

Treatment of Massive Rhinophyma by Combined Electrosurgery and CO₂ Laser

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SUMMARY A case of massive rhinophyma that produced significant functional and cosmetic difficulties was treated using electrosurgery and carbon dioxide laser. Minimal bleeding occurred during the operative procedure despite grotesque enlargement and high degree of vascularity of the skin and soft tissue. Using this technique, restoration of normal function and excellent cosmetic effect was achieved without any complication.

KEY WORDS: rhinophyma, rosacea, multidisciplinary approach, electrosurgery, CO₂ laser procedure, malignant potential, prevention

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INTRODUCTION

Rhinophyma is a slowly progressive, disfiguring disorder of the nose occurring more frequently in males than in females. It is characterized by hyperplasia and hypertrophy of sebaceous glands, and hyperplasia of connective tissue and blood vessels of the nose. Flushing and increased blood flow in the superficial dermis leads to an increase in the extracellular fluid that may be involved in rhinophyma (1). On clinical and histologic basis, four variants of rhinophyma can be recognized: glandular, fibrous, fibroangiomaticous and actinic. Although the precise etiology is unclear, it is generally accepted that rhinophyma represents the

final stage of rosacea. Chronic infection by the saprophytic parasite *Demodex folliculorum*, gastrointestinal interference, androgenic hormone, alcohol, caffeine, spicy foods, and other vasoactive influences such as climate have been implicated as factors that can affect the course of rosacea.

In our current society, however, rhinophyma can be a social stigma that prompts patients to seek treatment for this cosmetic problem. It also causes functional problems including obstruction of the nares (one or both) and difficulty in breathing, and is a disorder with a malignant potential. Basal cell carcinoma has been reported in 3% to

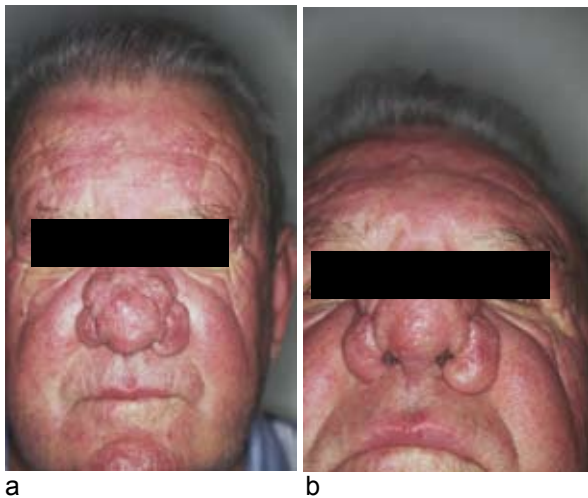


Figure 1a, b. Enlargement of the patient's nose with loss of normal nasal contours. The columella and nasal rim were enlarged with partial collapse of the columella and narrowing of the external nares.

up to 10% of patients (2). Squamous cell carcinoma has also been noted in biopsy specimens of patients with long-standing rhinophyma (3).

Rhinophyma may be treated with both medical and surgical treatment modalities (4). Most appropriate treatment depends on the assessment of the disease progression from minimal thickening of advanced rosacea to a massive tumorous condition (2).

We report on a patient with massive rhinophyma treated with electrosurgery and CO₂ laser.

CASE REPORT

A 52-year-old man with chronic rosacea observed gradual enlargement of his nose 18 months before. Medical treatment failed and after multidisciplinary discussion about treatment options, risks, benefit, complications and scarring the patient accepted the treatment with CO₂ laser at our ENT Department. His medical history included arterial hypertension, diabetes, hepatotoxic lesion and nephrolithiasis. Ten years before he was treated with radiotherapy at our Dermatology Department for histologically confirmed squamous cell carcinoma of the lower lip. There was no family history of a similar disease. The patient admitted alcohol consumption. Laboratory tests yielded normal findings, except for increased transaminases.

Physical examination revealed marked enlargement of the patient's nose with loss of normal nasal contours. The columella and nasal rim were enlarged with partial collapse of the columella and

narrowing of the external nares (Fig. 1a, b). All procedures were performed in operating room setting under local anesthesia; 1% lidocaine with 1:100 000 adrenalin solution was used to block infra-orbital nerves, infratrochlear and external branch of the nasal ciliary nerves, and branches of anterior ethmoid. A unipolar electrosurgical unit was used in the cutting mode. With the loop attachment, the nose was sequentially sculptured by removal of the massive tissue. The removed masses were referred for histopathologic examination. Histopathology findings showed no signs of malignancy.

