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Surgical Treatment of Rhinophyma: A Comparison of Techniques

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Abstract. Rhinophyma is a rare disease that primarily affects Caucasian men in the fifth to seventh decades of life, characterized by a progressive thickening of nasal skin, which produces a disfiguring soft-tissue hypertrophy of the nose. Severe cosmetic deformity and impairment of breathing may coexist, making the surgical treatment necessary.

The authors are conscious that in literature there is not agreement about the ideal treatment of rhinophyma, nevertheless they wish to give their contribution according to their experience with different treatment modalities such as the scalpel, the electrocautery, the dermabrader, and the carbon dioxide laser. The authors believe the scalpel, in association with bipolar electrocautery and local infiltration of dilute epinephrine to reduce bleeding, is the safest means to preserve the underlying sebaceous gland fundi and permit a spontaneous re-epithelialization scarring-free.

Key words: Rhinophyma—Soft-tissue hypertrophy of the nose—Tangential excision

Rhinophyma (rhis: nose, phyma: growth) is a rare, disfiguring disease characterized by a progressive hypertrophy of the soft-tissues of the nose with its increased volume, mainly in the lower half, and often associated to an end-stage of severe acne rosacea.

White people between 45 and 60 years old [4,11,15], with a male-female ratio of 12:1 [4,10,11,15], are more frequently affected by this disease, while it's slightly present in black race [11]. These epidemiological data underline the importance of genetic factors—not yet identified—but they don't help to understand the real etiology of this disease, which still remains unknown.

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In the past the rhinophyma was considered a clinical sign of alcoholism, but this relationship was never demonstrated [4,10,15]. In the same way is unclear the correlation between a steroid hormones excessive effect and the hypertrophy of sebaceous glands, which is peculiar of rhinophyma, or between rhinophyma and some microorganism, like the Demodex Follicolorum, often isolated in this disease. Common and early characteristic in the etiology of acne rosacea is a recurrent and fleeting vasodilatation of the face that, according to Marsili and Cockerell [9], would cause a soft-tissue nasal hypertrophy, gradually giving rise to rhinophyma.

In fact, the peculiar morphologic characteristics of rhinophyma are: (1) teleangectasy, (2) hypervascularity, (3) a thick nasal cutaneous layer, (4) nodularity covered by atrophic skin with expanded pores [4,6,9,12,13,15]. According to these clinical data, El-Azhary et al. classified the rhinophyma in low, moderate, and severe degree of disease when it's possible to find teleangectasies and low hypertrophy of cutaneous layer in the first case, moderate hypertrophy and small nodularities in the second case, massive nodularity in the severe form [2,4,6,9,10, 12,13,15].

Histopathologically, two forms of rhinophyma are described in literature by Tope and Sangueza [13]. The most common one is characterized by histological lesions, that are peculiar of rosacea, the other one is the "fibrous variant." In the first case, we can observe massive hyperplasia of sebaceous glands, elastosis in the derma, moderate fibrousness with collagene fibers plunged in a mixoid edematous stroma, many follicular cysts, and lympho-histocyte infiltration around expanded blood vessels. In the fibrous variant, we can observe severe fibrotic alterations in the derma, decrease or lack of sebaceous glands, and dermal annexes [13].

Medical treatment, when used, is usually undertaken before and in conjunction with surgical treatment [7]. Surgical treatment includes total eradication (full thickness excision) or subtotal eradication (partial thickness

