pathway, thereby reducing the effects of multiple cytokines and treating inflammatory diseases. McPhie *et al*. observed two refractory annular granuloma (GA) patients treated with tofacitinib (5 mg BID), where one patient showed rapid lesion reduction within one hour and sustained improvement after four weeks, while the other experienced nearly complete lesion resolution after nine months.[4] Xiaoyuan Hou *et al*. treated a case of refractory GA with oral baricitinib (2 mg/day), resulting in significant rash resolution after one month and complete clearance after three months, with no new rashes observed during a six-month follow-up period.[5] Similarly, Kim *et al*. reported the successful treatment of two patients with refractory generalised granuloma annulare using baricitinib, achieving rapid improvement.[6] Baricitinib, a small molecule oral JAK inhibitor, has been shown to treat various inflammatory diseases by inhibiting the JAK-STAT signalling pathway. Bronte Vincenzo *et al*. found that baricitinib also reduces serum levels of TNF-α, IL-4, and IL-13 in COVID-19 patients, thereby modulating the immune environment and preventing severe disease progression. Moreover, baricitinib blocks the secretion of multiple cytokines, such as IL-4, IL-13, IL-31, TSLP, TNF-, and IFN-γ, through the MAPK, mTOR, and PI3K-Akt signalling pathways, thereby inhibiting inflammatory responses. AG is closely related to these cytokines and inflammatory pathways.[7] Based on these findings, we opted to use baricitinib as our treatment method. After six weeks of baricitinib treatment, the patient's AG symptoms significantly improved, achieving complete resolution without any adverse events or relapse. This promising outcome highlights baricitinib's potential in AG management and underscores the need for further clinical investigation.

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Fractional carbon dioxide laser treatment for refractory exfoliative cheilitis

Dear Editor,

Exfoliative cheilitis, an inflammatory condition of the lips, is characterised by symptoms such as desquamation, crusting, dryness, chapping, erythema and swelling, often accompanied by pruritus or pain. Multiple treatments have been tried including emollients, topical steroids and calcineurin inhibitors but long-term remission remains a challenge.[1] Here, we report the successful treatment of two patients with refractory exfoliative cheilitis using fractional carbon dioxide (CO_2) laser, who continued to have good symptom resolution even on long-term follow-up.

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Patient 1 was a 24-year-old woman who presented with complaints of painful, flaky, chapped lips for over a decade. Patient 2 was a 34-year-old woman who had experienced recurrent redness, dryness, flaking and crusting on her lips and perioral skin for more than a year. Both denied aggravation with sun exposure or seasonal variations and had no systemic comorbidities. Patient 1 admitted to licking and biting her lips but a similar history was not forthcoming for the second patient. Prior treatments with topical corticosteroids and tacrolimus were ineffective.

Upon initial examination, both patients exhibited erythema, desquamation and crusting of both upper and lower lips [Figure 1a and 1b]. Dermoscopy revealed punctate and short line vessels with epidermal rupture and bleeding [Figure 1c and 1d]. Reflectance confocal microscopy (RCM) showed dilated capillaries in dermal papillae, with uneven perivascular inflammatory cell infiltration [Figure 1e and 1f]. Transepidermal water loss (TEWL) was elevated, and skin capacitance value were lowered (Patient 1: 83.9 g/m^2·h and 38 AU, respectively, Patient 2: 90.4 g/m^2·h and 23.5 AU, respectively). Dermatology Life Quality Index (DLQI) scores indicated a significant impact on quality of life with a score of 10 and 12 respectively.

A diagnosis of refractory exfoliative cheilitis was made. Both patients underwent three sessions of fractional CO_2 laser treatment (3 ms pulse width, 9 mm spot size, 31% coverage density, one time overlap, 36 mJ energy) at one-month intervals. Response was assessed at each treatment session and at 3 months post-treatment follow-up after the final session. There was visible improvement in desquamation, chapping and erythema with treatment [Figure 2a and 2b]. Dermoscopy showed lightening of the colour of the lesions and reduction in the number of vessels [Figure 2c and 2d]. Dilated capillaries and perivascular inflammatory cell infiltrate decreased in RCM as treatment advanced [Figure 2e and 2f] and TEWL and skin capacitance showed gradual improvement [Figure 3a-d]. DLQI score reduced to 2 for both the patients, indicating an improved quality of life. No pain, scarring or recurrence was observed during treatment and follow-up.

