Dermatology Practical & Conceptual

# Birth of a Melanoma

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**Key words:** dermoscopy, melanoma, total body photography, dermatopathology

**Citation:** Bogiatzi S, Pagnoni A, Hohl D, Gaide O. Birth of a melanoma. *Dermatol Pract Concept.* 2022;12(2):e2022070. DOI: https://doi.org/10.5826/dpc.1202a70

**Accepted:** September 2, 2021; **Published:** April 2022



**Funding:** None.

**Competing interests:** None.

**Authorship:** All authors have contributed significantly to this publication

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## Introduction

Early melanoma diagnosis is a major prognostic factor for improved patient survival. Since its introduction in the dermatological practice, total body photography has proven to be a powerful tool for uncovering new or changing pigmented lesions that are either too small or unremarkable during a routine clinical skin exam in high-risk individuals [1]. Thanks to this technique, the number of reported melanomas measuring less than 2 mm in diameter, defined as micro-melanomas, is increasing. Consequently, the relevance of the 6 mm size criterion of the classic ABCDE rule is currently under question [2].

## Case presentation

A 29-year-old man with a personal history of melanoma consulted our clinic for his annual skin exam and total-body-photography. The comparative photography revealed a new, tiny, pigmented lesion on his right lateral trunk, measuring 1.0 mm x 1.5 mm, and appearing darker than the rest of his naevi (Figure 1, A and B). The digital dermoscopy exam revealed an atypical melanocytic lesion, characterized by asymmetry, and irregular network composed of non-uniform streaks of uneven width and borders. There was expansion in an asymmetrical starburst pattern with melanocytic projections of variable sizes and bulging ends with no connection to the lesion, predominating in one extremity of the lesion, and corresponding to pseudopods (Figure 1C). The lesion was excised and the histopathological analysis revealed an asymmetrical junctional melanocytic proliferation with nests of various sizes composed of large epithelioid melanocytes with cytologic atypia; pleomorphic nuclei, dusky and heavily pigmented cytoplasm, and mitotic figures. There was focal lentiginous proliferation in connection with a peripheral nest, compatible with the horizontal expansion seen in the dermoscopic image of irregular streaks, as well as isolated melanocytes in a pagetoid scatter (Figure 2). Two dermatopathologists reviewed the specimen. Given the lentiginous spread extending over 3 papilla in the periphery of the lesion, and the pagetoid ascension, which was limited over the nests in the center of the lesion, the diagnosis of melanoma in situ, acral lentiginous subtype, was retained. A re-excision of the scar with 5 mm lateral margins and up to the muscle fascia was performed. We are currently following the patient alternating clinical exam and total body photography every 6 months according to the Swiss Melanoma guidelines.

