

Atypical Presentation of Cutaneous Melanoma: A Case Report and Literature Review

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ABSTRACT

Cutaneous melanoma is a malignant neoplasm arising from melanocytes and represents one of the leading causes of mortality from skin cancer due to its high capacity for invasion and metastatic spread. Although its diagnosis is usually based on well-established clinical criteria, such as the ABCDE rule, atypical presentations may occur and can make early recognition difficult, potentially delaying appropriate treatment. We present the case of an adult patient with a pigmented lesion characterized by irregular features and progressive evolution, whose clinical and dermoscopic evaluation raised suspicion for melanoma. Surgical excision of the lesion was performed followed by histopathological analysis, which confirmed the diagnosis of cutaneous melanoma. Microscopic evaluation allowed the determination of tumor thickness and level of invasion, which are essential parameters for staging and prognosis. Management consisted of surgical margin widening according to current oncologic recommendations, with favorable clinical outcomes during follow-up. This case highlights the importance of considering melanoma in the differential diagnosis of pigmented lesions with unusual clinical characteristics and emphasizes the fundamental role of thorough clinical examination, dermoscopy, and histopathological evaluation in establishing an accurate diagnosis. Early detection of melanoma remains a key factor in improving prognosis and reducing mortality associated with this neoplasm.

KEYWORDS: Cutaneous melanoma; dermoscopy; skin neoplasms; histopathological diagnosis; atypical melanoma; Clark levels; Breslow thickness; pigmented lesions.

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INTRODUCTION

Cutaneous melanoma is a malignant neoplasm derived from melanocytes and represents one of the most aggressive forms of skin cancer due to its high metastatic potential. Although it accounts for a relatively small proportion of all skin tumors, it is responsible for the majority of deaths associated with skin cancer. Its incidence has steadily increased worldwide over the past decades, becoming a significant public health concern. Early detection of melanoma is crucial for

improving patient prognosis, as diagnosis in early stages is associated with higher survival rates and better therapeutic outcomes.

Clinically, melanoma usually presents as a pigmented lesion that shows changes in size, shape, color, or borders. These characteristics are traditionally evaluated using the ABCDE rule (asymmetry, border irregularity, color variation, diameter greater than 6 mm, and evolution). However, not all melanomas follow this classic pattern. In some cases, the

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disease may present with atypical features, mimicking benign lesions or appearing as amelanotic, nodular, or morphologically unusual lesions, which can complicate clinical recognition and delay diagnosis.

Dermoscopy, together with histopathological examination, represents a fundamental tool for the evaluation of suspicious skin lesions and confirmation of the definitive diagnosis. Despite advances in dermoscopic pattern recognition and diagnostic strategies, atypical presentations of melanoma continue to represent a diagnostic challenge for clinicians.

In this context, the presentation of clinical cases is important to expand knowledge regarding the diverse clinical manifestations of melanoma and to facilitate early recognition of its unusual forms. In the present article, we describe a case of atypical cutaneous melanoma, highlighting its clinical features, histopathological findings, and diagnostic considerations, accompanied by a review of the related literature.

CASE REPORT

We present the case of a 52-year-old female patient with no relevant past medical history who presented to the dermatology clinic due to the presence of a pigmented cutaneous lesion located on the left dorsal region with

approximately eight months of evolution. The patient reported initially noticing a small light-brown pigmented macule that progressively increased in size and changed in color over the previous three months, prompting her to seek medical evaluation. She denied any history of local trauma, spontaneous bleeding, or intense pruritus, although she occasionally experienced mild irritation in the affected area. Family history was notable for non-melanoma skin cancer in a first-degree relative. Regarding personal history, the patient reported intermittent sun exposure since adolescence without consistent use of photoprotection. She denied the use of tanning beds and had no history of severe sunburn during childhood.

Dermatological examination revealed an irregular pigmented lesion on the left dorsal region measuring approximately 1.8 cm in its largest diameter. The lesion was asymmetric with poorly defined borders and evident polychromia including dark brown, black, and slightly erythematous areas. The surface was slightly elevated in one of its poles and presented mild superficial scaling. On palpation, the lesion was firm, non-tender, and showed no evidence of ulceration. Evaluation using the ABCDE rule revealed asymmetry, irregular borders, color variation, diameter greater than 6 mm, and progressive evolution reported by the patient.



Figure 1: Clinical image.

A complete physical examination did not reveal any other suspicious cutaneous lesions. Palpation of regional lymph node chains did not reveal palpable adenopathies in the axillary or supraclavicular regions.

Dermoscopic evaluation of the lesion demonstrated an atypical pigment pattern characterized by an irregular pigment network, areas of regression, irregular dots and globules, and asymmetrical hyperpigmented zones. These

dermoscopic findings increased clinical suspicion of cutaneous melanoma.