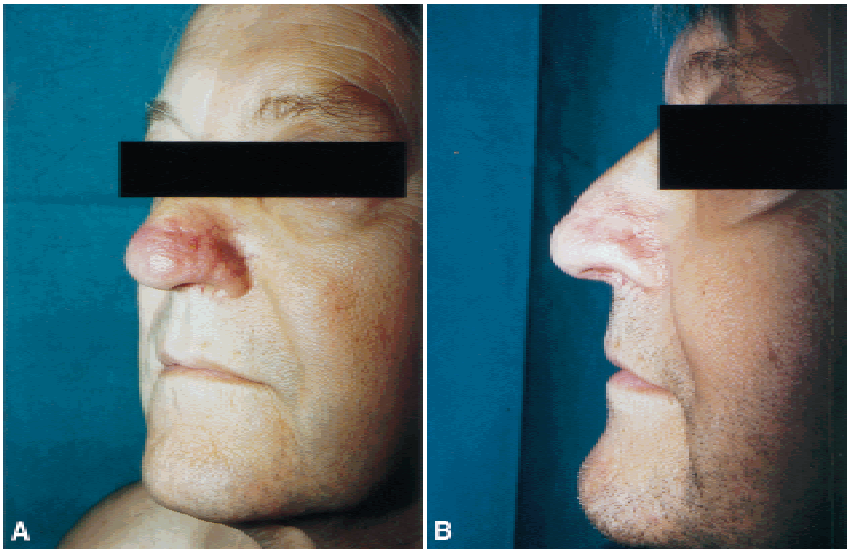

Fig. 1. A. A 57-year-old man suffering from low-degree rhinophyma. **B.** After surgical treatment with CO_2 laser.

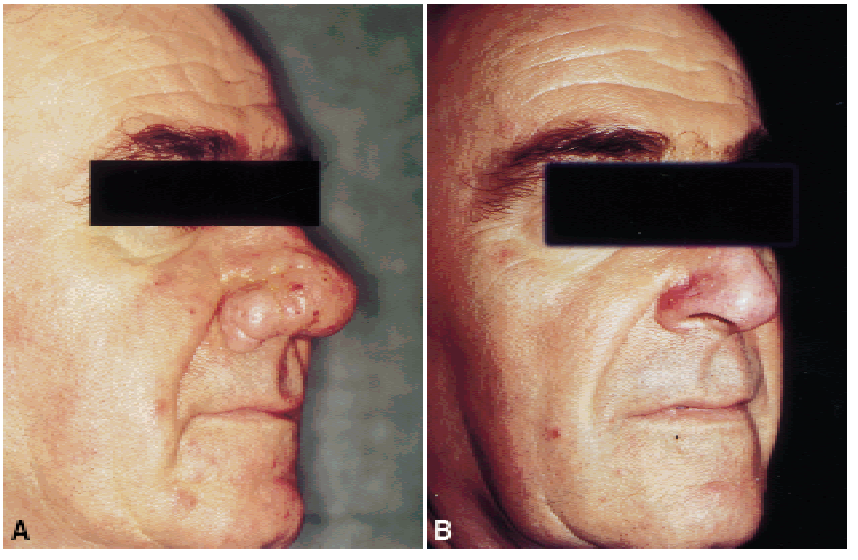

Fig. 2. A. A 56-year-old man suffering from moderate rhinophyma. **B.** After surgical treatment with electrocautery and dermabrasion. Note the scar tissue cephalad to alar skin because of thermal injury.

excision, superficial decortication) of the diseased tissue. Total eradication (down to the loose areolar layer overlying the osteocartilaginous scaffolding) and the following covering with skin grafts or flaps needed for deeply infiltrating rhinophyma, rhinophyma with underlying neoplasia, or rhinophyma fibrous variant where excessive fibrous tissue, make a partial thickness excision difficult. Subtotal eradication by tangential excision of diseased tissue preserves the underlying sebaceous gland and allows a spontaneous re-epithelization and a complete healing in two to three weeks [3,4,7,8,12]. Subtotal eradication, and the following spontaneous re-epithelization, is not only a less complicated surgical procedure, but it also guarantees better aesthetic results [3], although a low risk of recurrence remains.

In literature there are various treatment modalities for the treatment of rhinophyma, such as the excision with scalpel, with razor-blades, with cold surgical knife or electrocautery, dermabrasion, and lately, with lasers [4,5,6,7,9,12,14] or ultrasonic scalpel [1].