Dermoscopy and RCM enhance diagnostic accuracy in dermatology but have not been explored in exfoliative cheilitis

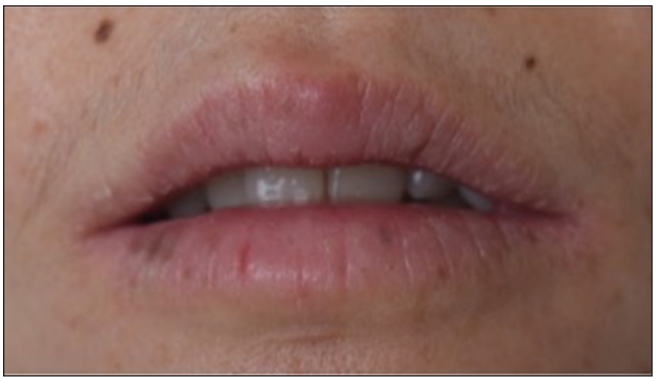

Figure 1a: Clinical photograph of patient 1 prior to treatment.

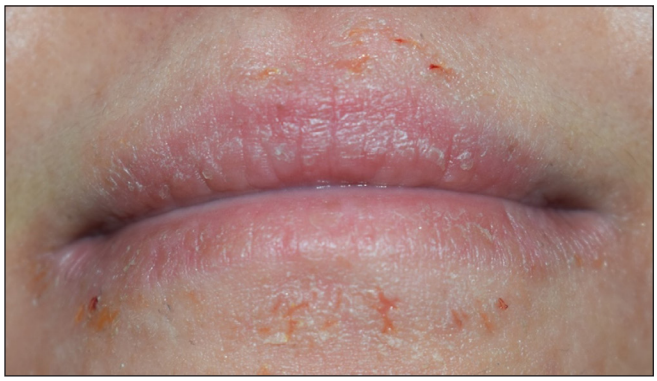

Figure 1b: Pre-treatment clinical photograph of patient 2.

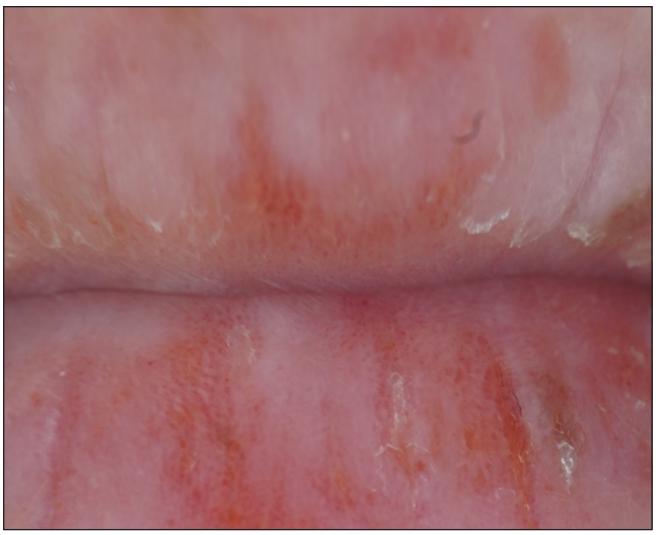

Figure 1c: Dermoscopic finding before the initial treatment of patient 1 (Polarised mode, 20x).

