Excimer laser treatment for morphea-lichen sclerosus et atrophicus overlap in a pediatric patient

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INTRODUCTION

Morphea and lichen sclerosus et atrophicus (LSeA) are chronic sclerotic conditions with overlapping clinicohistopathological characteristics.[1] Treatment, including topical or systemic corticosteroids and immunosuppressive agents, can be associated with side effects and/or fail to be effective long-term, highlighting the role of alternative therapies.[2] Phototherapy with ultraviolet A1, narrowband UV-B (NBUVB), psoralen plus UV-A and/or excimer laser has shown to be effective for both conditions.[1] Here, we present a pediatric case of morphea and extragenital LSeA overlap initially treated with methotrexate (MTX) and later maintained with excimer laser.

Abbreviations used:

LSeA: lichen sclerosus et atrophicus
MTX: methotrexate

CASE REPORT

A 7 year-old healthy boy presented with indurated hypopigmented to porcelain white plaques on his right zygoma and cheek, without genital involvement. Three years prior, he developed the cheek lesion and triamcinolone 0.1% ointment was prescribed. Two years later, the zygomatic plaque appeared; topical calcipotriene was added. The patient's mother had a past medical history of morphea.

A punch biopsy demonstrated diffuse dermal sclerosis with lymphoplasmacytic inflammation, compatible with morphea. The biopsy also contained epidermal atrophy with follicular plugging, edema, and homogenized superficial dermal collagen bundles, compatible with lichen sclerosus. As such, this case was diagnosed as morphea-lichen sclerosus overlap (Fig 1).

Prednisolone 1 mg/kg/d was prescribed for 1 month with taper, with MTX 15 mg/wk. Laboratory evaluation showed positive antinuclear antibody (low titer, 1:40), negative anti-centromere and anti-SCL70 antibodies.

Lesions initially stabilized but became firmer and thicker with increased follicular plugging after 1 year of treatment. MTX was increased (20 mg/wk) and changed to subcutaneous due to significant nausea/epigastralgia and decreased appetite. However, symptoms persisted and MTX was discontinued after a total of 2 years and 10 months of treatment. Excimer was started every 3 to 4 days with mild post-treatment erythema. After 17 sessions, lesions were softer and smaller. After a total of 26 treatments

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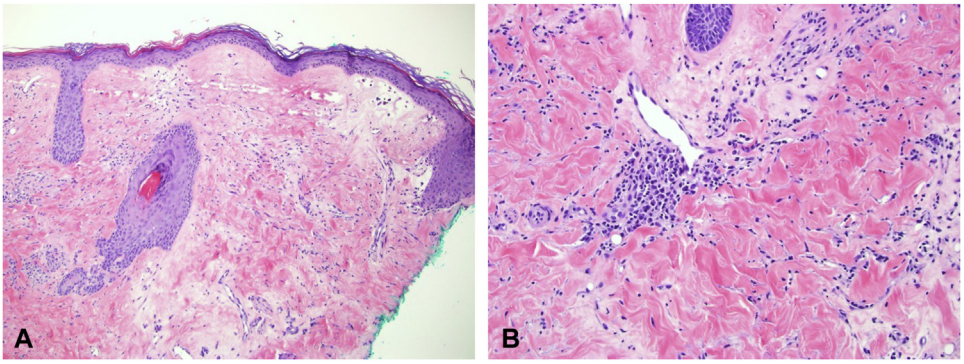

Fig 1. A, The punch biopsy contains diffuse dermal sclerosis with atrophic epidermis and perivascular lymphocytic infiltrate (H&E, ×10). **B,** Higher magnification demonstrates homogenized dermal collagen with edema and plasma cells (H&E, ×20).

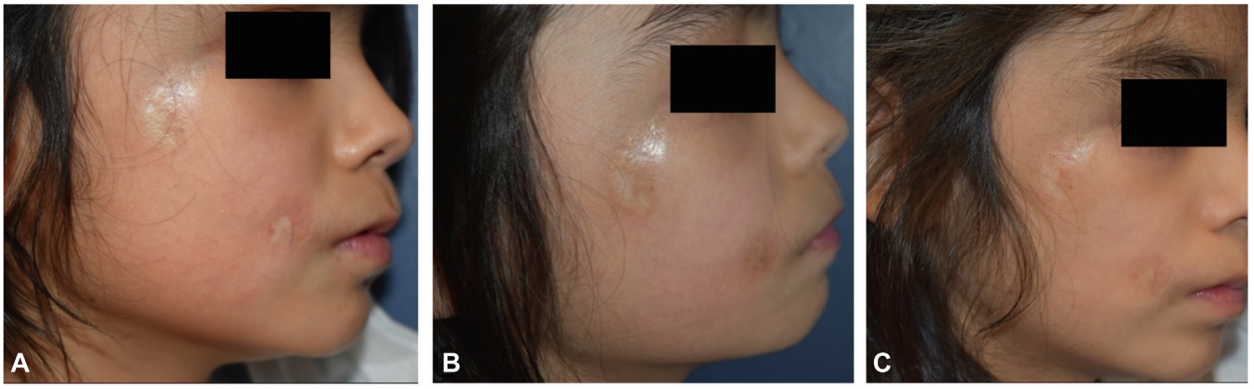

Fig 2. Lesions (**A**) 2.5 wk before first excimer treatment, (**B**) after final treatment, and (**C**) during follow-up a month later.

with progressive increase in dosage, excimer was discontinued without taper and improvement was sustained after 1 month (Fig 2). While the lesions have not completely cleared, he has sustained benefit off systemic medication at last follow-up date.

DISCUSSION

Morphea and LSeA are chronic inflammatory disorders with somewhat distinctive features (porcelain-white, atrophic plaques in LSeA, cutaneous sclerosis in morphea).

Treatment for both includes MTX ± corticosteroids, mycophenolate mofetil, hydroxychloroquine, or abatacept.[2] However, topical and systemic agents can cause side effects and may not sustain improvement.

Excimer laser employs 308 nm UV-B light inducing lymphocyte DNA breakage via increase in reactive oxygen species and cytokine expression dimunition. As compared to traditional narrowband UV-B, excimer is more effective and accurate with shorter treatments and reduced cumulative dose; it is currently used to treat numerous skin conditions.[3] Side effects include mild erythema, pruritus, blistering, and transient hyperpigmentation.[3]

Excimer can be effective for morphea and LSeA, though literature is limited to small case series. In one series, 3/5 patients with morphea demonstrated improvement after 7 treatments on average but with hyperpigmentation.[3] In 4/5 patients with genital LSeA, treated an average of 10 times, reduction in lesion size and thickness was observed. A pediatric case report showed lesional involution after 34 treatments after failure of intralesional steroid injections, topical calcipotriene, and MTX.[4] In a young woman with morphea unresponsive to topical steroids and MTX, 17 excimer treatments combined with hydroxychloroquine and topical calcipotriene/betamethasone resolved peripheral erythema.[5]

Our case demonstrates morphea-LSeA overlap in the same extragenital lesion that improved with excimer. Decreased induration of his skin was noted clinically despite being challenging to photograph and the family was very satisfied with overall results. Excimer is a safe, relatively well-tolerated option for

pediatric patients, especially those who experience significant side effects or failure with long-term traditional MTX therapy. While our case cannot comment on excimer's use as initial stabilizing monotherapy as MTX was first used in our patient, clinicians should be aware of its potential role as a maintenance treatment of morphea-LSeA overlap and its benefit deserves further study.

Conflicts of interest

None disclosed.

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