

## A Case of Blue Nevus Mimicking Malignant Melanoma Within a Keloid Scar

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### ABSTRACT

Blue nevus is a type of melanocytic nevus which clinically presents itself as blue/gray plaque or nodule. It most commonly develops upon distal extremities especially dorsal hands and feet, trunk and scalp. Histopathologically, heavy melanocyte aggregations in the deep dermis result in blue nevus formation. Different types of blue nevus include common blue nevus, cellular blue nevus, plaque-type blue nevus, combined blue nevus, desmoplastic blue nevus and subungual blue nevus. Although clinical findings may be sufficient to diagnose blue nevus, dermoscopy could be used as a helpful tool to aid in reaching the correct diagnosis. Dermoscopy usually shows diffuse blue-gray structureless area but since atypical clinical and dermoscopic features may be observed, histopathological diagnosis is the definitive step to differentiate blue nevus from its mimickers such as malignant melanoma. We want to present an interesting case of blue nevus mimicking malignant melanoma developing in a scar.

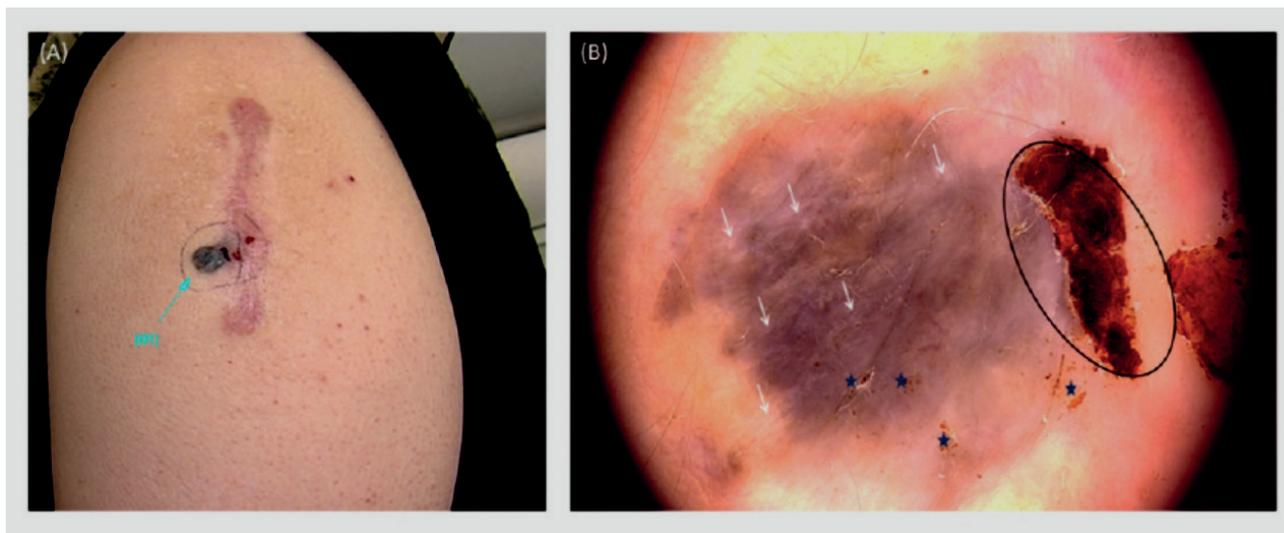
Keywords: Blue nevus, malignant melanoma, scar.

### INTRODUCTION

Blue nevus is an acquired or congenital form of melanocytic nevus with prominent blue/steelgray pigmentation which results from the aggregation of melanocytes in the deep dermis [1]. Morphologically and dermoscopically, blue nevus may simulate malignant melanoma (MM) which can cause potential diagnostic pitfall [2]. Histopathological diagnosis is the substantial and definitive step to differentiate common blue nevus from blue nevi variants, MM or cutaneous metastasis of MM. Herein, a case of blue nevus simulating MM in association with a keloid scar is presented.