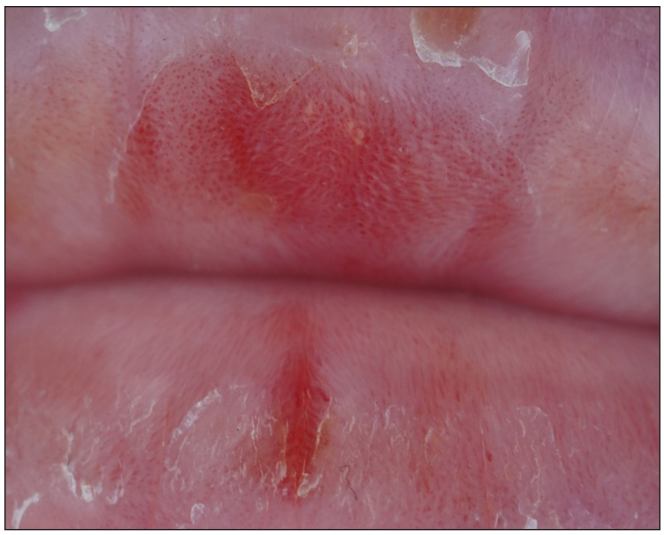

Figure 1d: Dermoscopic finding before the initial treatment of patient 2 (Polarised mode, 20x).

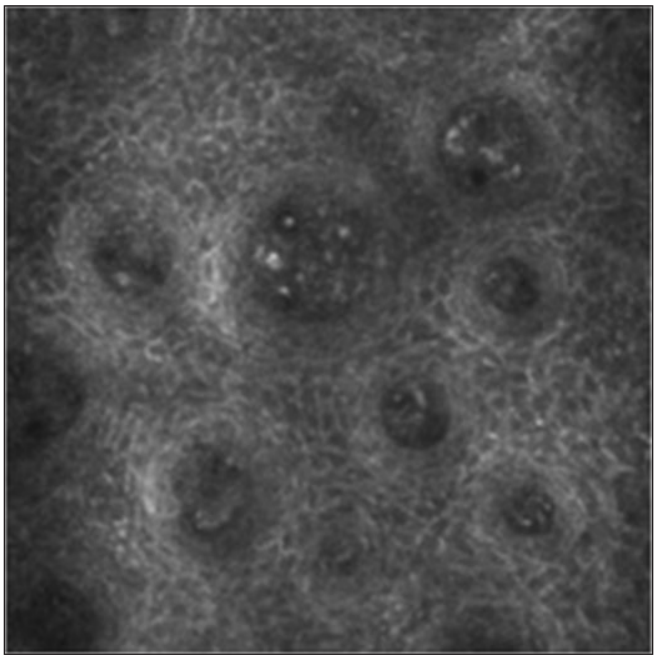

Figure 1e: Reflectance confocal microscopy (RCM) image prior to the first treatment session of patient 1.

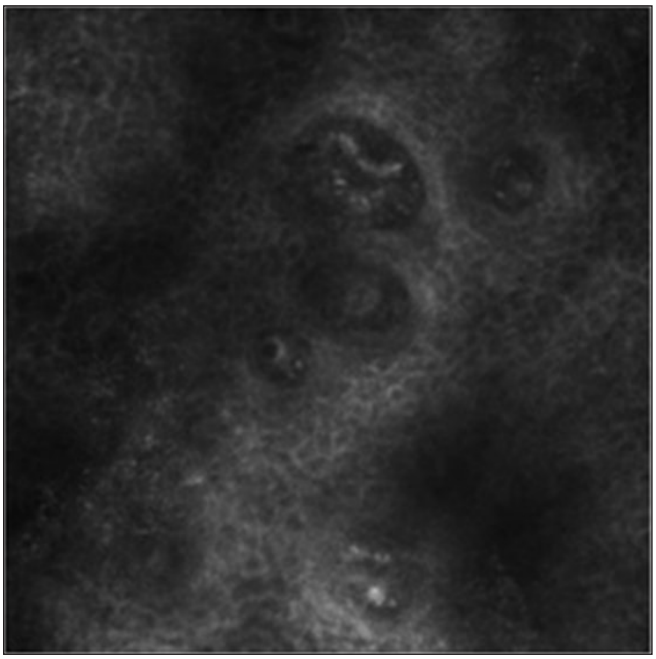

Figure 1f: Reflectance confocal microscopy (RCM) image was captured prior to the first therapeutic intervention of patient 2.

