

Betamethasone-Calcipotriol Foam: A Promising Treatment for Erythema Annulare Centrifugum With LC-OCT Monitoring

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Introduction

Erythema annulare centrifugum (EAC) is a rare inflammatory skin disorder characterized by annular erythematous lesions that expand centrifugally with central clearing. Effective treatment is challenging, particularly when the cause is idiopathic or resistant to conventional therapies [1]. In this case series, we explored the use of calcipotriol-betamethasone foam in five patients with clinically and histologically confirmed EAC, employing line-field confocal optical coherence tomography (LC-OCT) to monitor treatment response. While corticosteroids are the standard of care for EAC, prolonged use risks side effects such as skin atrophy. The combination of calcipotriol and betamethasone addresses these concerns by combining anti-inflammatory and antiproliferative effects, with calcipotriol potentially counteracting steroid-induced atrophy. The foam formulation enhances patient adherence

by facilitating ease of application and absorption [2]. Histologically, EAC is defined by a superficial perivascular lymphocytic infiltrate, variable degree of spongiosis, and dilated dermal vessels. LC-OCT offers a noninvasive method to visualize these features in vivo, providing valuable insights into disease activity and treatment outcomes.

Case Presentation

Five patients (three females and two males) aged between 30 and 55 years were treated with this drug combination. All patients presented with moderate-to-severe histologically confirmed EAC that had persisted from six months to four years and who were refractory to prior corticosteroid treatments. In fact, after initial improvement with two months of topical steroid daily, all cases showed rapid occurrence after steroid withdrawal. EAC was considered

idiopathic in all cases, with no clinical and biochemistry associated abnormality. The treatment protocol consisted of calcipotriol-betamethasone foam applied once daily for two months, followed by twice-weekly application for four additional months. Patients were clinically assessed at eight weeks and at six months. At eight weeks, three of the five patients achieved complete resolution of lesions (Figure 1), while the other two showed significant improvement. This clinical outcome was maintained after six months. At baseline, LC-OCT imaging of active lesion borders showed mild epidermal hyperplasia with spongiosis and dilated superficial dermal vessels surrounded by perivascular infiltrates (Figure 2A). LC-OCT findings corroborated the clinical outcomes, highlighting the resolution of pathological features in successfully treated cases (Figure 2B).

The findings of this case series suggest that calcipotriol-betamethasone foam is a safe and effective treatment for EAC, providing rapid improvement in inflammatory and epidermal changes. The combination targets the underlying pathogenesis of EAC while reducing the risks associated with prolonged corticosteroid use.

LC-OCT imaging was instrumental in objectively evaluating disease activity and treatment efficacy. Baseline imaging revealed hallmark features of active EAC, including spongiosis, dilated vessels, and dermal infiltrates, which progressively resolved or improved during treatment. This real-time monitoring capability provides clinicians with a powerful tool to guide therapeutic decisions and track disease progression or remission.

Conclusion

Calcipotriol-betamethasone foam, combined with LC-OCT monitoring, offers a novel approach to managing EAC. The small number of patients, open study, no control group, and limited follow-up are the main limitations of our report.

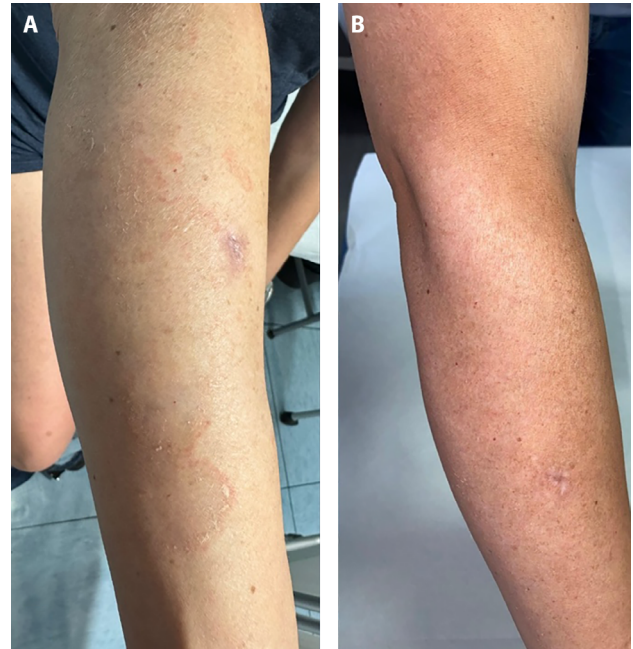


Figure 1. Clinical involvement of the forearm in a 48-year-old male. (A) Annular, erythematous, and scaling plaques are well observed. (B) After six months, complete resolution was achieved.

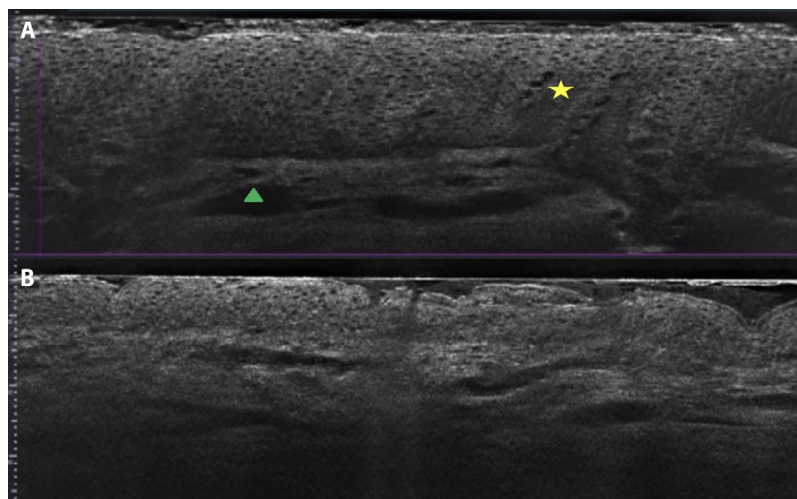


Figure 2. LC-OCT findings before and after treatment with calcipotriol-betamethasone foam in a representative patient with EAC. LC-OCT image of the active lesion border before treatment. (A) Evident spongiosis (hyporefective spaces within the epidermis, yellow star), dilated dermal vessels (dark deep spaces, green triangle), and perivascular infiltrate are present. The epidermis shows mild hyperplasia with architectural disruption. (B) LC-OCT image of the same lesion after eight weeks of daily application of calcipotriol-betamethasone foam. Normalization of epidermal structure is observed, with resolution of spongiosis and restoration of dermal architecture with mild dilated vessels.

Thus, larger studies are warranted to confirm these findings and further explore the role of LC-OCT in optimizing treatment protocols for inflammatory skin disorders.

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