A Rare Case of Vulvar Melanoma in a Patient with a History of Hepatitis-B Infection

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ABSTRACT

This case report describes a 62-year woman with vulvar malignant melanoma and concurrent chronic hepatitis B infection. Vulvar melanoma is a rare and aggressive cancer, accounting for less than 5% of all melanoma cases. The patient initially presented with a firm, painless vulvar lesion, which was later confirmed as malignant melanoma through biopsy and immune-histochemical staining. Post-surgical PET-CT findings indicated skin thickening at the operative site and suspicious nodules in the lungs, raising concerns for possible metastases and underscoring the need for a coordinated multidisciplinary approach. The coexistence of hepatitis B infection complicated the management, highlighting the need for a multidisciplinary approach. This case emphasises the importance of early detection and further research into the potential link between hepatitis B and melanoma.

Key Words: *Vulvar melanoma, Hepatitis B infection, Multidisciplinary approach, PET-CT, Metastasis.*

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INTRODUCTION

Vulvar melanoma is an extremely rare subtype of melanoma that accounts for less than 5% of all melanoma cases and represents an aggressive form of skin cancer.[1] Although very rare, its coexistence with chronic hepatitis B infection presents unique diagnostic and therapeutic challenges. The relationship between these conditions remains underexplored in the literature, highlighting the need for case reports such as this one.[2,3] We present a unique case of a 62-year woman with a history of hepatitis B infection who was diagnosed with vulvar malignant melanoma.

CASE REPORT

A 62-year woman reported that nine months ago she noted a vulvar lesion which eventually led to an operation a month before admission. The patient initially observed a firm and isolated nodule on the vulva as shown in Figure 1, which was painless. Over time, the lesion increased in size, turned dark brown, and was prone to bleeding upon contact with clothing. A biopsy revealed malignant melanoma.

The initial biopsy indicated malignant melanoma, characterised by solid sheets, nests, and infiltrative growth of large cells, with prominent nuclei, and scattered pigment granules. Immunohistochemical staining showed positivity for S-100 and HMB45, suggesting a melanocytic origin. Changes in the squamous epithelium were observed in the right labia minora, while the left labia minora showed signs of chronic inflammation. Finally, it was diagnosed as nodular malignant melanoma with ulceration. The Breslow thickness was approximately 1.2 mm, with a Clark level of 5 and focal tumour involvement at the base.

The patient was diagnosed with chronic hepatitis B infection, confirmed by the consistent presence of hepatitis B surface antigen (HBsAg) over six months, with no significant elevation in liver enzymes. This finding indicated a chronic carrier state without evidence of acute or active liver involvement. The patient's liver function tests (LFT) and imaging studies showed no evidence of active liver disease, supporting the chronic carrier state of hepatitis B without significant liver dysfunction. She had been under regular medical supervision for her hepatitis B condition, ensuring close monitoring of her health and timely management of any changes. Beyond her chronic hepatitis B diagnosis, the patient reported no significant medical history, including an absence of known allergies or adverse reactions to medications. This comprehensive understanding of her medical history was crucial for tailoring an effective and individualised treatment plan.

A thorough examination revealed normal findings across various bodily systems, ensuring a comprehensive understanding of the patient's overall health.

The patient underwent a successful surgical procedure for the resection of the vulvar malignant melanoma. The operation involved the careful removal of the tumour and circular skin tissue, approximately 4.0 × 4.0 cm in diameter, which was

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excised along an area marked 5 mm outside the tumour edge. Haemostasis was achieved by ligating the blood vessels, and a local skin flap was created. The excised tissue was then sent for histopathological analysis to ensure the completeness of the tumour resection (Figure 2). The entire surgical intervention was carried out without any complications.

Post-surgery PET-CT indicated skin thickening in the bilateral labia majora, likely postoperative changes. Nodules in the lungs raised concern for possible metastases, warranting further investigation.

