Dermatology Practical & Conceptual

In-Vivo Demonstration of the Eruptive Behavior of an Atypical Spitz Tumor

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Introduction

Spitz tumors are a distinct subtype of melanocytic lesions that represent a challenging entity due to their clinical, dermoscopic, and histopathologic features that may overlap with melanoma, making accurate diagnosis and management difficult. They also share a rapidly evolving behavior, characterized by an abrupt presentation and fast-growing phase followed by stabilization in the benign counterpart. The current classification of Spitz tumors includes benign Spitz nevi, atypical Spitz tumor (AST) or melanocytoma as a lesion of intermediate malignant potential, STUMP/MELTUMP, and Spitz melanoma [1].

Transepidermal elimination (TEE) is a phenomenon in which altered structures of the dermis and foreign material induce an inflammatory response causing the release of collagenases, elastases, and proteases. This inflammatory response generates alteration of the matrix with necrosis, pseudoepitheliomatous hyperplasia of the epidermis, and formation of transepidermal perforating canals with elimination of the dermal material [2].

TEE is thought to be rarely observed in Spitz nevus [3] and has been described in other entities: acquired perforating dermatosis, pseudoxanthoma elasticum, cutaneous metastasis, malignant melanoma, and eccrine poroma, among others [4-6].

Case Presentation

A 35-year-old man presented with an asymptomatic rapidly evolving lesion on his right thigh, which he had noticed three weeks earlier. On physical examination, we observed a well-defined pink tumor measuring 6 mm. Dermoscopy revealed a cobblestone pattern with comedo-like openings, along with regularly distributed dotted and coiled vessels both at the periphery and within the polygonal central areas; a central yellow-to-brown structureless area with a coiled vessel was identified (Figure 1A).

Reflectance confocal microscopy (RCM) using the Vivascope 1500 (Vivascope GmbH, Munich, Germany) revealed a regular honeycomb pattern at the level of the stratum spinosum, accompanied by epidermal dark invaginations. Isolated dendritic and roundish cells and dense nests were identified at different levels of the epidermal layer; some of the nests were located within the dark spaces. At the center of the lesion, RCM revealed a large round hyporeflective structure simulating an epidermal invagination with some nevus cells and amorphous material inside (Figure 1B). At the dermoepidermal junction (DEJ) level, edge papilla and non-atypical cells were seen.

Histopathological examination revealed a symmetrical, sharply demarcated lesion with epidermal hyperplasia and rete ridges enclosing melanocytic nests. Additionally, clefts surrounding melanocytic nests exhibited a pagetoid distribution. TEE of nevus cell nests through the upper epidermis was identified (Figure 2A). Hyalin bodies were seen at the DEJ, and a lichenoid lymphocytic infiltrate was also present. After molecular ancillary techniques, the final diagnosis was compatible with AST. Only complete excision was required.

Conclusion

We observed a yellow-to-brown area in dermoscopy that correlated with the hyporeflective structure found in RCM with an amorphous material inside. This structure was identified in the histopathological study proving the TEE of cell nests through the epidermis. In addition, the dense nests within dark spaces at different levels of the epidermis observed with RCM correlate with the clefts around melanocytic nests in a pagetoid distribution observed in histopathology. In-vivo, real-time RCM examination offers the unique opportunity to understand and prove some phenomena present in these rapidly evolving cutaneous tumors.

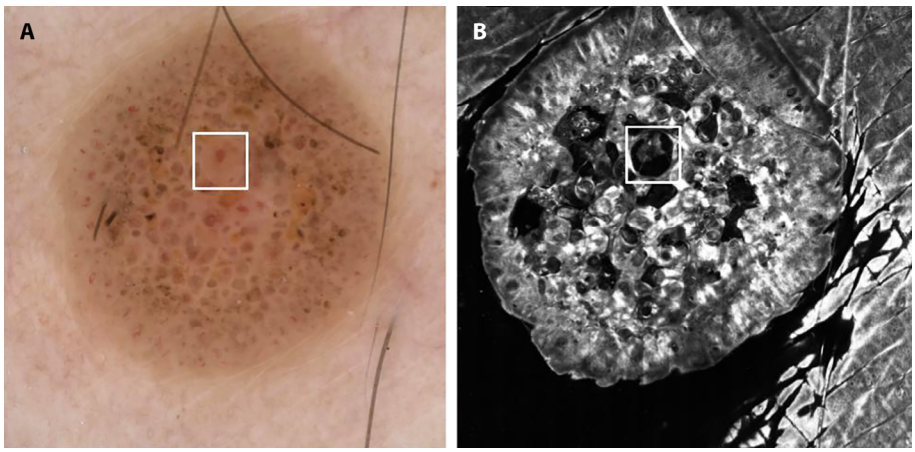

Figure 1. (A) Dermoscopy revealed a cobblestone pattern with comedo-like openings and some dotted and coiled vessels regularly distributed in the periphery and within the polygonal central areas. A central yellow-to-brown structureless area with a coiled vessel was observed. (B) Reflectance confocal microscopy of the same focal finding revealed a large round hyporeflective area simulating an epidermal invagination, with some cells and amorphous material inside.

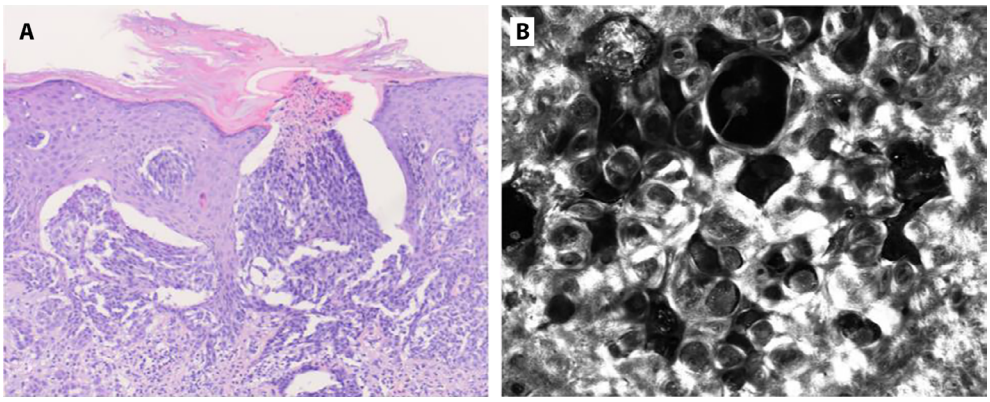

Figure 2. (A) H&E staining. Histopathology showed epidermal hyperplasia and rete ridges clutching some melanocytic nests. Transepidermal elimination of whole nests of nevocytes in the upper epidermis was observed. (B) Reflectance confocal microscopy identified multiple dense nests within dark spaces at different levels of the epidermal layer.

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