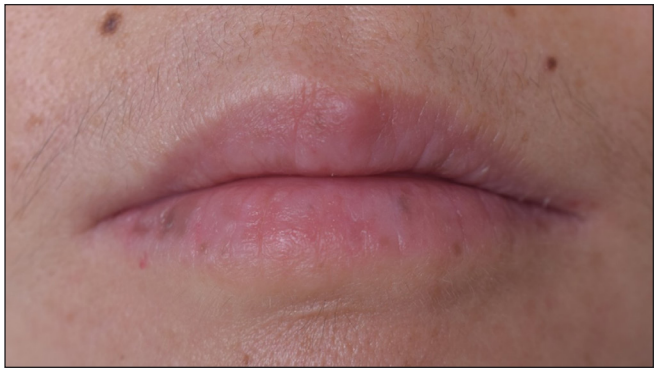

Figure 2a: Clinical photograph at the three months after the last treatment of patient 1.

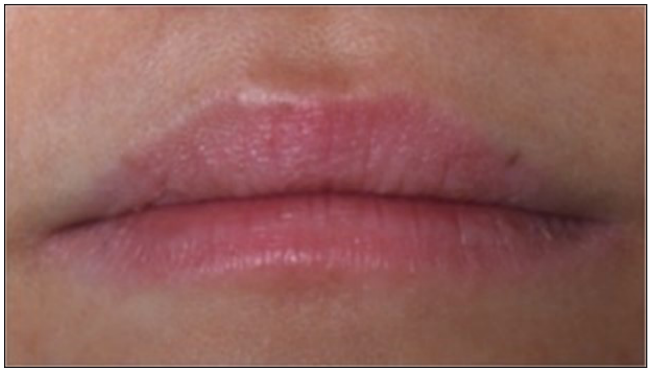

Figure 2b: Clinical appearance at the three months after the last treatment of patient 2.

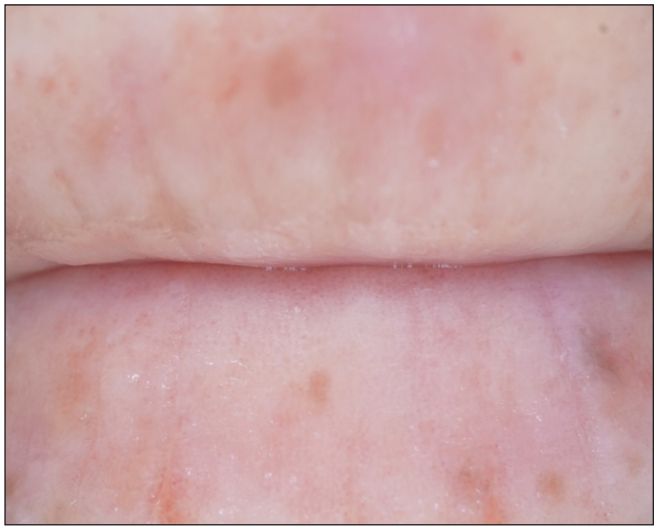

Figure 2c: Dermoscopic finding at the three months after the final session of patient 1 (Polarised mode, 20x).

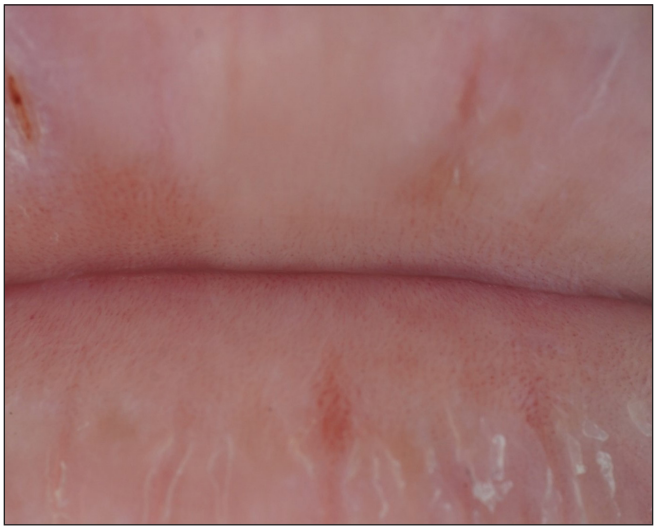

Figure 2d: Dermoscopic finding at the three months after the final session of patient 2 (Polarised mode, 20x).