Materials and Methods

From May 1997 to December 1999, seven patients suffering from rhinophyma underwent surgical treatment. Among them, according to El-Azhary classification, one had low degree of rhinophyma, three had a moderate degree of desease, while the others had a severe degree of desease. They were between 52 and 75 years old (on the average 63 years old). The male sex was more often affected than the female sex (6:1). In two cases it was possible to find out an history of alcoholism. Although the patients with a severe degree of rhinophyma had

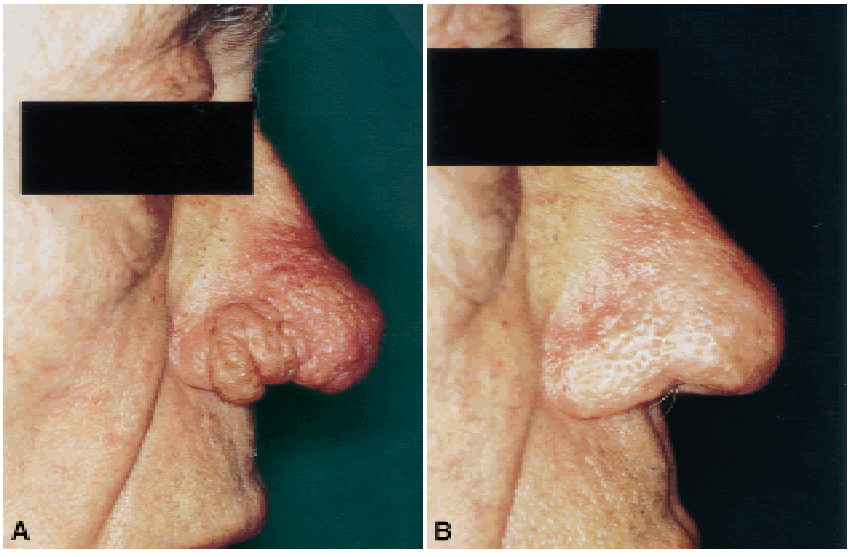

Fig. 3. A. A 64-year-old man suffering from moderate rhinophyma. **B.** After treatment with scalpel and bipolar electrocautery.

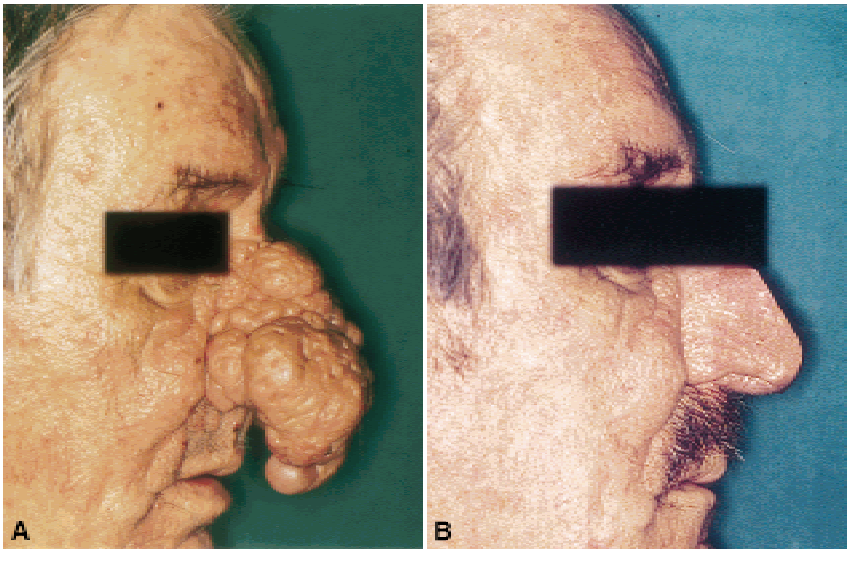

Fig. 4. A. A 63-year-old man suffering from severe rhinophyma. **B.** After surgery with scalpel and bipolar electrocautery.

nasal obstruction, their primary concern was to treat the severe cosmetic deformity.

The patients had a total anaesthesia or an intravenous deep sedation and in both cases tissues were infiltrated locally with mepivacaine 1% and epinephrine 1:100000 to reduce postoperative pain and bleeding during the surgical treatment. Tangential excision of rhinophymatous tissue was performed.