Given the clinical and dermoscopic suspicion, complete surgical excision of the lesion was performed with 2 mm safety margins for histopathological analysis. The procedure was carried out under local anesthesia without complications. Histopathological examination revealed atypical melanocytic proliferation at the dermoepidermal junction with extension into the papillary dermis. Cellular pleomorphism, prominent

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nucleoli, and increased mitotic activity were observed. Pagetoid spread of melanocytes in the overlying epidermis was also identified. Tumor thickness measured by the

Breslow index was 0.9 mm without evidence of ulceration. The mitotic index was 1 mitosis per mm². Surgical margins were free of tumor.

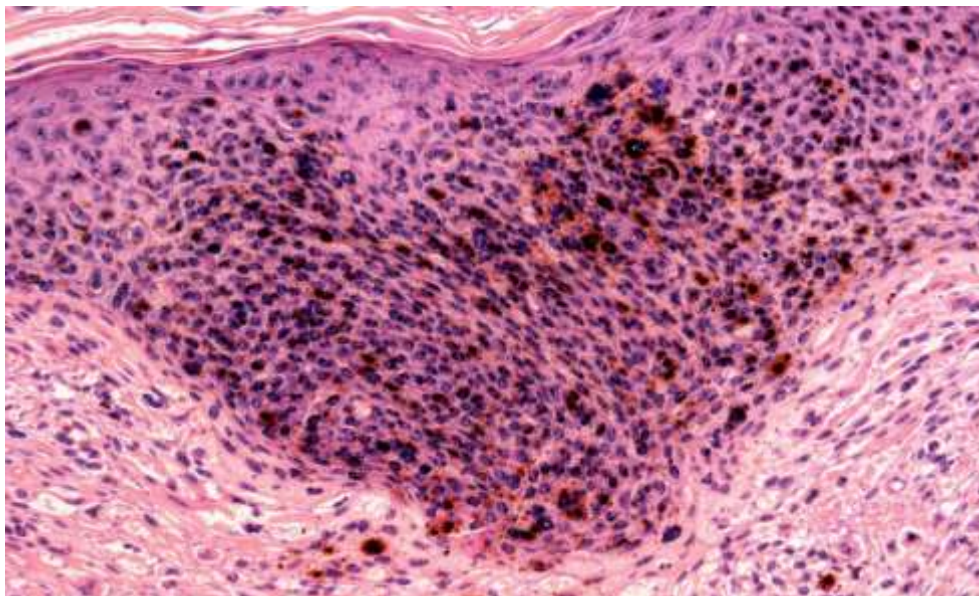


Figure 2. Histopathological image.

Based on the clinical and histopathological findings, a diagnosis of early-stage superficial spreading melanoma was established.

Subsequently, surgical margin widening was performed according to current oncologic guidelines, extending the margin to 1 cm around the previous surgical scar. The procedure was completed without complications, and histopathological examination of the additional tissue revealed no evidence of residual tumor.

Due to the tumor thickness being less than 1 mm and the absence of ulceration, sentinel lymph node biopsy was not indicated. The patient was enrolled in a periodic dermatologic follow-up program.

During follow-up at 6 and 12 months after surgery, the patient showed no evidence of local recurrence or the appearance of new suspicious lesions. No regional lymphadenopathy or clinical evidence of metastatic disease was identified.

This case highlights the importance of early identification of suspicious pigmented lesions and emphasizes the crucial role of dermoscopy and histopathological examination in the timely diagnosis of cutaneous melanoma, particularly in lesions with atypical clinical features that may delay recognition.

DISCUSSION

Cutaneous melanoma is a malignant neoplasm derived from melanocytes characterized by aggressive biological behavior and a high capacity for metastasis. Although it represents approximately 1–2% of all skin cancers, it accounts for the majority of skin cancer–related deaths. The global incidence of melanoma has steadily increased over recent decades, particularly among populations with fair skin phototypes and intermittent intense sun exposure.

Early diagnosis is essential to improve patient prognosis. However, atypical clinical presentations continue to represent a diagnostic challenge because they may mimic benign lesions such as dysplastic nevi, seborrheic keratoses, or inflammatory dermatoses. In such cases, dermoscopy, histopathological evaluation, and detailed clinical examination are essential for establishing a definitive diagnosis.

From a histopathological and clinical perspective, melanoma can be classified into different subtypes, each with distinct clinical characteristics and patterns of progression.

Table 1. Main Types of Cutaneous Melanoma

Type	Approximate Frequency	Clinical Characteristics	Common Location
Superficial spreading melanoma	60–70%	Irregular pigmented lesion with prolonged radial growth	Trunk and extremities
Nodular melanoma	15–20%	Elevated lesion with rapid vertical growth	Trunk, head and neck

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Acral melanoma	lentiginous	5–10%	Pigmented lesion on palms, soles, or subungual areas	Acral regions
Lentigo melanoma	maligna	5–10%	Slow-growing lesion in chronically sun-exposed skin	Face of elderly patients

Table 2. ABCDE Rule for Clinical Suspicion of Melanoma

Criterion	Description
A – Asymmetry	One half of the lesion does not match the other
B – Border	Irregular or poorly defined borders
C – Color	Variation of color within the lesion
D – Diameter	Greater than 6 mm
E – Evolution	Changes in size, shape, or color

Table 3. Breslow Thickness Classification

Tumor Thickness	Category	Prognostic Implication
≤ 1 mm	Thin melanoma	Excellent prognosis
1.01–2 mm	Intermediate (low risk)	Moderate metastatic risk
2.01–4 mm	Intermediate (high risk)	Increased metastatic potential
> 4 mm	Thick melanoma	High metastatic risk

The Breslow thickness is one of the most important prognostic factors because it correlates directly with patient survival and the likelihood of regional or systemic metastasis.