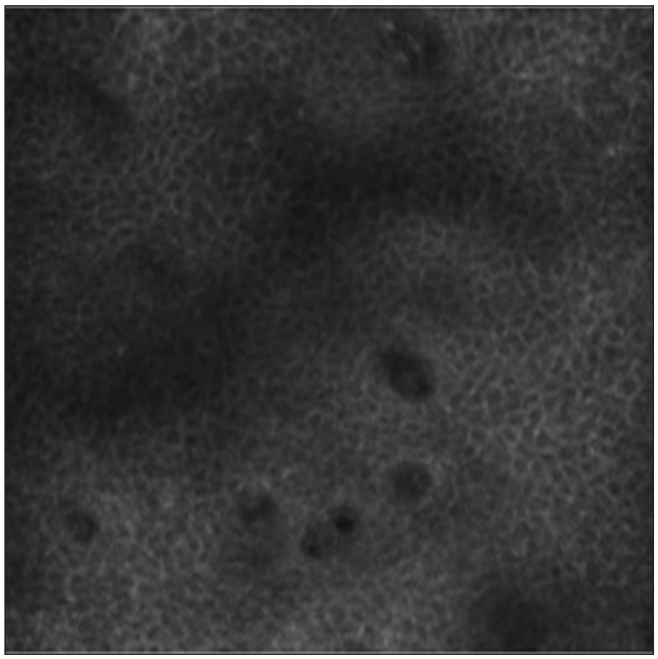

Figure 2e: RCM image at the three-month post the final treatment session of patient 1.

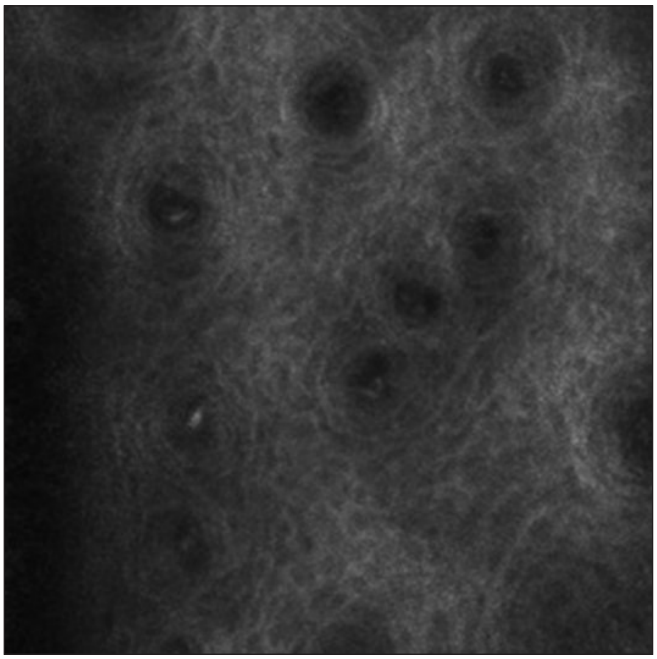

Figure 2f: RCM image was captured three months after the final treatment session of patient 2.

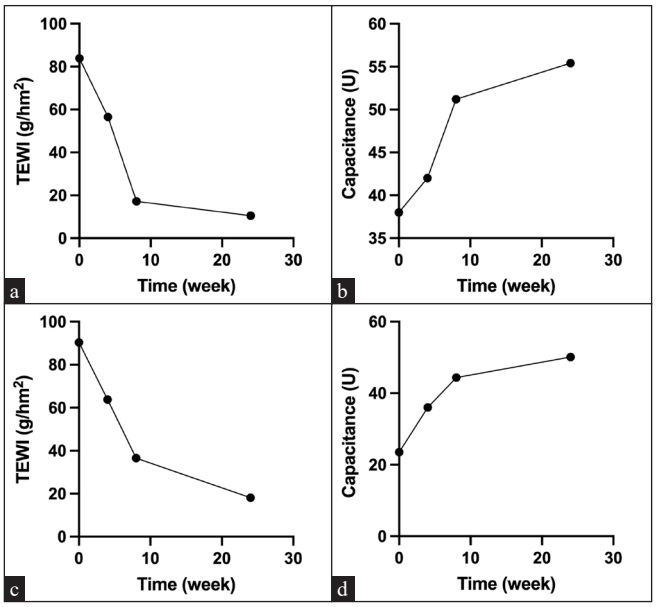

Figure 3: Patient 1- Change in (a) TEW1 and (b) Capicitance, Patient 2- Change in (c) TEW1 and (d) Capicitance, following treatment.

until now. This study employed dermoscopy to identify punctate and linear blood vessels, which diminished in number and lightened in background colour with treatment. RCM findings included pronounced capillary dilation and congestion in the superficial dermais accompanied by increased inflammatory cell infiltration and a significant reduction in these parameters was observed as treatment progressed. These preliminary results require validation through larger studies.

