

Line-field confocal optical coherence tomography in the differential diagnosis of common nodular lesions



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Introduction.

Line-field confocal optical coherence tomography (LC-OCT) is a newly developed non-invasive imaging technique combining high penetration, high resolution and tridimensionality.¹ Nodular basal cell carcinoma (nBCC), sebaceous hyperplasia (SH) and dermal/compound nevi are common nodular lesions for which differential diagnosis is not always easy. Our goal was to identify/describe LC-OCT criteria to differentiate the above-mentioned lesions.

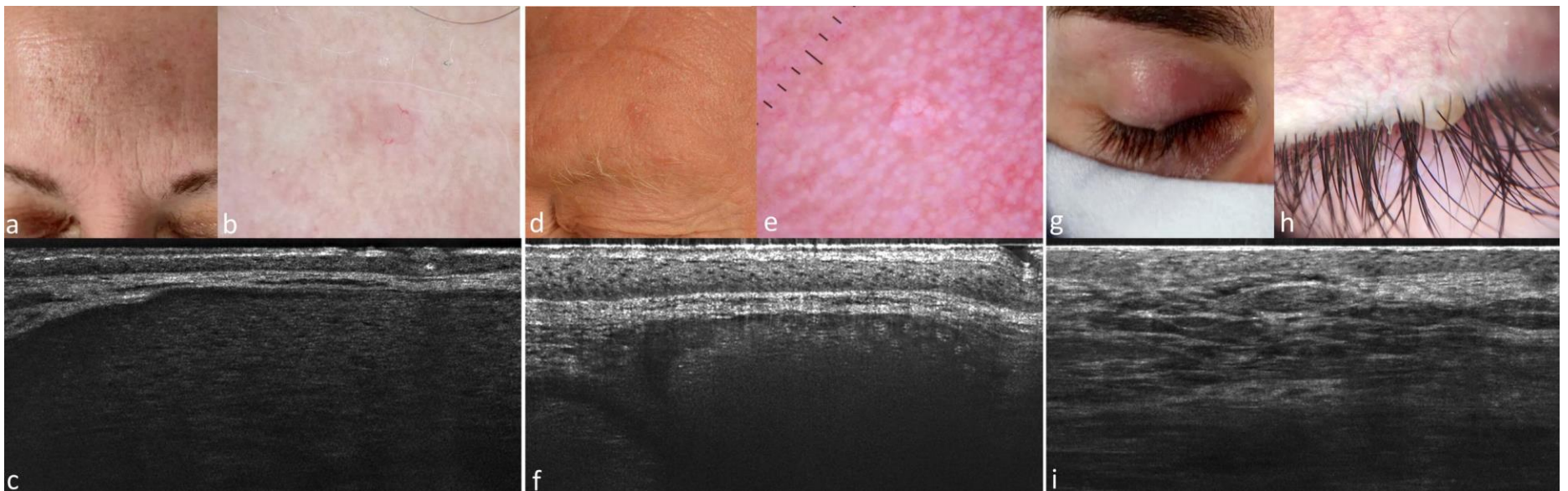
Methods.

We retrospectively included nBCCs, SHs, and dermal/compound nevi for which both histopathological and LC-OCT images were available. LC-OCT criteria were identified/described based on the existing OCT-based literature and corresponding histopathological images.



Results.

Overall, 31 nBCCs, 12 SHs, and 7 dermal/compound nevi were included. The presence of lobular structures in the dermis was the main LC-OCT finding for the three categories of nodular lesions. The qualitative assessment of the lobule content showed the presence of the millefeuille pattern in 29 (93.5%) nBCC, the presence of the lobular-granular pattern in 12 (100%) SHs and the presence of the wave-like pattern in 7 (100%) dermal/compound nevi. In the 2 nBCCs not displaying the millefeuille pattern the roof of the lobules was >400 μm deep from the skin surface, but other criteria useful for BCC diagnosis were present (data not shown).



Clinical, dermoscopic and LC-OCT images of a nodular basal cell carcinoma on the right forehead of a 52 year-old woman (a-c), a sebaceous hyperplasia on the left forehead of a 69 year-old man (d-f) and a dermal nevus on the right upper eyelid of a 34 year-old man (g-i).

Conclusion.

Upon LC-OCT, nBCC shows well-delimited dermal lobules, non-connected with hair follicles and characterized by a laminated, cellular structure prevalently parallel to the epidermis (we named this criterion millefeuille pattern, as it resembles the eponymous French delicacy).² On the other hand, SH is identified by the presence of well-defined roundish or polycyclic lobular formations connected to a hair follicle in the dermis, containing hypo/hyperreflective granular structures corresponding to sebocytes (we named this criterion lobular-granular pattern). Finally, dermal/compound nevi are characterized by ill-defined dermal lobular structures showing alternating undulated hyper/hypo-reflective lines of variable size corresponding to melanocytic strands/cords/nests in the dermis (we named this criterion wave-like pattern).³

These newly described LC-OCT criteria seem extremely useful in differentiating common nodular lesions upon LC-OCT. Larger studies are warranted to corroborate this hypothesis.

References.

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