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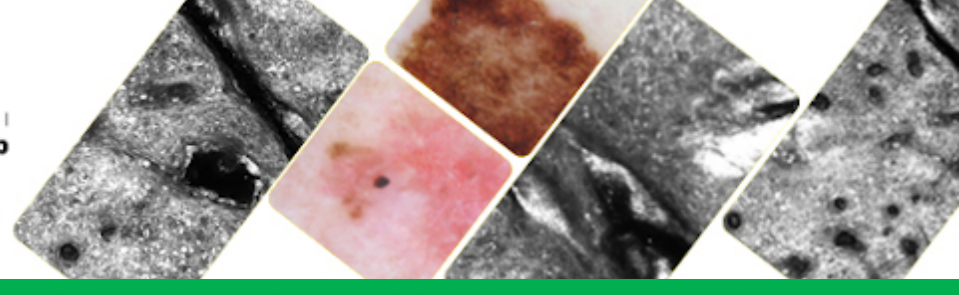

From Inflammation to Clarity: The role of topical betamethasone and fusidic acid in Reflectance Confocal Microscopy of challenging skin lesions

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Introduction & Objectives

Reflectance confocal microscopy (RCM) is a non-invasive imaging technique that provides real-time visualization of the skin, particularly the epidermis and upper dermis[1,2]. It is especially valuable for diagnosing and monitoring skin lesions, particularly when traditional methods like dermoscopy fall short[3]. The primary endpoint of this retrospective study is to evaluate whether a two-week course of topical therapy with fusidic acid and betamethasone affects the agreement between the pre- and post-treatment RCM diagnosis with the correct diagnosis.

Methods

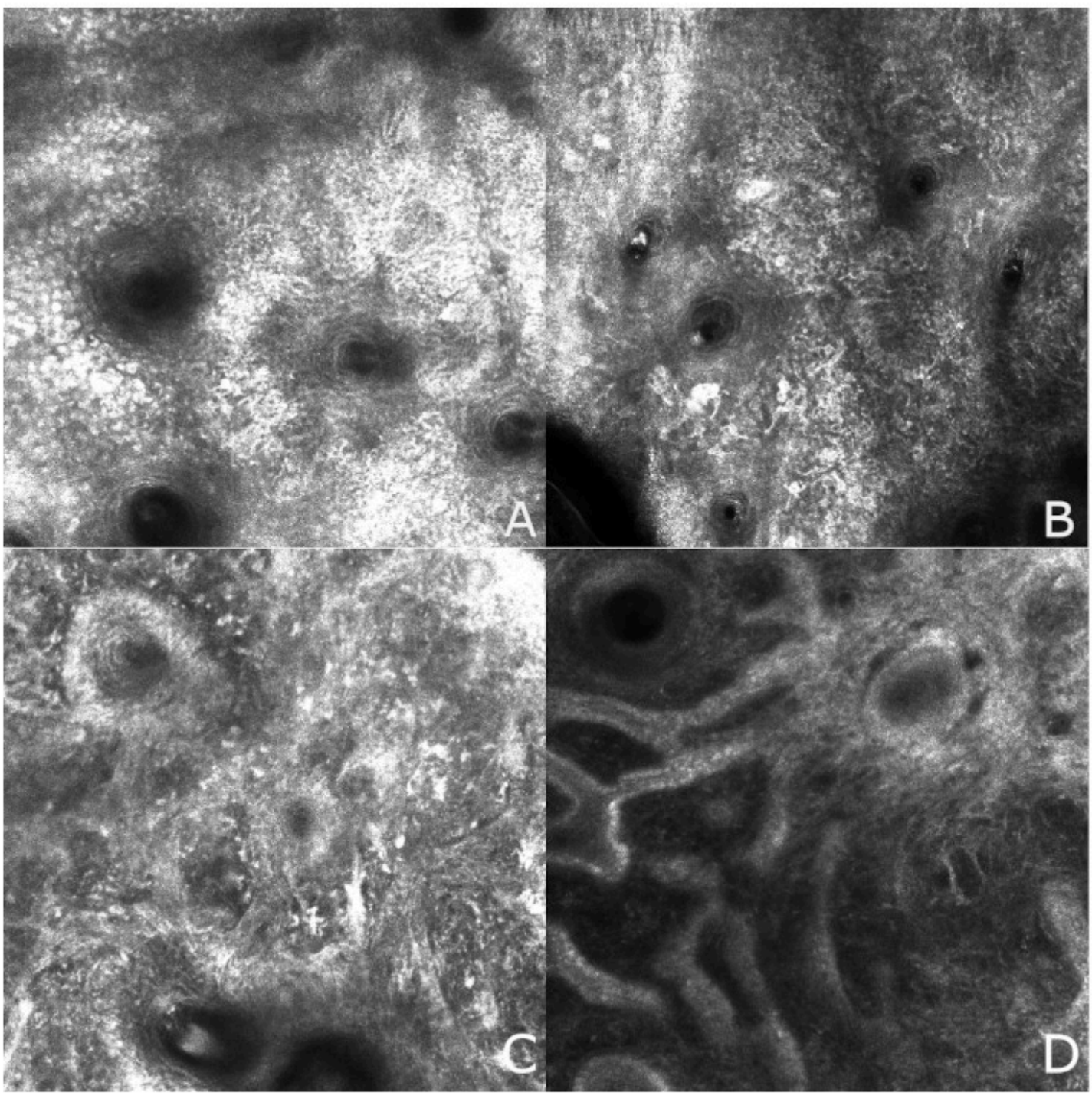
This retrospective case series focused on patients with pigmented or non-pigmented skin lesions showing signs of inflammation. Lesions were initially assessed using clinical, dermoscopic, and RCM characteristics. A presumptive diagnosis was made, classifying lesions as benign or malignant. Patients received topical fusidic acid and betamethasone cream twice daily for 14 days, after which RCM images were retaken, and a second diagnosis was made. The correct diagnosis was confirmed via biopsy or follow-up. A McNemar test was used to compare pre- and post-treatment diagnoses and assess their accuracy against the final diagnosis.

Results

A total of 128 patients with inflamed skin lesions were included in the study. A significant improvement was registered in the agreement between the pre-treatment RCM diagnosis and the post-treatment RCM diagnosis with the final correct diagnoses, showing an improvement of 39.06% [95% CI: 30.07% – 48.05%] with a p-value of <0.0001.

Discussion

A short course of topical fusidic acid and betamethasone is easy to administer, well-tolerated, and effectively reduces inflammatory cells in the epidermis and dermis, improving the interpretation of skin lesions (Figure 1). For example, inflammation in a solar lentigo can make it resemble lentigo maligna (LM) [4], risking unnecessary excision, while inflammation in a melanocytic tumor might lead to a misdiagnosis as a traumatized nevus. Betamethasone helps eliminate inflammatory infiltrates, and fusidic acid provides antibacterial effects, making this treatment valuable for lesions difficult to interpret via RCM. Further prospective studies are recommended to validate these findings and improve diagnostic accuracy.



The top left image shows a pigmented lesion with a chaotic appearance, characterized by numerous bright cells in the stratum spinosum without any clear features of malignancy, making a correct diagnosis challenging (A). In the top right image, taken after topical treatment, a clear collection of pagetoid cells is visible in the stratum spinosum, leading to a diagnosis of malignancy (B). The bottom left image displays disorganization at the dermo-epidermal junction, with many cells varying in size and brightness, suggesting a more malignant diagnosis (C). After two weeks of treatment, the bottom right image illustrates a complete clearing of those bright and polymorphous cells, with the integrity of the dermo-epidermal junction restored (D).

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