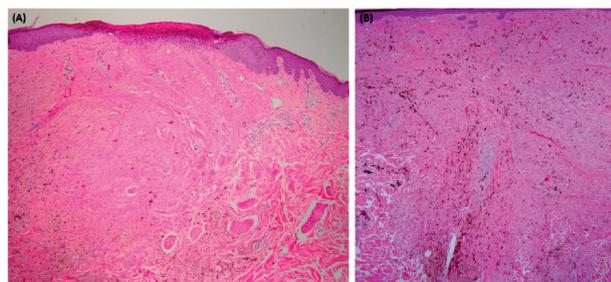
### CASE PRESENTATION

A 34-year old woman was appointed to our outpatient clinic with the complaint of gradually growing gray-black plaque in association with a keloid scar on the left upper arm. Medical history revealed that scar was formed ten years ago with an unknown etiology. Patient didn't report any history of surgical operation. There was no personal or family history of melanoma. Approximately 2 months ago, a pinpoint-sized black papule started to appear just near the keloid scar. It turned into a steel-gray/blue, well-defined, hemorrhagic-crusted plaque in association with the keloid scar (Figure 1A). Dermoscopic examination revealed blue-



**Figure 1.** (A) A steel-gray/black, well-defined, hemorrhagic-crusted plaque in association with the keloid scar (blue arrow). (B) Dermoscopy revealed blue-white veil (white arrows), red/brown dots and clods (blue asterisks) on a diffuse steel-gray/dark blue structureless area with a big hemorrhagic crust (big circle) encircling the left border of the lesion.

white veil, red/brown dots and clods on a diffuse steel-gray/dark blue structureless area with a hemorrhagic crust encircling the left border of the lesion (Figure 1B). Our initial diagnosis was MM due to atypical clinical and dermoscopic features of the mentioned lesion. However, histopathological examination revealed a plaque type of deep blue nevus. The ulcer described clinically was situated on the scar tissue adjacent to the nevus (Figure 2A). The dendritic nevoid cells with melanophages (Figure 2B) and coarse collagen fibers were present predominantly in the dermis (Figure 3A). At the center, a small part of protrusion to the beginning of subcutaneous tissue was seen (Figure 2B, 3B). At this deep part, the adnexal structures along with erector pili muscle and peripheral nerve branches were entangled with the nevoid cells. The cellularity was not that much of a cellular blue nevus. Although the pattern looked like a deep penetrating nevus, the deep part did not reveal any pleomorphism

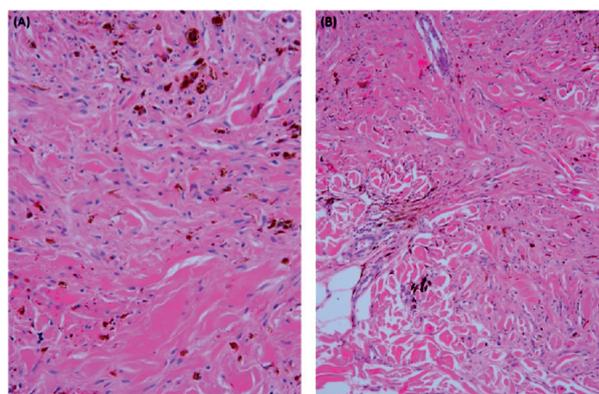


**Figure 2.** (A) Small ulcer on the scar tissue adjacent to the nevus. H.E. x40. (B) The dendritic nevoid cells throughout the dermis a small protrusion to the beginning of the subcutaneous tissue. H.E. x40.