Among the patients with a severe degree of rhinophyma, according to El-Azhary classification, two were treated using the scalpel in association with bipolar electrocautery to obtain a dotty hemostasis, where it was necessary (Fig. 4A,B). The third patient was treated with electrocautery and following dermabrasion, to shape the remaining cutaneous elevated areas of the nose.

Among the three patients with a moderate degree of rhinophyma, the first was treated with carbon dioxide laser, the second with electrocautery and dermabrasion (Fig. 2A,B), and the third with scalpel in association with bipolar electrocautery (Fig. 3A,B).

The patient suffering from low degree of rhinophyma was treated with carbon dioxide laser (Fig. 1A).

The carbon dioxide laser, which allows tissue vaporization and hemostasis, was used with a back and forth motion on the diseased tissue, creating a black eschar. This char was wiped off with a wet sterilized gauze. The method was repeated, as needed, to give the desired cosmetic appearance. Power settings were initiated at 10 W and then changed according to the results obtained on diseased tissues.

If the technique used allowed, the diseased tissue removed was marked according to the anatomical region of origin and then examined by the anatomopathologist to exclude the presence of malignant neoplasia (for ex-

ample basal cell carcinoma). At the end of the treatment, a vaseline occlusive dressing with antibiotic ointment was then placed. Re-epithelization occurred spontaneously from retained glandular elements in two to four weeks. The patients had a follow-up at two years.

Results

The patients treated in our institute showed satisfaction either about the aesthetic or the functional result of the treatment. In only one case (treated with electrocautery) we had a scar caused by thermic injury. The diseased tissues examined by the anatomopathologist didn't reveal the presence of neoplastic cells. Wound healing was completed in two to four weeks.

Discussion

There is not yet agreement in the literature on the ideal treatment of rhinophyma. In our opinion, though the results obtained in the different groups of patients were satisfactory, it's very important a surgical treatment characterized by minimal bleeding, which allows accurate removal of the diseased tissue to the desired depth, without risk of exposure of any underlying osteocartilagineous structures, in case of excessive removal, or risk of recurrence, in case of defective removal.

We found that the scalpel, in association with local infiltration of dilute epinephrine and bipolar electrocautery to control the bleeding, allows a sharp and accurate removal of the diseased tissue, preserves the underlying sebaceous glands fundi for spontaneous reepithelialization, give a minimal thermal injury to underlying tissue avoiding risk of scarring and isn't expensive.

Electrocautery is useful for debulking and to control the bleeding, but there is a quite important risk of scarring caused by thermal injury and, furthermore, the contouring of tissues is less precise and easy than the scalpel, so we shaped the remaining tissue with dermabrasion.

Carbon dioxide laser is useful, especially in low degree rhinophyma, because it is possible to obtain an accurate shaping of tissues, thanks to its small spot, and it is quick. By the way, the disadvantages of carbon dioxide laser include the expense of the equipment, the thermic injury of surrounding normal tissue, which is not negligible, and the bleeding, difficult to control, especially in the severe form of rhinophyma. Besides, using electrocautery or carbon dioxide laser is not possible the hystological examination of pathological specimen.

Conclusions

The profuse bleeding occurring during the treatment of an hypervascularized disease like the rhinophyma, often doesn't allow an accurate resection of the damaged tissues, so that an increased rate of recurrence, in case of defective removal, or a lesion of underlying sebaceous or cartilagineous tissues, in case of excessive resection, may occur. For this reason, and because it is important to examine pathological specimens, the authors prefer to use the scalpel to cut and shape in association with local infiltration of dilute epinephrine and bipolar electrocautery for good hemostasis, with minimal thermal injury of the underlying surrounding tissues, and a quick and spontaneous re-epithelialization. Furthermore, in this way, it is possible to examine diseased tissue removed, marked according to the aesthetic subunit from which is removed allowing the surgeon to make a radical treatment in case of presence of neoplastic cells.

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