Dermatology Practical & Conceptual

In Vivo Reflectance Confocal Microscopy for Detecting Cutaneous Metastasis in Breast Cancer

Nilay Duman[1], Banu Yaman[2], Göktürk Oraloğlu[3,4], Işıl Kararaslan[1]

1 Ege University, Faculty of Medicine, Department of Dermatology, İzmir, Turkey
2 Ege University, Faculty of Medicine, Department of Pathology, İzmir, Turkey
3 Şişli Kolan International Hospital, Department of Dermatology, İstanbul, Turkey
4 İstanbul Health and Technology University, Department of Dermatology, İstanbul, Turkey

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Corresponding Author: Nilay Duman, Ege University, Faculty of Medicine, Department of Dermatology, Bornova, İzmir, Turkey. Orcid ID: 0000-0001-6295-211X. E-mail: nilyduman@gmail.com

Case Presentation

A 45-year-old female with a history of invasive ductal breast carcinoma (IDBC) presented with an asymptomatic erythematous nodule on the right mastectomy scar. Dermoscopy revealed erythematous peripheral border, polymorphous and atypical vessels, focal scaling, and multiple white structureless areas appearing as white clods and strands. Reflectance confocal microscopy (RCM) revealed a normal epidermis with a preserved honeycombed pattern, with dermal tumoral clusters of varying sizes consisting of highly polymorphous hyporeflective cells with different sizes and shapes. In addition, intratumoral hyperreflective globules and intratumoral well-defined dark areas were detected. Histopathology revealed dermal neoplastic clusters consisting of pleomorphic cells, intratumoral secretions, and ductal luminal structures, consistent with cutaneous metastasis of IDBC (Figure 1).

Teaching Point

The clinical and dermoscopic presentation of cutaneous metastases of breast cancer varies considerably. Thus, RCM evaluation may help in differential diagnosis [1,2].

We observed both hyperreflective and hyporeflective areas on RCM. Tumoral cells were hyporeflective, and ductal cystic spaces were seen as dark areas, whereas intratumoral ductal secretions were hyperreflective on RCM.

Tumoral cells can be hyporeflective in other tumoral entities, such as metastatic tumors, some melanomas, and dermal adnexal tumors. However, additional RCM features (epidermal changes, pigmentations, et cetera) and ductal

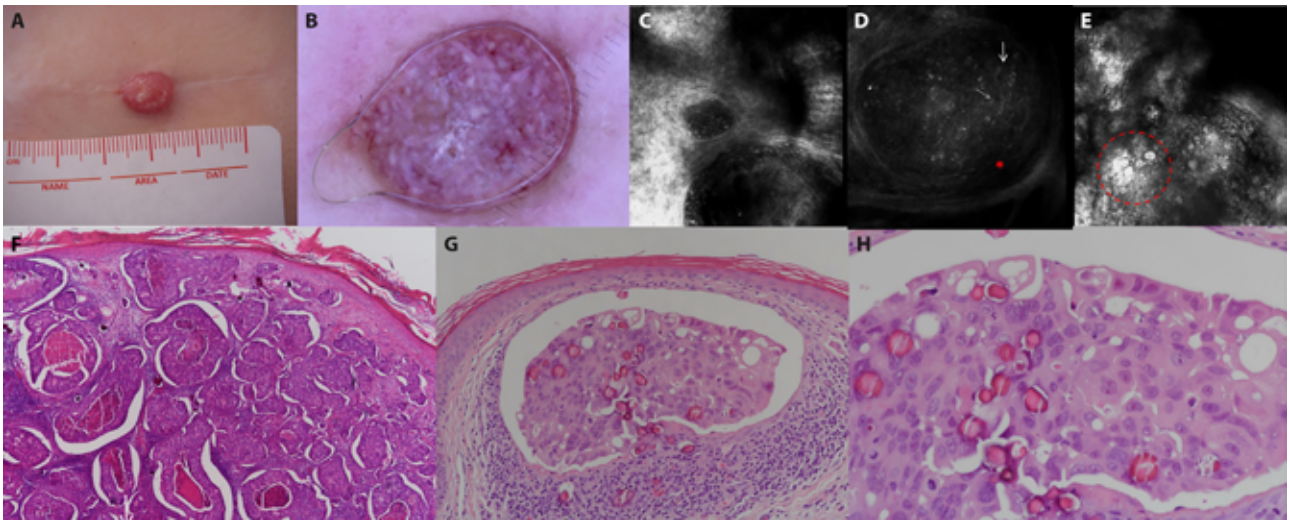

Figure 1. (A) Clinical image of the nodular lesion on the mastectomy scar. (B) Dermoscopic image of the nodule showing erythematous peripheral border, polymorphous and atypical vessels, focal scaling, and white structureless areas consisting of multiple white clods and white strands (DermLite Foto System, 3Gen, San Juan Capistrano, CA, USA). (C-E) In vivo reflectance confocal microscopy images of nodule showing tumoral clusters consisting of polymorphic atypical cells with different size, shape, and reflectivity (hyporeflective/hyperreflective), hyperreflective secretions (red circle), intratumoral ductal cystic spaces (white arrows), and peritumoral dark spaces (red asterisk) (Vivascope 3000 Handheld; Mavig GmbH, Munich, Germany). (F-H) Histopathological images showing neoplastic clusters consisting of pleomorphic cells, intratumoral secretions, and ductal luminal structures (H&E; original magnifications: x 40, x 100, and x 200 respectively).

structures due to ductal differentiation help in differential diagnosis. We suggest that bright intratumoral ductal secretions and dark intratumoral small cystic spaces may narrow the differential diagnosis to entities with ductal differentiation such as adenocarcinomas and adnexal tumors.

In conclusion, RCM may have utility in narrowing the differential diagnosis of CM of breast cancer.

Ethics Statement: The patient in this manuscript has given written informed consent to the publication of the case details.

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