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CASE REPORT

Clinical presentation and demographic characteristics of polypoid melanoma on the back: A case study

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Abstract

Polypoid melanoma (PM) is a variant of nodular melanoma characterized by exophytic growth, an irregular surface, and a cauliflower-like appearance. Its reported incidence varies widely, ranging from 2% to 43%, and it is associated with a poor prognosis. This study presents a case of this rare melanoma subtype, along with its demographic characteristics, as reported in the international literature. PM is recognized as an independent risk factor in the evolving landscape of melanoma and requires tailored management strategies. Dermatologists and surgical oncologists should maintain a high level of suspicion to improve patient outcomes.

Keywords: Polypoid melanoma; Nodular melanoma; Demographic; Surgical treatment; Overall survival

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1. Background

Polypoid melanoma (PM) is a rare and aggressive subtype of nodular melanoma (NM), associated with one of the worst prognoses among all melanoma types.[1] The biological behavior of this tumor remains poorly understood due to the scarcity of available evidence, which is largely limited to case reports. In addition, the definition of PM has evolved over the years, complicating the interpretation of available scientific evidence. PM often shares characteristics with other conditions that may appear benign but conceal a malignant diagnosis, making its detection particularly challenging.

This case report describes a case of PM from an epidemiological, clinical, and therapeutic perspective. By providing a detailed analysis, this report seeks to raise awareness of this rare disease and highlight the importance of differential diagnoses to optimize accurate identification and treatment.

2. Case presentation

An 82-year-old male patient, living alone in a rural area, presented to the Surgery Department with a 1-year history of a polypoid tumor on his back (Figure 1). The lesion was associated with itching, burning pain, and occasional bleeding. His medical records revealed only dyslipidemia, for which he was treated with micronized fenofibrate (200 mg daily). Physical examination revealed a brown polypoid tumor with a cauliflower-like appearance (Table 1). The lesion had a small stalk, was ulcerated, and

exhibited discoloration of the adjacent skin (Figure 2). After obtaining informed consent, an incisional biopsy confirmed the diagnosis of melanoma. In accordance with the melanoma protocol at our hospital, the patient underwent a triple assessment, including chest X-ray, abdominal ultrasound, and a thorough evaluation of the lymph nodes and central nervous system, all of which showed no evidence of distant metastasis. In addition, a brain magnetic resonance imaging (MRI) scan performed in Buenos Aires revealed no signs of oncological disease. However, a skin assessment identified an indurated area with edema and erythema, raising concerns about potential in-transit metastases.

Table 1. Clinical and epidemiological features of PM

Epidemiology	Signs and symptoms	PM Clinical presentation
• Age: 82	• Burning pain	• Location: Back
• Gender: Male	• Itching	• Shape: Cauliflower
• Comorbidities: Dyslipidemia	• Bleeding	• Consistency: Stony
-	• Evolution: One year	• Mobility: Not mobile
-	-	• Margins: Adjacent skin coloration

Abbreviation: PM: Polypoid melanoma.



Figure 1. Polypoid melanoma on the back

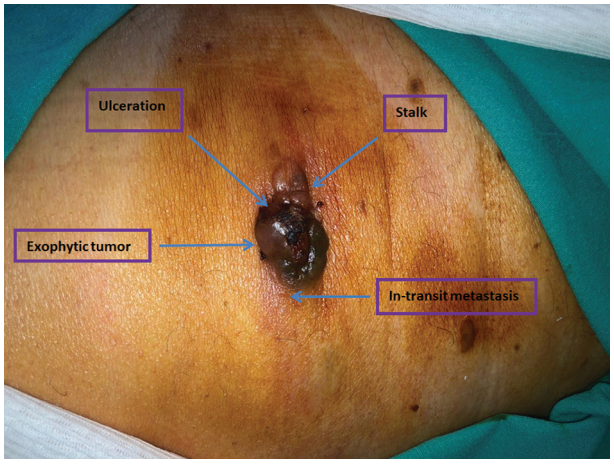


Figure 2. Polyploid melanoma characterized by the exophytic tumor, ulceration, stalk, and in-transit metastasis

Following a multidisciplinary team discussion, and considering the patient's isolated living situation and potential low adherence to further adjuvant treatments, a wide resection surgery was performed with a 2 cm margin of surrounding healthy tissue. The deep margin extended to the fascia of the latissimus dorsi muscle (Figure 3), and the tumor was removed *en bloc*. Sentinel lymph node biopsy results were negative. Histopathological analysis confirmed a diagnosis of NM (PM subtype), with Clark level V invasion, a Breslow thickness of 15 mm, ulceration, a mitotic rate of 4 mitoses/mm^2, and no evidence of lymphovascular invasion.

Post-operatively, the patient underwent adjuvant chemotherapy with pembrolizumab for 4 months, with an initial good response. However, disease progression ensued, with the development of distant metastases in the lungs, inguinal lymph nodes, and subcutaneous tissue. The patient ultimately succumbed to complications related to a concurrent coronavirus disease 2019 infection.

