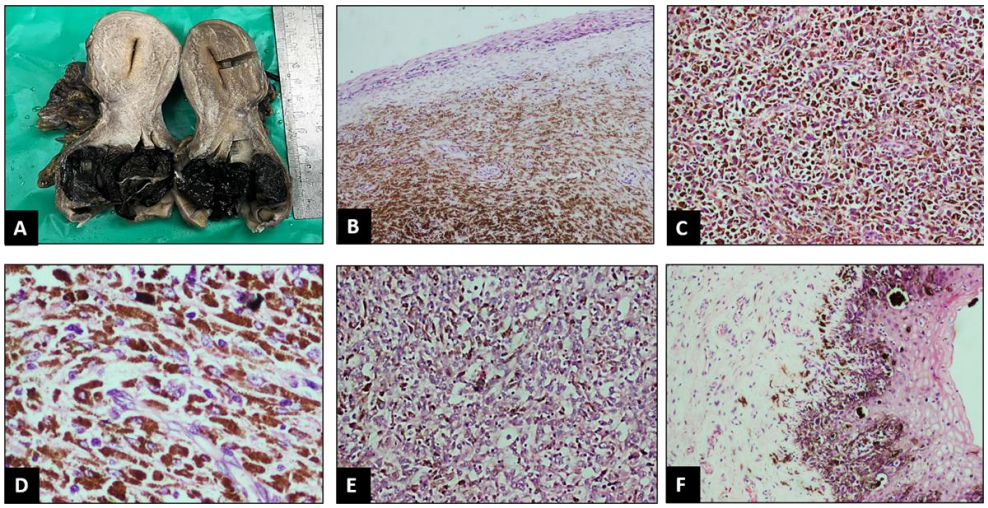

Figure 2: Case 2: A: Grossly, cut surface of cervix shows grey brown tumor involving both cervical lips; **B:** At low power, ectocervix shows squamous lining epithelium with an underlying diffusely infiltrating tumor; **C:** Low power also illustrates sheets of atypical cells with intracytoplasmic and extracellular melanin pigment; **D,E:** At high power, individual cells show oval cells with prominent 1-2 nucleoli and intracytoplasmic melanin pigments; **F:** At lower power, vaginal flap shows features of atypical melanocytic naevus of genital type.

There was both intracellular and extracellular melanin deposition (**Figure 2**B,C,D,E). On immunohistochemistry, tumor cells were positive for HMB45, SOX10, melanA and negative for cytokeratin. The biopsy was reported as cervical melanoma. Following this, she had received 3 cycles of Dacarbazine and Cisplatin. Patient underwent hysterectomy with bilateral salpingo-opherectomy and partial vaginectomy. On gross examination, cervix showed a grey brown tumor infiltrating and causing the obliteration of endocervical canal and invades the isthmus (**Figure 2**A). Histopathological findings were similar to biopsy. Vagina and partial vaginectomy showed multiple dark brown patches. Partial vaginectomy showed features of atypical melanocytic naevus of genital type (**Figure 2**F). Final diagnosis given was primary maligant melanoma of cervix. Following the histopathology diagnosis, she received EBRT and 6 cycles of Dacarbazine. She completed her treatment and doing well.

3. Discussion

PMMC is an exceedingly rare condition, with its rarity firther underscored its incidence being five times less common than primary vaginal or vulvar melanoma. It predominantly affects women in their sixth decade of life. PMMC can arise de novo from melanocytes present in the cervical epithelium, which is rare due to the sparse distribution of melanocytes in this area. It is more common for cervical melanoma to be secondary extension from adjacent areas like the vagina or vulva or hematogenous dissemination from distant primary melanomas, such as those in the skin or other mucosal sites. The cervical epithelium's potential to form the complete spectrum of melanocytic lesions ranging from benign lentigines to malignant melanoma.[1-5] The diagnosis process for PMMC is reliant on a combination of clinical examination and confirmatory pathological and immunohistochemical findings. In present cases, they were presence of atypical cells with intracytoplasmic and extracellular dark brown to black non refractile pigments, aiding in diagnosis. PMMC may be either melanotic or amelanotic. Diagnosis of amelanotic melanoma may be missed due to the lack pigmentation, making diagnosis more challenging and can lead to misdiagnosis of poorly differentiated squamous cell carcinoma. Thorough evaluation, include IHC for melanocytic markers S100, HMB-45 and Melan-A is crucial in such cases. Our both cases showed classic features of melanoma and hence posed no diagnostic dilemma.