The physician must be careful in the initial marking procedure and during the formal resection to leave at least 1 cm of healthy tissue around the nares, thereby preventing scar contracture that can cause nasal deformity. After completing resection of the main bulk of the rhinophyma,

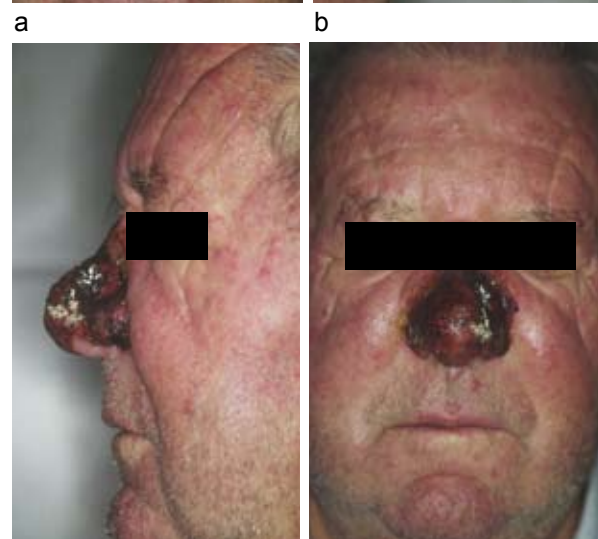
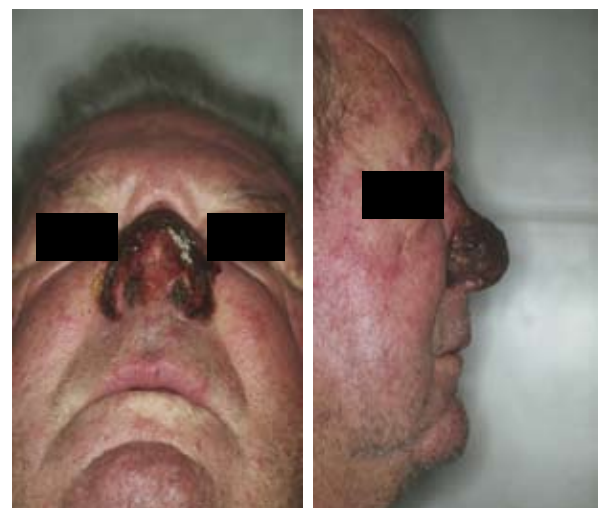


Figure 2a, b, c, d. On postoperative day 3, the patient suffered no pain at all.

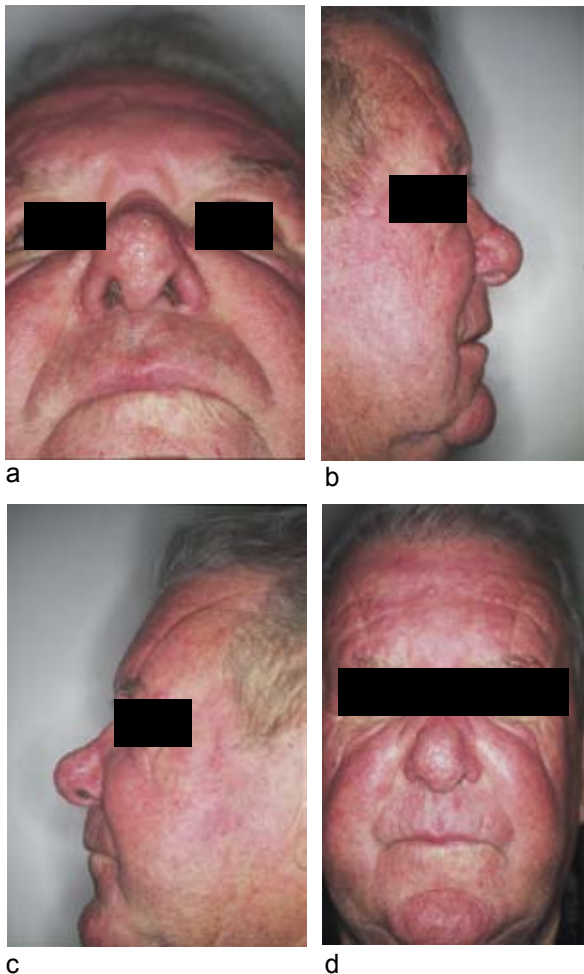


Figure 3a, b, c, d. After 6 weeks, the patient showed complete re-epithelialization of his nose surface.

refinements were made with CO₂ laser in a defocused mode by raising the beam further from the operative site. The wound was covered with vaseline gauze, which was removed on the third postoperative day (Fig. 2a, b, c, d).