Table 4. Clark Levels of Invasion

Level	Histological Description
I	Melanoma in situ (confined to epidermis)
II	Invasion into papillary dermis
III	Filling papillary dermis
IV	Invasion into reticular dermis
V	Invasion into subcutaneous tissue

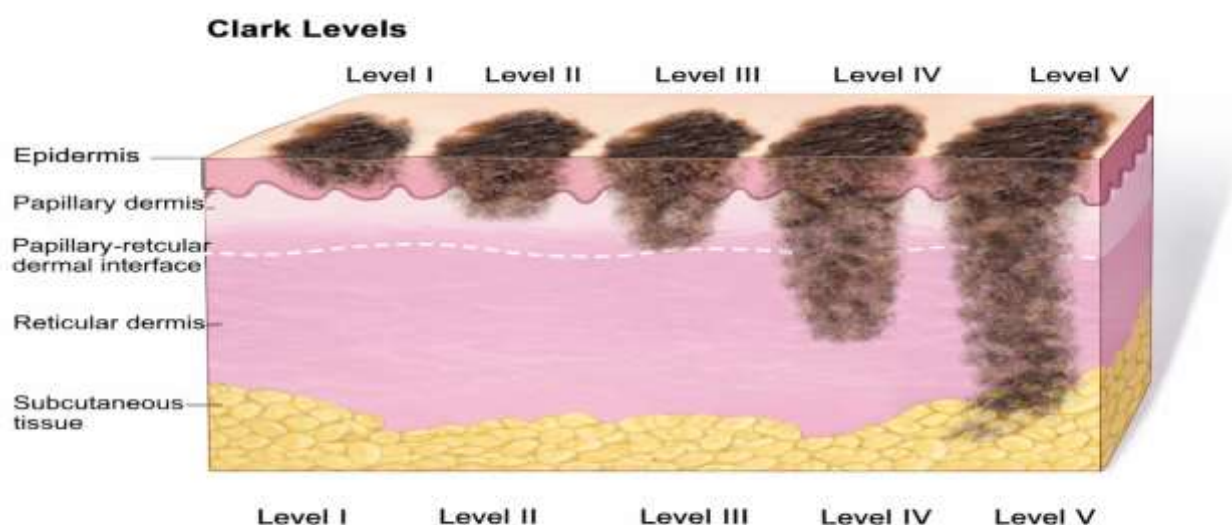


Figure 3: Illustration of Clark levels.

Although Clark level currently has less prognostic value compared with Breslow thickness, it remains useful in thin melanomas.

Table 5. Simplified TNM Classification for Melanoma

Category	Description
T	Tumor thickness and ulceration
N	Regional lymph node involvement
M	Presence of distant metastasis

This classification allows clinicians to determine melanoma stage and guide therapeutic decisions, including surgical margin expansion, sentinel lymph node biopsy, and systemic therapies.

CONCLUSION

Cutaneous melanoma represents one of the most aggressive malignant skin tumors due to its high invasive and metastatic potential. Early identification of suspicious lesions remains the most important factor for improving patient prognosis and survival. However, atypical clinical presentations may complicate recognition, emphasizing the importance of comprehensive dermatologic evaluation supported by dermoscopy and histopathological analysis.

The present case illustrates the relevance of considering melanoma in the differential diagnosis of pigmented lesions with unusual clinical characteristics. It also highlights the value of histopathological classifications such as Breslow thickness and Clark levels in determining tumor invasion, guiding therapeutic management, and estimating prognosis. The therapeutic management of cutaneous melanoma depends primarily on the clinical stage of the disease. In localized lesions, surgical excision with appropriate margins remains the treatment of choice. In more advanced cases, additional procedures such as sentinel lymph node biopsy, regional lymphadenectomy, or systemic therapies including immunotherapy and targeted therapy may be required.

In conclusion, melanoma continues to represent a diagnostic and therapeutic challenge in clinical practice. Early recognition of its different clinical presentations, including atypical forms, is essential for improving clinical outcomes. The integration of clinical evaluation, dermoscopy, and histopathological analysis allows accurate diagnosis and appropriate treatment planning. Furthermore, the dissemination of case reports contributes to expanding knowledge about the variability in melanoma presentation and strengthens early diagnostic strategies in clinical practice.

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