Patients with PMMC have been reported between 19 to 83 years,[6,7] although most of them have occurred between 60 to 70 years. In most cases, vaginal bleeding or discharge is the usual presenting complaints. Some patients may remain asymptomatic. Clinical examination reveals a polypoidal exophytic mass of grey brown to blackish or colourless in amelanotic melanoma, which constitute up to 55% of cases in the cervix. Melanoma cells are positive for S100 protein (more sensitive), HMB45 (more specific), and negative for epithelial and smooth muscle markers.[8] PMMC must be differentiated from metastatic melanoma from other sites of the body including skin and eye.[7] Norris and Taylor have suggested the criteria to diagnose PMMC which include (a) presence of melanin in the normal cervical epithelium, (b) absence of melanoma in another site of the body, and (c) presence of junctional activity in the cervical epithelium near the lesion.[9]

As cervix is an unusual site for malignant melanoma,there are no Union for International Cancer Control (UICC) staging criteria for melanomas occurring elsewhere in the female genital tract.[10] PMMC is an aggressive neoplasm with local recurrence and wide spread metastases. The prognosis is generally poor because diagnosis is usually made at an advanced stage. Average survival reported in the world literature of these patients ranges from 6 months to 14 years.[11]

4. Conclusion

Due to its aggressive and chemo-resistant nature, Primary Malignant Melanoma of the Cervix (PMMC) necessitates a prompt diagnosis, including exclusion of other primary melanoma sites, followed by radical surgical treatment. Radical hysterectomy with bilateral salpingo-oophorectomy is the preferred approach, given the lack of effective systemic treatments. Early and aggressive surgical management offers the best hope for disease control, although close follow-up remains essential.

5. Patient's Consent

Patient consent was taken from Patient's guardian.

6. Source of Funding

None.

7. Conflict of Interest

None declared.

8. Acknowledgment

None.

References

1. Calderon Salazar L, De Leon DC, Montiel DP, Almogabar-Villagran E, Villavicencio V, and Cetina L. *ISRN Obstet Gynecol*. 2011;2011:683020.
2. Cid JM. Melanoid pigmentation of the endocervix: a neurogenic visceral argument. *Ann Anat Pathol*.1959;4:617–28.
3. De Matos P, Tyler D, and Seigler HF. Mucosal melanoma of the female genitalia: a clinicopathologic study of forty-three cases at Duke University Medikal Center. *Surgery.* 1988;124(1):38–48.
4. Pusceddu S, Bajetta E, Carcangiu ML, Formisano B, Ducceschi M, Buzzoni R. A literature overview of primary cervical malignant melanoma: an exceedingly rare cancer. *Crit Rev Oncol Hematol*. 2012;81(2):185–95.
5. Gupta R, Singh S, and Mandal AK. Primary malignant melanoma of cervix - a case report. *Indian J Cancer*. 2005;42(4):201–4.

6. Clark KC, Butz WR, Hapke MR. Primary malignant melanoma of the uterine cervix: case report with world literature review. *Int J Gynecol Pathol.* 1999;18(3):265–73.
7. Yun NR, Park JW, Park JH, Choi SJ, and Hwang SO. Primary malignant melanoma of the uterine cervix: A case report. *Korean J Obstet Gynecol*. 2012;55(5):343–7.
8. Santoso JT, Kucera PR, Ray J. Primary malignant melanoma of the uterine cervix: two case reports and a century's review. *Obstet Gyecol Surv*. 1990;45(11):733–40.
9. Norris HJ and Taylor HB. Melanomas of the vagina. *Am J Clin Pathol*. 1966;46:420–6.
10. Malpica A, Wilkinson N, Scolyer RA, Singh R. Mucosal melanoma-melanocytic lesions. In: WHO classification of tumors editorial Board. Female genital tumors. Lyon (France): International Agency for Research on Cancer; 2020. pp.537–8. (WHO classification of tumours series, 5th ed.; vol. 4). https://publications.iarc.fr/592.
11. Hinde EF, Amal B, Hannane S, Cherhazade B, and Abdelaziz B. Unusual primary location of the malignant melanoma, the cervico-vaginal region: 3 cases and literature review. *Open J Obstet Gynecol*. 2012;2(3):279–82.

Cite this article: Venkatappa HA, Patil GVO, Narayan SM, Upase PH, Sandhya N. Primary malignant melanoma of cervix - Few rare cases with review of literature. *IP Int J Med Paediatr Oncol*. 2025;11(2):55-58.