Dermatology Practical & Conceptual

Pigmented Primary Carcinoma of the Breast in a Man: A Dermoscopic Challenge

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Introduction

Primary mammary carcinomas involving the nipple rarely may exhibit features such as pigmented skin lesions mimicking melanoma clinically, histopathologically, and dermoscopically because of the presence of melanin pigment and melanophages. We describe a rare case of invasive ductal carcinoma that presented as a pigmented tumoral lesion involving the nipple of a man.

Case Presentation

A 61-year-old man presented with a pigmented itchy skin lesion on his right nipple that had been growing slowly for 7 months; in recent months the lesion had been bleeding easily. A physical examination revealed a well-demarcated, 15- × 10-mm, grayish black ulcerated plaque with induration on the right nipple (Figure 1A). Dermoscopic findings are shown in Figure 1, B and C. Histopathological and immunohistochemical examination of the skin biopsy showed a diagnosis of grade II infiltrative ductal carcinoma infiltrating the areola and nipple (Figure 2). The patient had modified radical mastectomy and axillary lymph node dissection.

Conclusions

Male breast cancer is a rare neoplasm that accounts for 1.2% to 2% of all cancers among men and 1% of the total cases of breast cancer. Unlike more reported cutaneous metastatic pigmented carcinoma of the breast, primary pigmented carcinoma of the breast is extremely rare.

In the present case, dermoscopy showed a chaotic pattern including central white structureless area, white lines, ulceration, circumferential blue-gray structureless areas, peppering, and polymorphic vessels. These dermoscopic features confirm the difficulty of making a correct presurgical diagnosis with dermoscopy since differential diagnoses included mainly melanoma and basal cell carcinoma but also pigmented Paget disease and metastatic breast carcinoma. In the reported cases of primary pigmented breast carcinoma, it has been hypothesized that the proliferation of melanocytes might be stimulated by a carcinoma located in close prox-

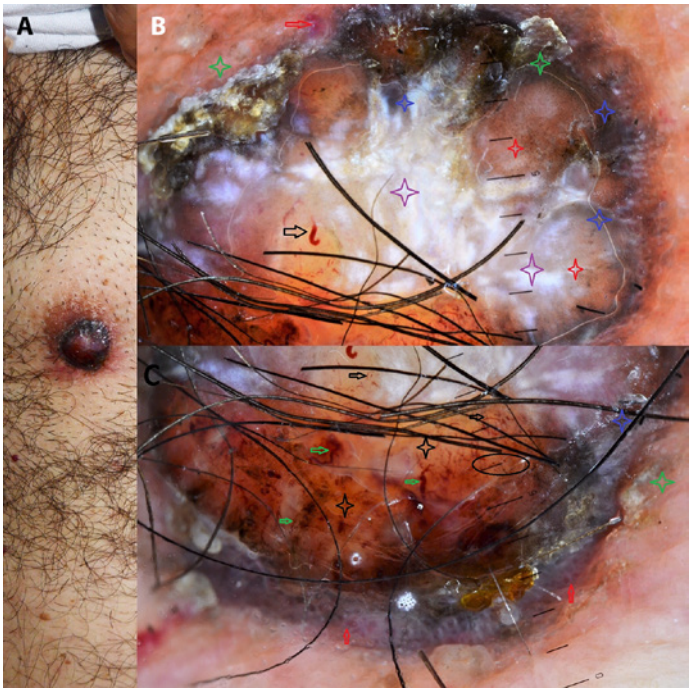

Figure 1. (A) Physical examination revealed a well-demarcated, 15- × 10-mm, grayish black ulcerated plaque with induration on the right nipple. (B,C) Dermoscopy shows a chaotic pattern including central white structureless area and white lines (purple star), ulceration with hemorrhage (black star), circumferential blue-gray structureless areas (blue star), pepppering (red star), collarette scale (green star), and polymorphic vascular structures composed of dotted, clod, serpentine, and curved vessels (black circle, red arrow, green arrow, black arrow, respectively).

