INTRODUCTION

Over the past few decades, severe rhinophyma has remained one of the simplest diagnoses to make, yet is one of the most difficult conditions to treat. Rhinophyma is the progressive hypertrophy of sebaceous units and eventual distortion of facial tissue overlaying the nasal region. Multiple theories have been suggested regarding the pathogenesis of rosacea, including dysfunction of the innate immune system, sensitivity to bacterial antigens produced by Demodex mites, and even chronic ultraviolet radiation exposure; however, a consensus theory remains elusive. Various treatment modalities have been proposed to treat this disfiguring condition. Historically, topical medications and oral anti-inflammatory agents have done little to counteract its unrelenting nature. In more recent years, modern treatment modalities, such as electrosurgery and laser resurfacing, have given hope to patients with rhinophyma, as they produce significant cosmetic results with infrequent adverse effects and minimal downtime.1,2,4,7,8,12

We present a case of a patient suffering from severe rhinophyma who underwent fractionated CO2 laser resurfacing therapy. This case was selected in an effort to highlight the striking cosmetic and functional improvement our patient experienced. The tolerability of the procedure in combination with the reasonable recovery and dramatic results support the use of fractionated CO2 laser resurfacing in future rhinophyma cases.

METHOD

A 71-year-old man with a longstanding history of rosacea presented to our clinic in search of options to improve the appearance of his enlarging nose. His initial clinical examination revealed telangectasias, significant erythema, and scattered papules with large pores. Severely irregular contour of the nasal architecture was noted as well. Over the next few months he completed a comprehensive topical and systemic treatment regimen including combinations of the following medications: doxycycline hydrochloride 100mg twice daily, minocycline 105mg daily, topical metronidazole 0.75% cream, topical tretinoin 1% topical azelaic acid 15%. Although his overall rosacea clinically stabilized, he demonstrated impressive, severe progressive rhinophymatic changes (Figures 1A–C). He was then referred for fractionated CO2 laser resurfacing.

The patient underwent initial laser resurfacing in which a dermal optical thermal-melting (DOT) fractionated CO2 laser (SmartXide, DEKA Medical Inc., San Francisco, California) was utilized. The panel was set to 30 W with a dwell time ranging from 4,000 to 7,000 microseconds and a pitch of 200 micrometers. Approximately 18 to 20 passes were performed over the highly sebaceous areas of the nose, while the less sebaceous areas were treated with fewer passes. The procedure was tolerated well with no complications. The patient was seen at two weeks postprocedure. A significant improvement was noted. He restarted oral minocycline 105mg daily and topical metronidazole 0.75% cream. He was seen again at eight weeks postprocedure. A significant improvement was noted in rhinophymatic changes and the patient reported being “very pleased” with his results. He was continued on oral minocycline 100mg daily as well as topical tretinoin. He was started on topical sodium sulfacetamide 9.5% sulfur 5% wash. He also received a single 12-mg dose of oral tretinoin.

DISCUSSION

The patient underwent initial laser resurfacing, with the mainstay of treatment being CO2 laser surgery, as the mainstay of treatment.2,9

The role of lasers in the treatment of rhinophyma has gained popularity throughout recent years. CO2 laser resurfacing can be performed under general anesthesia or local anesthetic; the latter of which might be preferred by the patient as an in-office treatment option. The literature suggests that laser resurfacing results in minimal bleeding, making it a favorable working environment for the user.2,4 Unlike many of the alternative treatment modalities, CO2 laser boasts the ability to precisely control the depth of injury.1 The depth of thermal damage is exact, noted to be 0.5mm below the charred zone in one study involving the use of fully ablative carbon dioxide laser; the bloodstream environment also allows for the additional assurance of correct depth as sebum is released from sebaceous glands as a result of the thermal injury.3

In addition to satisfying cosmetic results, other benefits of CO2 laser therapy include rapid reepithelialization starting as early as four days post-procedure, with resolution typically occurring within 3 to 6 weeks post-procedure with relatively minimal pain.4,7,11 This wide range of reepithelialization is likely attributable to the variation in laser settings, as well as the use of fractionated ablative CO2 laser in some studies, compared with the use of fully ablative CO2 laser in others. In this previously described case series,12 all three patients were treated with fractionated ablative CO2 laser, with complete reepithelialization occurring within one week post-procedure.12

Fractional ablative CO2 lasers create microthermal zones, leaving unjured columns of healthy tissue that aid in healing.1 This process results in faster healing times and fewer adverse effects than traditional fully ablative CO2 laser therapy.10,11,12 In a study performed by Serowaka et al.,13 the authors reported that the fractional ablative CO2 laser used in the study resulted in an overall “more natural” result. Despite recent significant technological advances in other treatment options, rhinophyma remains a challenging condition to treat. Among a multitude of treatment modalities, fractionated CO2 laser resurfacing is an

CONCLUSION

Numerous treatment modalities have been considered to treat the debilitating aesthetic and functional changes of rhinophyma. A review of the current literature reveals a consensus that topical antibiotics, topical retinoids, and systemic antibiotics have proven largely ineffective, leaving surgical intervention, including CO2 laser surgery, as the mainstay of treatment.2,9

METHOD

Twelve weeks after the initial fractionated carbon dioxide laser resurfacing treatment, the patient underwent a second treatment. Images were obtained prior to the procedure (Figures 2A–C). Laser settings were as follows: power, 25 W; dwell time, 4,000 microseconds; and pitch, 350 micrometers. Ten to 12 passes were performed on the residual hypertrophic sebaceous tissue, with significant blending into the normal tissue. At four weeks after the procedure, the healing process was complete and clinical examination revealed remarkable improvement in nasal texture and contour (Figures 3A–C). The patient was very satisfied with the results. The patient has since continued his treatment regimen of oral doxycycline monohydrate 40mg daily and topical sodium sulfacetamide 9.5%/sulfur 5% wash. Tretinoin 0.05% cream was also added to this regimen. No evidence of unsatisfactory scarring or dyspigmentation was observed at that time.

REFERENCES