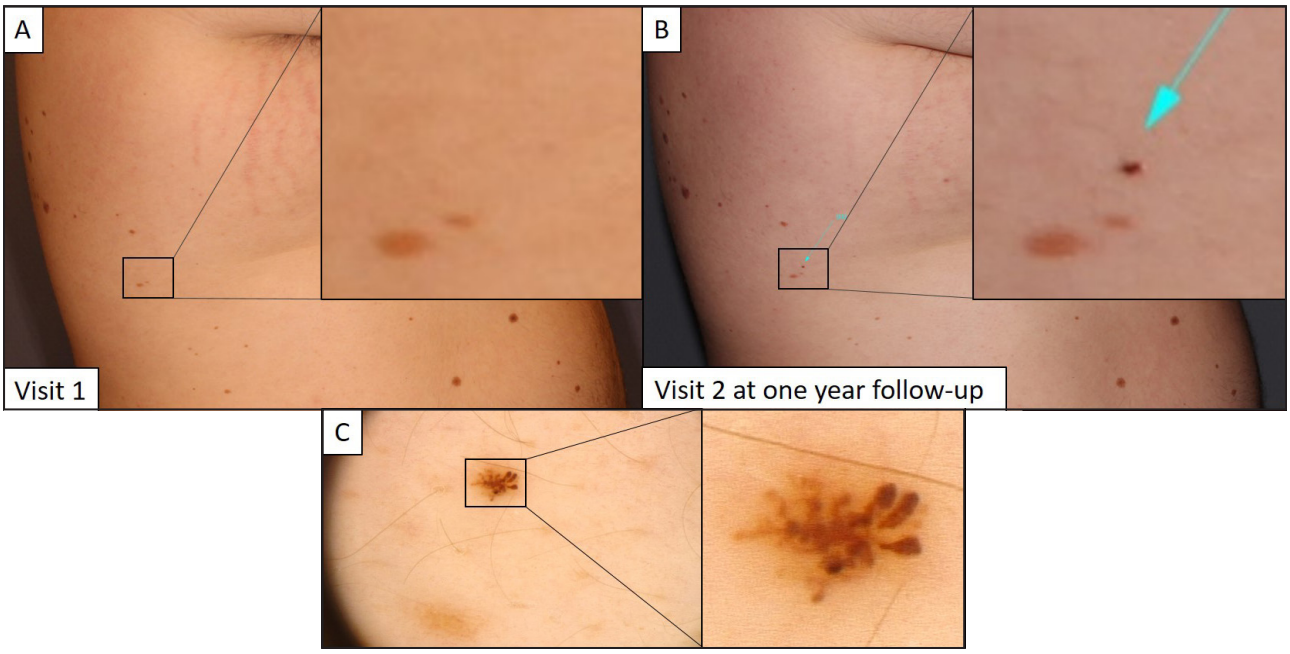


**Figure 1.** Total Body Photography exam: a new lesion is identified during time-lapse comparison of photos. (A) Total-body-photography at visit 1. (B) Total-body-photography at visit 2, one year later revealing the presence of a new melanocytic lesion. Inset: high power of the new lesion showing a darker pigmentation than the rest of the nevi. (C) Digital dermoscopy of the new lesion showing an atypical melanocytic network with irregular streaks and pseudopods in an asymmetrical starburst pattern dominating one extremity of the lesion.

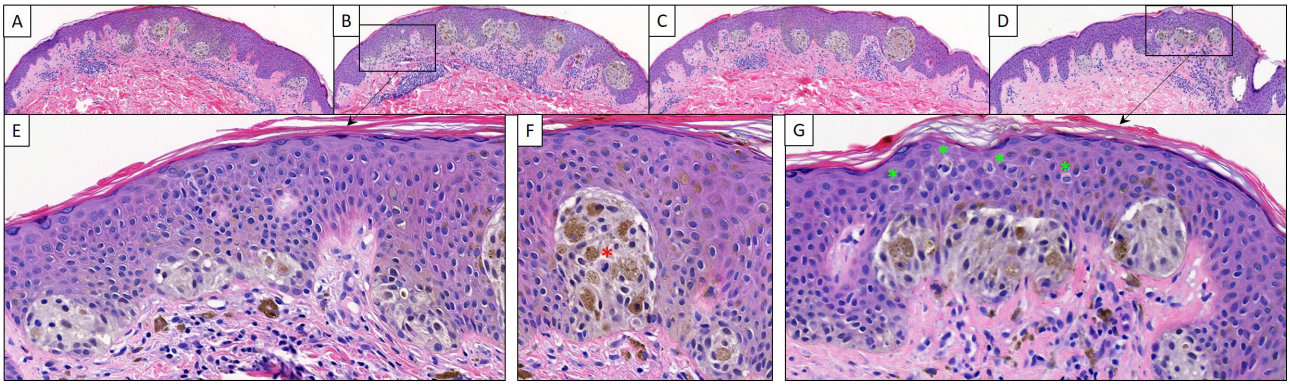


**Figure 2.** Histopathology correlate revealing features of melanoma in situ. (A-D) 10x magnification sections in different levels of the lesion depicting the asymmetrical melanocytic growth with junctional nests of various sizes, distributed unevenly. (E) 40x magnification of the B section showing the lentiginous spread in contact with a peripheral nest, corresponding to the pseudopods seen in dermoscopy. The melanocytes exhibit large nuclei compared to the neighboring keratinocytes with abundant cytoplasm, and heavy pigmentation in some of the cells. No pagetoid scatter was observed in the periphery of the lesion, compatible with an acral lentiginous subtype melanoma. (F) 40x magnification of a central nest with a mitotic figure (red asterisk). (G) 40x magnification of the D section showing interconnected nests in the center of the lesion with scattered melanocytes in the suprabasal layers of the epidermis (green asterisks), compatible with pagetoid ascension.

## Conclusions

Although rare, acral lentiginous melanomas have been reported in non-acral sites and their dermoscopic features are similar to the ones observed in our patient. This case illustrates the success of time-lapse total body photography in the identification of melanomas, akin to witnessing the birth of a star, but also the fine correlation of dermoscopy and pathology. Furthermore, the systematic documentation of micro-melanomas with digital dermoscopy combined with digital pathology and the molecular and genetic profiling of the excised lesions constitute a great opportunity to study these very early events of malignant melanocytic expansion.

## References

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