3. Discussion

PM is a variant of NM, characterized by an exophytic growth, an irregular surface, and a cauliflower-like appearance.[2] Its incidence varies from 2% to 43%, making it a very rare disease with a poor prognosis.[3] The poor prognosis[4] of PM is primarily associated with early, often hidden metastasis,[5,6]



Figure 3. The surgical site showing the removal of the latissimus dorsi fascia

through vascular and lymphatic invasion, making it one of the most lethal forms of melanomas.[5] While PM can affect younger patients[4] and mucosal areas such as the vagina, rectum, esophagus, and airway,[6] skin involvement occurs in less than a third of patients,[1] mostly commonly on the back.[2,4,6] Many definitions have been used to describe PM, but they generally converge on a set of common characteristics. Essentially, PM is characterized by an exophytic[3] growth caused by an aggregation of melanoma cells[6] above the skin surface. More than 50% of the tumor[3,5] is typically located on the cutaneous surface and is often accompanied by ulceration.[2,6] If an endophytic component is present, it accounts for <50% of the total tumor depth.[4] Notably, PM can be either pedunculated or sessile,[3] with or without pigmentation,[3] and it usually lacks radial growth.[2,4] Instead, it typically demonstrates rapid vertical growth, which is responsible for vascular embolism.[2]

The diagnosis of PM is challenging due to its atypical presentation, which often does not follow the asymmetry, border, color, diameter, and evolving[5] rule but aligns more with elevated, firm, and progressive growth (EFG[6]). Its ability to mimic benign conditions such as pyogenic granuloma,[3,5] intradermal nevus,[3,5] fibroepithelial polyp,[3] cutaneous metastasis,[5] infectious disorders,[5] other benign lesions,[5] skin cancers,[5] and skin sarcomas[7] makes its detection particularly difficult.[5] Moreover, PM may appear either pigmented or non-pigmented, sessile or pedunculated, and its tendency to ulcerate further complicates diagnosis.[8] These overlapping characteristics with benign or malignant conditions emphasize the need for heightened diagnostic suspicion to ensure timely identification.

Histopathological analysis is essential for diagnosing PM, revealing a higher degree of cellular atypia, cellular and nuclear pleomorphism, a high mitotic index, and significant Breslow depth. These factors, along with the rate of ulceration and presence of lymphovascular invasion,[4] contribute to the poor prognosis of PM[2,5,6] compared to other melanoma subtypes, as they are linked to the development of hidden metastases.[6]

Imaging, including positron emission tomography (PET) scans, computed tomography (CT) scans, and MRI of the head, chest, abdomen, and pelvis, is crucial for staging and detecting distant metastases[8] in soft tissues, the brain, lungs, liver, and skin.

The cornerstone of treatment for PM is wide local resection,[9] with a recommended 2 cm margin for lesions with a Breslow thickness[6] of 2 mm or greater. This procedure is typically combined with sentinel lymph node assessment[9] to improve staging accuracy. Adjuvant chemotherapy is also part of the standard treatment[9] protocol. Targeted therapies, such as *BRAF* and mitogen-activated protein kinase inhibitors, may become relevant in certain stages of the disease.[8] In addition, systemic therapy using programmed cell death protein 1 inhibitors like pembrolizumab has shown promise for surgically resected stage IIB or IIC melanoma, irrespective of histopathological features such as subtype, ulceration, or tumor thickness.[10]

Follow-up is mandatory for PM due to the tumor's ability to develop early local recurrence within 5 cm of the surgical scar.[6] Although specific follow-up protocols for PM are lacking,[11] active surveillance criteria used for other melanoma types are often applied. This surveillance includes follow-up visits every 3 months during the first 3 years and every 6 months thereafter.[11] Early detection of metastases or local recurrence is facilitated through lymph node ultrasonography, CT scans, and PET scans.[11]

The 5-year survival rate for PM ranges from 32% to 42%, significantly lower than the 57% observed in non-PM[8] cases. Given this poor prognosis, prevention and early detection are paramount. A high index of suspicion is necessary when evaluating atypical presentations, such as polypoid and amelanotic lesions, to ensure timely diagnosis and treatment. Raising awareness among dermatologists and surgical oncologists is equally important. Moreover, educating patients[12] about their diagnosis and risk factors enables practitioners to identify and address small, non-life-threatening lesions before they progress. Preventive strategies, such as the use of regular sunscreen and appropriate clothing for physical protection, are strongly recommended to prevent deoxyribonucleic acid (DNA) damage associated with ultraviolet radiation.[11] These measures contribute significantly to reducing melanoma risk and improving patient outcomes.

Several challenges[9] to PM diagnosis have been identified, including the lack of pigmentation in some lesions, the tumor's similarity to benign and malignant entities, limited awareness of this condition, and its atypical clinical presentation, which often fails to meet the ABCD or EFG criteria. These factors delay diagnosis and treatment, resulting in missed opportunities for timely intervention.

4. Conclusion

PM represents a distinct risk factor in the evolving landscape of melanoma management.[4] A high level of clinical suspicion and a comprehensive diagnostic approach are essential for timely and effective treatment. Educating both practitioners and patients about atypical melanoma presentations is vital for improving outcomes and minimizing diagnostic delays. Preventive measures,

such as the use of sunscreen and protective clothing, remain critical in reducing ultraviolet radiation-induced DNA damage.

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Conflict of interest

The authors declare that they have no competing interests.

Author contributions

Conceptualization: Emmanuel Zappettini
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Writing-original draft: Sergio Fernández Vértiz
Writing-review & editing: Sergio Fernández Vértiz

Ethics approval and consent to participate

The study was approved by the Ethical Committee of our institution. The authors certify that appropriate consent was obtained from the patient. The patient gave his consent and understands that his name and initials will not be published. Efforts are made to conceal his identity, although anonymity cannot be guaranteed.

Consent for publication

The patient gave his consent for his images and other clinical information to be reported in the manuscript.

Availability of data

Data used in this work are available from the corresponding author upon reasonable request.

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