



# USE OF EXCIMER LASER FOR MORPHEA

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## Background

- Morphea, also known as localized scleroderma (LS), is an idiopathic sclerotic inflammatory disorder that primarily affects the skin but has the potential to involve fascia, muscle and bones.
- The disease manifests initially as erythematous lesions that eventually transition into hypo/hyperpigmented sclerotic plaques.
- Unlike systemic sclerosis, LS spares the internal organs from fibrosis. However, extra-cutaneous morbidities are common with morphea and include myalgia, arthralgia, musculoskeletal limitations, neurological symptoms, and ocular complications.
- There are three primary mechanisms involved in the development of LS: stimulation of T cell lymphocytes causing the release of pro-inflammatory cytokines, dysregulation of connective tissue metabolism, and damage to the microvasculature.
- With no cure for this disfiguring disease, therapeutic modalities including topical regimens, immunosuppressive agents, antimalarial medications, and phototherapy are used to manage the symptoms and progression. While many treatments options are available, they vary in efficacy.
- Several studies have demonstrated the benefit of phototherapy for morphea confined to the cutaneous layer. Three central mechanisms seem to contribute to the effectiveness of phototherapy: breakage of DNA strands of T lymphocytes causing apoptosis, immunomodulation of the IL-6 collagen stimulating cytokine and IL-8 pro-inflammatory cytokine, and stimulus of fibroblasts to produce collagenase. Studies have demonstrated the 308 nm wave length, used in the excimer laser, is the most efficient wavelength for inducing DNA breakage in lymphocytes.
- We are reporting the use of excimer laser for active sclerotic morphea plaques. To our knowledge, this is the first description of excimer laser for the treatment of morphea.

## Classical morphea lesion



## Morphea plaque of our patient after 16 treatments



## Case Report

- We present a case of a 28-year-old woman with active sclerotic plaques distributed along her neck, left flank. She had previously failed therapy with topical steroids and methotrexate, and was started on hydroxychloroquine 400 mg daily and calcipotriene/betamethasone ointment 0.005% BID. Since she was still having active lesions, she was referred to our clinic for consultation regarding excimer laser therapy.

## Method

- 28 years old woman with active morphea lesions on her neck and left flank.
- Patient had one treatment at 300 mJ and experienced increased erythema at left flank lesion for more than 24 hours.
- She then had her dose decreased and held at 260 mJ.
- We continued her current regiment of hydroxychloroquine 400 mg daily and calcipotriene/betamethasone ointment 0.005% twice a day.

## Result

- After two months (16 treatment sessions), she had no progression of her current lesions and peripheral erythema of these lesions resolved.

## Conclusion

- In conclusion, we present excimer laser as an adjunct therapy option for morphea. Being a potentially disfiguring disease with a subset of patients failing multiple treatment regimens, we believe the 308-nm excimer laser can provide another option. The successful management of our patient's morphea using the 308-nm excimer laser in addition to conventional therapy demonstrates the potential benefit of excimer laser for morphea. To our knowledge, this is the first description of excimer laser for the treatment of morphea.