The patient had no postoperative complications and experienced minimal postoperative pain. He accepted systemic therapy with cefazolin 3x1 g, intravenous, for two days and nonsteroidal antirheumatic therapy (ketoprofen) *per os*. After 6 weeks, complete re-epithelialization of the patient's nose surface was observed (Fig. 3a, b, c, d).

DISCUSSION

Hebra (1845) has been credited with the initial description of rhinophyma, a word derived from the Greek terms for nose (*rhis*) and growth (*phyma*). A famous portrait by Girlandajo (1449-1494), however, illustrates that this condition was

well recognized a long time ago (5,6). Phymas are slowly progressive, disfiguring disorders of the face and ears, probably as sequels of chronic edema and related connective tissue and sebaceous gland hypertrophy. Rhinophyma is most common among them, occasionally resulting in nasal airway obstruction. Analogous swellings may occur on the chin (gnathophyma), forehead (mentophyma), one or both ears (otophyma), and eyelids (blepharophyma).

Rhinophyma represents the final stage of rosacea, and may be treated with both medical and surgical treatment modalities. Patients with early rhinophyma consisting of minimal skin thickening without nasal deformity are not treated surgically and may benefit from medical therapy. The patient should be instructed to practice good hygiene, avoiding predisposing factors, stress, and preventing infection. Treatment with antibiotics may prevent secondary infections and isotretinoin may suppress the activity of sebaceous glands and substantially reduce sebum production (7-9). Substantial regression of established disease, with or without medical treatment does not occur due to limited success of medical therapy, thus surgery has become the accepted treatment for this stage. Surgical methods are divided into two main groups (10). The first is complete excision, with primary closure for small lesions, or skin grafting for large lesions. The second group includes incomplete excision followed by re-epithelialization from the remaining glandular epithelium; better cosmetic results have been reported and it is now the treatment of choice. The methods of incomplete excision include cryosurgery, dermabrasion, electrosurgery, sharp blade excision, shaving with a razor and laser surgery. Nonsurgical methods include chemical destruction and irradiation. Except for laser, all methods of incomplete excision have some drawbacks, including excessive blood loss and poor visualization, which results in inaccurate removal and, often, the need for general anesthesia.

Electrosurgery destroys tissue with heat produced when the current passing through the tissue encounters electrical resistance. With electrosection, local tissue is destroyed with minimal dispersion of heat to the surrounding areas. The duration of exposure to electrosection current affects scar production. Slow passage of the loop maximizes heat conduction and tissue destruction. Short, rapid, shallow strokes produce thin shavings of tissue and minimize heat conduction (11). Removal of most, but not all sebaceous hyperpla-

sia is sufficient to stop the inflammatory response. Oversized removal of sebaceous tissue will consistently result in scarring (12). In their comparison study, Greenbaum *et al.* demonstrated electro-surgery and laser therapy to produce equivalent cosmetic results (13). Electrosurgery shares with laser surgery controlled tissue destruction needed to reshape the nose while maintaining hemostasis. Electrosurgery has greater heat dispersion through the tissue than CO₂ laser in the cutting mode and therefore is a less precise method. The CO₂ laser has demonstrated usefulness in the treatment of rhinophyma (14-23). Bleeding from small vessels is not a problem with this technique, allowing for more precise tissue removal, especially when the layer-by-layer vaporization technique is employed for final sculpturing. Since the thermal effect is extremely limited, the risk of scarring is reduced. Thus defocused beam permits easy feathering of the wound margins, which can be blended into the adjacent tissue. The patients report minimal postoperative pain, probably due to the ability of the CO₂ laser to seal nerve endings (19). Since healing occurs by second intention, additional surgical procedures such as grafting are not necessary to obtain excellent cosmetic results. For all of these reasons, CO₂ laser offers significant advantages over traditional treatment of disfiguring rhinophyma.

CONCLUSION

Besides an excellent cosmetic result after CO₂ laser treatment, we consider such therapy for rhinophyma as a preventive one. In view of the malignant potential of rhinophyma and a history of squamous cell carcinoma of the lower lip, despite negative histopathology findings, we strongly recommend further follow-up examinations. In addition, we have to continue our education and multidisciplinary approach in spite of the prevention and early cancer detection.

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Zanimljiv savjet
gajice Pearl White:



Najljepša put
ma koliko bla od-
lična niena boja
neće biti zapažena.
ako nije prave čista.
Skinite, dakle, sa
sebe te ružne dla-
čice za pet minuta
s onom mirisavom
i štedljivom pari-
škom kremom:

„TAKY”!

Prednosti kreme Taky: Odličan mi-
ris — Učinak je brz — Ne suši se
u ūbii. 2164

Interesting advice of Miss Pearl White - Taky cream for removal of hair; year 1929.
(From the collection of Mr. Zlatko Puntijar)