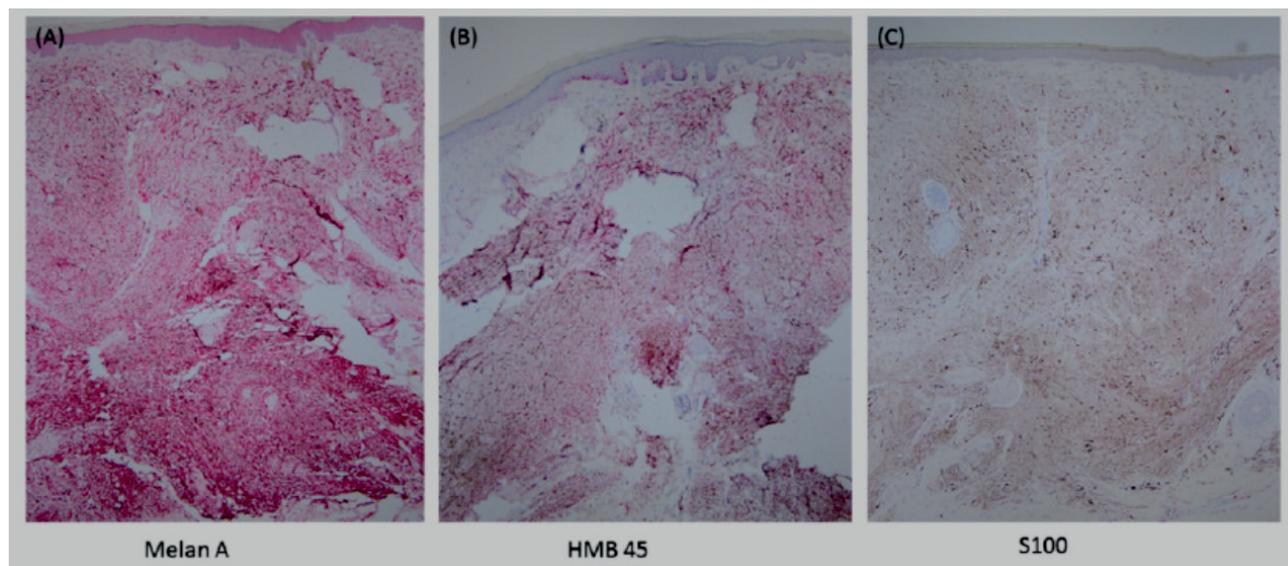
or mitoses. MelanA and HMB45 staining revealed diffuse positivity whereas S100 was positive only focally (Figure 4). Ki-67 proliferation index was very low. A large and deep blue nevus, plaque type was the final diagnosis.

## DISCUSSION

There is only one case report in the literature related to malignant blue nevus in association with a keloid scar in an African American patient [3]. This case underlined the importance of routine histopathological examination of excised keloid scars in order to miss any concurrent malignant conditions [3]. To our knowledge, our case is the first example of blue nevus occurring in association



**Figure 3.** (A) Nevoid cells interspersed among coarse collagen fibers. H.E. x 200. (B) Hypocellular deep area without pleomorphism or mitoses. H.E. x100.



**Figure 4.** (A, B) MelanA and HMB45 staining revealed diffuse positivity whereas S100 was positive only focally(C).

with a keloid scar in a Caucasian patient. Blue nevus may be a great simulator of MM clinically, especially when presents with satellite lesions [4]. Likewise, current case simulated MM due to its atypical clinical presentation and rapid growth pattern. The patient also reported symptoms such as pain, tingling sensation, numbness and edema of the left arm arising suspicion for a cutaneous malignancy. Dermoscopically, blue nevi are described to present with homogeneous blue, black or gray pigmentation pattern along with focal white scar-like depigmentation, streaks, dots or globules [1]. Our case's dermoscopic examination revealed a diffuse gray-blue structureless area along with blue-white veil which is generally considered as MM associated dermoscopic criteria [5].

We present an interesting case of blue nevus developing within a keloid scar. Although distinguishing blue nevi from blue nevi variants and MM can be challenging already, the rapid

growing pattern of the lesion and dermoscopic finding of blue white veil make the diagnose more difficult in the current case. Consequently, histopathological examination is essential in

such conflicting cases to determine the correct diagnosis.

### CONFLICT of INTEREST

The authors declare that there is no conflict of interests.

### REFERENCES

- [1] Di Cesare A, Sera F, Gulia A et al. The spectrum of dermoscopic patterns in blue nevi. *J Am Acad Dermatol* 2012; 67: 199-205.
- [2] Sardoy A, Bidabehera MB, Gubiani ML et al. Blue Nevus with Satellite Lesions Mimicking Malignant Melanoma. *Actas Dermosifiliogr* 2018; 109; 377-378.
- [3] Theopold C, Pritchard S, McGrouther DA et al. Keloid scar harbouring malignant blue naevus emphasises the need for excision biopsy and routine histology. *J Plast Reconstr Aesthet Surg* 2009; 62:93-95.
- [4] Yonei N, Kimura A, Furukawa F et al. Common blue nevus with satellite lesions needs a differential diagnosis from malignant melanoma. *Case Rep Dermatol* 2013; 5; 244-247.
- [5] Ciudad-Blanco C, Avilés-Izquierdo JA, Lázaro-Ochaita P et al. Dermoscopic findings for the early detection of melanoma: an analysis of 200 cases. *Actas Dermosifiliogr* 2014; 105; 683-693.