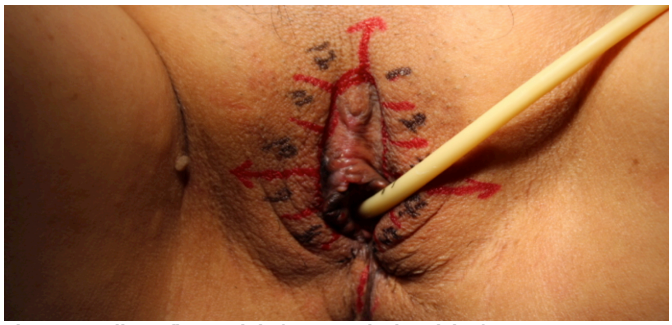

Figure 1: Solitary firm nodule (pre-surgical excision).

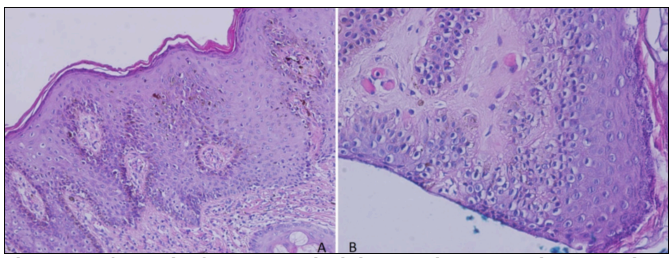

Figure 2: (A and B) Post-surgical image demonstrating complete excision of the melanoma with clear margins achieved during Mohs surgery.

DISCUSSION

Vulvar melanoma is a rare and aggressive malignancy.[1-3] Its clinical presentation is often delayed, leading to diagnosis at advanced stages when treatment options are limited, and prognosis is poor. This highlights the critical need for early detection and prompt intervention to improve outcomes. In this case, the patient underwent successful Mohs micrographic surgery, ensuring complete tumour resection. However, post-surgical PET-CT findings indicated potential pulmonary metastases, which significantly impacted the prognosis and necessitated precise and coordinated treatment planning.[2,4,5]

The concurrent diagnosis of chronic hepatitis B infection added complexity to the management of this patient. Hepatitis B is known to alter the immune response through chronic inflammation and immune suppression, which could theoretically contribute to carcinogenesis. However, no definitive evidence links chronic hepatitis B infection with melanoma development. In this case, the patient's LFTs and imaging studies showed no active liver disease, minimising the impact of hepatitis B on treatment outcomes for melanoma. Distinguishing between active liver disease and a chronic carrier state is critical for guiding treatment strategies, as active liver involvement may necessitate adjustments in oncological therapies to prevent complications such as hepatitis B reactivation.[3,6]

While the relationship between chronic hepatitis B infection and melanoma remains speculative, the unique coexistence of these conditions underscores the need for further research. Hypotheses suggest that chronic inflammation and cytokine dysregulation associated with hepatitis B infection may compromise immune surveillance and contribute to tumour progression. Nevertheless, these theories require robust validation through future studies.[7,8]

This case emphasises the importance of a multidisciplinary approach involving dermatologists, surgical oncologists, infectious disease specialists, and pulmonologists to ensure comprehensive care. Collaboration between these specialities is essential to balance effective melanoma management with the potential risks associated with chronic hepatitis B infection, such as immunosuppressive therapy-induced hepatitis reactivation. Furthermore, this case underscores the value of thorough pretreatment evaluations to assess the status of coexisting conditions and optimise treatment plans.[5]

Vulvar melanoma development is linked to genetic mutations (e.g., BRAF, NRAS, KIT), with less association with UV exposure due to the vulva's location. Chronic hepatitis B infection may contribute to melanoma risk through immune suppression, chronic inflammation, and an altered cytokine environment, potentially compromising immune surveillance of malignant cells.[8]

To date, there is limited literature addressing the coexistence of vulvar melanoma and active hepatitis B infection.[6,7] Management of melanoma in patients with hepatitis B necessitates a careful balance between curative cancer treatment and the risk of hepatitis reactivation due to immunosuppression.[7] Further research is required to establish guidelines for the management of melanoma in patients with underlying hepatitis B infection.[7] This case underscores the need for increased awareness of the potential clinical challenges of this unique combination of conditions.

PATIENT'S CONSENT:
Informed written consent was obtained from the patient.

COMPETING INTEREST:
The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:
QSIS: Design of the study, data collection, analysis, and the drafting of the manuscript.
AS: Review and editing.
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LJ: Review and editing.
PA: Reviewed and approved the final manuscript for submission.
All authors approved the final version of the manuscript to be published.

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