An alternative micrographic method for decreasing bleeding and recurrence in the treatment of rhinophyma

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Abstract. – Rhinophyma is a subtype of rosacea which develops at the advanced stage of rosacea and is characterized by an excessive enlargement of the sebaceous glands. Its etiology is not well-defined beyond the following usual suspects: vitamin deficiencies, stress, hormonal factors and the Demodex folliculorum mite. Carcinoma may develop in rhinophyma patients. The first surgical process for rhinophyma was applied by Daniel Sennert in 1629. The ideal surgical method for treatment of rhinophyma is still unclear and controversial. Massive bleeding makes a controlled excision of the mass impossible, which contributes to the recurrence of rhinophyma. In this case, we combined trichloroacetic acid (TCA 45%) with dermabrasion, a treatment which hasn’t been reported previously. Our method was suggested by the Mohs micrographic surgery technique, which employs serial excisions.

Key Words: Rhinophyma, Trichloroacetic acid, Dermabrasion.

Introduction

In Greek etiology, “rhinophyma” means nose growth: the term was derived from “rhis”, meaning nose, and “phyma”, meaning growth. Rhinophyma is a subtype of rosacea which develops at the advanced stage. It is characterized by irregular fibrous tissue proliferation and excessive growth and enlargement of the sebaceous glands. It generally affects males in the 5th to 7th decades of life and has a progressive nature, causing nasal disfiguration and social embarrassment.

Its etiology is not well-defined beyond the following usual suspects: vitamin deficiencies, stress, hormonal factors and the Demodex folliculorum mite. It has been reported that the prevalence of carcinoma development in rhinophyma patients is 15-30%. Basal cell carcinoma is the type most commonly reported in the literature. The first surgical process for rhinophyma was applied by Daniel Sennert in 1629. In 1864, Stromeyer described the excision of sebaceous glands and spontaneous reepithelization. Grattan was the first to repair with local flaps after excision in 1920. Repair methods using skin grafts first appeared in the 1940s. The ideal surgical method for treatment of rhinophyma is still unclear and controversial. Massive bleeding makes a controlled excision of the mass impossible, which contributes to the recurrence of rhinophyma.

In this case, we combined trichloroacetic acid (TCA 45%) with dermabrasion, a treatment which hasn’t been reported previously. Our method was suggested by the Mohs micrographic surgery technique, which employs serial excisions.

Case

An 82-year-old man presented to our Clinic with irregular enlargement and disfiguration of the nose. His presenting symptoms were nasal swelling with pustules and a foul-smelling discharge for the last 10 years. He had never used alcohol previously according to history taken from the patient and his first-degree relatives. He had visited many clinics for these chronic complaints and was prescribed many drugs, including antibiotics and vitamin derivatives. Since his long-standing symptoms had not regressed with treatment, he had even begun to suspect a probable malignancy.

Physical examination revealed irregular thickening with common bulbous, erythematous telangiectasia, and lobulated fibrocystic and nodular changes on the skin of the supratip and...
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tip regions of the nasal dorsum. As a result of the weight of the excess tissue, alar collapse and some obstruction of the nostrils occurred, so that the patient had difficulty breathing through his nose (Figure 1 a, b).

The results of patient’s physical examination and the recurrent nature of his symptoms were indicative of rhinophyma. Tetracycline and bacitracin were administered for 10 days prior to surgery.

Local anesthesia with 1:100,000 epinephrine was infiltrated into the excision area. In order to excise the rhinophymatous tissues, deep dermabrasion was performed using a thick-tipped dermabrader.

During this procedure, trichloroacetic acid (TCA 45%) was applied over the rhinophymatous tissue, and dermabrasion was performed soon after the appearance of frosting. This sequence (application of TCA and dermabrasion) was repeated until the accurate depth was reached, enabling precise removal of all rhinophymatous tissues.

By the application of TCA 45%, optimum hemostasis was achieved. Moreover, existing inclusion cyst formation was degraded with this chemo surgery. The surgery was performed with the utmost delicacy in order to protect the thin soft tissue and perichondrium over the nasal cartilaginous structure to encourage complete graft healing.

Finally, the remaining damage on the nose was repaired with a split-thickness skin graft that was harvested from the lateral side of the thigh (Figure 2 a, b). After electrocauterization of the bilateral inferior concha, partial submucous resection was applied for reduction of the concha obstructing the passages. Septal deviation was corrected concurrently with the surgery.

Bacitracin dressing was applied to keep the site moisturized, and external nasal splints were applied for graft immobilization.

Regular patient follow up was conducted for duration of 18 months. At the end of the 18th month postoperatively, no recurrence was observed (Figure 3 a, b).

Discussion

Rhinophyma is a condition based on untreated rosacea, causing irregular skin thickening, tuberous widening in the inferior half of the nose, and overgrowth of the surrounding tissues and sebaceous glands. In the early stages of the disease, hypervascularity and an increase in both number and volume of sebaceous glands are present. As the disease advances, it is characterized by ductal dilation, cystic formation and fibrous tissue proliferation. Patients generally become psychosocially disabled because of their distorted appearance.

Spontaneous regression of rhinophyma is rarely seen. Medical and surgical treatments in combination are most effective in the treatment of rhinophyma. Focal infections have been cleared up using tetracycline and topical sulfacetamide sodium. However, medical treatment is not useful in the later terms of the disease. The aim of surgical treatment should be the excision of rhinophymatous tissues and the management of acceptable aesthetic results regarding symmetry, texture and color.

Figure 1. A, Preoperative view from below. B, Preoperative view from left.
Many surgical procedures have been used in the treatment of rhinophyma, such as scalpel excision, dermabrasion, radiofrequency (RF) electrocautery, cryotherapy, and laser treatment. 10-14 It is still up for debate which surgical method is the best for rhinophyma. Because of its hyper-vascular nature, over-bleeding causes complications during surgery. Massive bleeding causes an uncontrolled excision of excessive tissue, making an optimal cosmetic result impossible to achieve.

In our case, we used a gradual deep dermabrasion technique in combination with application of trichloroacetic acid (TCA 45%), which minimizes bleeding and enables controlled excision. Trichloroacetic acid provides a mild to moderate exfoliation of the surface of the rhinophymatous tissue. The coagulative effect of TCA facilitates hemostasis during the dermabrasion process.

Cryotherapy was first used to treat rhinophyma by Linehan et al in 1970. 15 Excessive bleeding and inaccurate and uncontrolled resection of rhinophymatous tissues are reported as disadvantages of this technique. 6-15 Similarly, electro-surgery, CO2 or argon laser, conventional or harmonic scalpel, dermatome, Shaw scalpel, and electrocautery have these disadvantages. 1,11,16

Scar formation and pigmentation changes present another important challenge after surgery. The alar region and tip of the nose especially tend to yield to scar formation. The inflammatory response triggered by methods such as electrocautery, cryotherapy or laser treatment can also cause scar development and pigmentation changes. 17 The inflammatory response may be initiated by the heat production and electric current.

In this case, we excised the rhinophymatous tissues by deep dermabrasion. Dermabrasion provides protection of the perichondrium and the thin soft tissue coverage for graft healing. The TCA 45% encourages the hemostasis and provides the degradation of the infected tissues and cyst formation. Utilization of the split-thickness skin graft prevents the recurrence by contracting the tuberous extension and the glandular hypertrophy significantly.
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References


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