The treatment of exfoliative cheilitis is challenging, with conventional therapies, including topical treatments, providing limited relief. When these fail, alternative treatments such as excimer laser[2] and CO_2 laser pinhole method[3] have been reported to be effective. Our case, resistant to conventional therapy, showed significant improvement with fractional CO_2 laser therapy, representing a novel application in this context.

Fractional CO_2 lasers operate at 10,600 nm, targeting water to create microthermal zones that stimulate collagen formation and accelerate healing. We speculate that the mechanism of action of fractional CO_2 lasers in the management of exfoliative cheilitis involves several processes. First, the laser can repair the skin barrier and reduce TEWL through re-epithelialisation and skin regeneration.[4] Guo *et al*. identified the upregulation of several skin barrier pathways following fractional CO_2 laser treatment, as discovered through transcriptome sequencing technology.[5] Second, fractional CO_2 laser therapy achieves tissue ablation along its energy path. The high temperature achieved by the laser energy can cause the blood within the vessels to boil and vaporise, leading to vessel wall rupture and coagulation, thereby reducing erythema.[6] Additionally, the treatment remodels the collagen architecture, reorienting the surrounding vasculature into both perpendicular and parallel planes, which further ameliorates vascularity.[7] Last, these mechanisms may lead to a reduction in inflammatory cell infiltration, thereby further improving the condition. Further research with larger cohorts and histological corroboration is essential to substantiate these hypotheses.

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Successful use of oral sirolimus – A mammalian target of rapamycin (m-TOR) inhibitor in the treatment of kaposiform haemangioendothelioma with Kasabach-Merritt phenomenon

Dear Editor,

A two-year-old girl child, born to non-consanguineous parents without a family history of similar illnesses, presented with a swelling on her left thigh since birth. The initial swelling, measuring approximately 3 × 3 cm, gradually extended to involve her lower abdomen, gluteal region and more than two-thirds of her left thigh. Prior to coming to our center, she had received multiple courses of oral steroids with partial relief. On examination, the child appeared irritable with tenderness over the affected area and mooning of the face. There was an erythematous, warm, tender nodulo-plaque involving the left vulva, gluteal region and thigh, measuring 42 × 30 cm, with diffuse swelling in the affected regions that responded well to oral sirolimus [Figure 1a–1f]. Petechiae were evident across her body and pain limited movement around her left hip. Investigations revealed haemoglobin of 5.5 g/dL, total leukocyte count of 13,100/mm³ and platelets of 40,000/mm³. Fibrinogen levels were 60 mg/dL and D-dimer values exceeded 10,000 ng/mL. Contrast-enhanced magnetic resonance imaging indicated soft tissue lesions causing thickening and involving the muscles of the abdominal wall, retroperitoneum, gluteal region and left thigh [Figure 2a and 2b]. Histopathological analysis from a skin biopsy showed a vaso-formative lesion extending from the reticular dermis into the subcutaneous tissue and muscle fibres. It revealed numerous ectatic, congested, non-communicating vascular channels with a flattened endothelial lining, surrounded by dense collagen and areas containing spindle to fibroblast-like cells. Immunohistochemistry studies confirmed the diagnosis with positive CD34 and D2-40 staining highlighting the ectatic vascular lumens [Figure 3a–3d]. The patient was diagnosed with Kasabach-Merritt syndrome associated with kaposiform haemangioendothelioma. Treatment included transfusion of two units of packed red blood cells and fresh frozen plasma, along with oral prednisolone 7.5 mg once daily and sirolimus 0.5 mg twice daily (adjusted to 0.8 mg/m²). Steroids were gradually tapered and discontinued over

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