

# Rhinophyma—CO<sub>2</sub>RE Laser

*Matthew J. Mahlberg, MD, Lake Loveland Dermatology, Loveland, CO, USA*

## **Background**

Rhinophyma is a benign proliferative disorder of the nose that represents a severe complication of rosacea.<sup>1,2</sup> Clinically, the condition exists on a spectrum but involves thickening of nasal skin and irregular surface nodularities. In mild and moderate rhinophyma, there is hypertrophy of soft tissue, dilated and enlarged pilosebaceous units but preservation of the nasal shape. In severe forms of rhinophyma, smooth hypertrophic nodules are observed and the nasal shape is distorted.

Rhinophyma varies histologically according to its clinical presentation. Early forms of the condition demonstrate the typical findings of rosacea including sebaceous hyperplasia, prominent vascularity, and perifollicular inflammation. More severe forms, however, demonstrate marked fibrosis and absence of pilosebaceous units with prominent mucin deposition and lymphedema.

The presence of rhinophyma in any form can be greatly distressing to patients. Historically, rhinophyma has been associated with the overuse of alcohol although that association has been largely dispelled. The disfigurement can also cause functional impairment with breathing due to nasal obstruction. For these reasons, patients often seek care to correct the deformities caused by this condition.

Medical treatment modalities have been described including tetracycline class of antibiotics and isotretinoin. Unfortunately, these medications do little to reverse the phymatous changes once fibrosis is present although isotretinoin has been shown to reduce nasal volume in the prefibrotic stage. Once fibrosis and significant nodularity have developed, physical treatment modalities are the preferred technique.

Physical treatment options have varied significantly through time and have included decortication, cryosurgery, total excision and grafting, loop electrocautery, and laser therapy.<sup>4-6</sup> A variety of different laser devices have been utilized with positive results reported, including erbium:YAG, continuous wave carbon dioxide (CO<sub>2</sub>), pulsed CO<sub>2</sub>, diode, and fractional CO<sub>2</sub>. The following two cases describe the treatment of rhinophyma, using the Syneron CO<sub>2</sub>RE CO<sub>2</sub> platform, which offers a combination of surgical, classic, and fractional CO<sub>2</sub> treatment options.

## **Case 1**

A 42-year-old male patient with a greater than ten-year history of phymatous changes of the nose presented for treatment. He had previously failed doxycycline, topical antibiotics, and topical retinoid treatment and reported being bothered by the nodularity of his nose. He did not want to pursue treatment with oral isotretinoin.

Given his desire to improve the appearance of the nose, we elected to treat him with a series of fractional and focally classic CO<sub>2</sub> treatments using the Syneron CO<sub>2</sub>RE device. Topical anesthesia (lidocaine 23%/tetracaine 7%) was applied to the nose for 45 minutes and thereafter, lidocaine 0.5% with epinephrine was infiltrated at the nasal root, nasal sidewalls, and in the upper gingival sulcus to achieve local anesthesia. Focal nodular lesions were treated in the classic mode at a setting of 4–5 mJ with multiple passes with gentle debridement of tissue in between. Next, the device was easily changed to fractional mode and the remaining surface of the nose was treated with one pass in Fusion mode at settings of 40% coverage, Core 70 mJ and Ring 129 to address superficial changes and blend the tissue, followed by additional passes with Deep mode with settings of 40% coverage, five passes of fractional Deep

mode at 5% coverage, and 70 mJ/cm<sup>2</sup>. Continuous air cooling was provided throughout the treatment. The patient was given instructions to use a rich emollient moisturizer for two days and then switch to a cream-based moisturizer until the treated area was healed. The treatment was repeated after six weeks. Downtime for each treatment included two to three days of skin wounding and mild erythema for up to 10 days. Clinical results, four-weeks after the second treatment, show decreased nasal volume and improved contour of the nasal shape. Results after two treatments are seen in Figure 1.

Figure 1.



## Case 2

The second patient, a 72-year-old male, presented with severe rhinophyma. Given the extent of the tissue hypertrophy, we elected to treat the patient with superficial debulking, followed by further contouring with classic CO<sub>2</sub> laser treatment to contour and prevent deep fibrosis. The procedure was performed after the nose and surrounding tissue was infiltrated with lidocaine 0.5% with epinephrine to achieve local anesthesia. The CO<sub>2</sub>RE laser was utilized in surgical mode at a fluence of 10–20 mJ and two to four passes were performed to debulk the outer 2–5 mm of nodular soft tissue. Next, the CO<sub>2</sub>RE laser was utilized in classic mode at a setting of 6–8 mJ for hemostasis and to

further contour the shape of the nose without creating deep thermal injury. Multiple passes were performed in areas of persistent hypertrophy. The setting was switched to fractional Mid mode Ring 2, fractional coverage 30%, fluence 163 mJ to feather the treatment areas into the cheek and glabella. Results of a single treatment are demonstrated in Figure 2.

Figure 2.



## Discussion

Rhinophyma represents a significant medical condition that adversely affects patients who have rosacea; yet adequate and safe treatment of this condition can be challenging. The use of aggressive measures such as dermaplaning, hot wire loop cautery, total excision and grafting, and decortication can be effective but carry a high risk of significant scarring. Thus, such treatments are helpful only for those with severe disease and are not indicated for patients with mild to moderate rhinophyma.

Ablative laser treatment in combination with ablative fractional laser treatment offers a safe and effective means to assist patients with various forms of rhinophyma. Compared with other forms of rhinophyma treatment—be it electrocautery, erbium laser or surgical debulking—the use of a CO<sub>2</sub> laser allows for precise removal and hemostasis. Fractional delivery of CO<sub>2</sub> laser energy prevents significant downtime by minimizing superficial injury. The 150 micron pulse of the CO<sub>2</sub>RE allows control over tissue damage below the pulse ablated zone for deeper ablation and coagulation of tissue, which may help

reduce bulk as well as sebaceous tissue architecture in mild to moderate rhinophyma. At the same time, classic or surgical CO<sub>2</sub> mode can be useful, as it allows for further customization and precise contouring in more hypertrophic and fibrotic lesions. The versatility of the Syneron CO<sub>2</sub>RE laser, demonstrated by the cases above, allows for customizable treatment protocols for addressing the spectrum of rhinophyma in its various forms from mild/moderate to severe.

## References

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