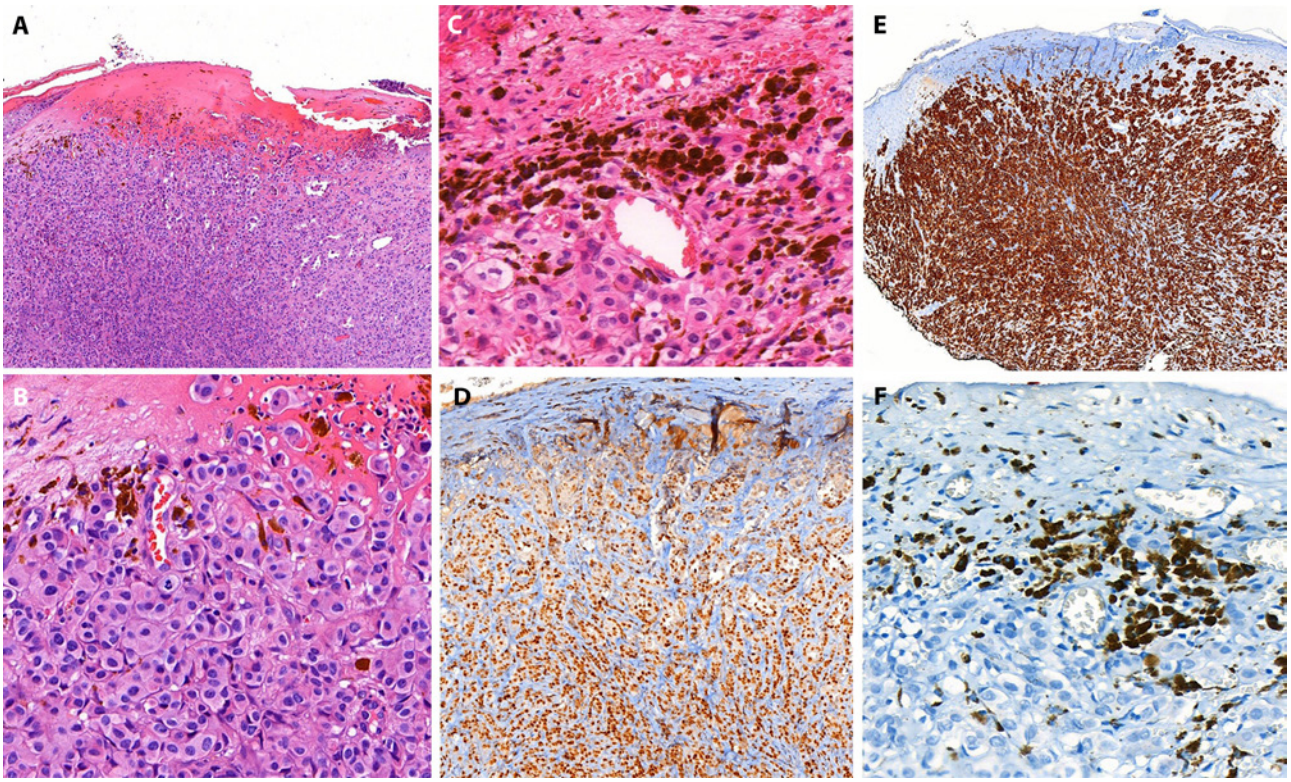

Figure 2. (A,B) Histopathological examination shows the atypical epithelioid cells ulcerating the epidermis and diffusely infiltrating all the dermis forming a nodular mass, and there was no pagetoid spread in the epidermis (H&E, original magnification ×10, ×30). (C) A large number of melanophages are seen in the papillary dermis secondary to ulceration (H&E, original magnification ×40). Tumor cells were (D) diffusely stained with estrogen receptor (original magnification ×10), (E) diffusely stained with cytokeratin 7 (original magnification ×10), and (F) negative with Melan-A stain, which emphasized the melanophages in the papillary dermis (original magnification ×40).

imity to the epidermis or alternatively melanocytes in the epidermis might have migrated to the tumor nest as a result of a chemoattractant released by the tumor cells [1]. Another hypothesis was that the disturbance of the basal layer could cause melanocyte migration into tumor nests and transfer melanin to tumor cells, leading to the dermoscopic large brown clods and blue-white clods that arranged randomly, similar to basal cell carcinoma in a case of pigmented invasive ductal carcinoma [2]. The dermoscopic circumferential blue-gray structureless areas in our case could be

the result of ulceration and basal vacuolar degeneration leading to melanin incontinence with numerous melanophages and melanin in the papillary dermis. In contrast to some reported cases of pigmented breast cancer, there was no melanin inside carcinoma cells but it was dispersed along the papillary dermis. In those cases, one hypothesis for the presence of melanin inside carcinoma cells was that melanocytes may inject melanin into carcinoma cells through their dendrites and neoplastic cells may phagocytose the terminal parts of dendritic processes of melanocytes with subsequent dispersal of the melanin granules contained therein.

In summary, pigmented lesions on special sites can be challenging and dermatoscopy has limitations in discrimination of melanoma from nonmelanocytic neoplasms. Clinical, dermoscopic, and histopathological examination including immunohistochemical analyses are necessary to achieve the correct diagnosis for suspicious cases.

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