Managing Rhinophyma by Trimodal Therapy-Novel Approach

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Abstract Rhinophyma is characterized by nodular thickening of the Nasal skin, sebaceous gland hyperplasia, dilated pores, and in its late stage, fibrosis. In severe cases, it results in loss of normal facial contours, significant disfigurement, and social isolation. Treatment options for severe rhinophyma include cryosurgery, partial-thickness decortications with subsequent secondary reepithelialisation, laser ablation, full thickness resection with graft or flap reconstruction, excision by electrocautery or radio frequency. We report a case of severe rhinophyma resulting in marked facial disfigurement treated successfully with trimodal therapy with excellent cosmetic outcome on a long term follow up.

Keywords Rhinophyma · Trimodal therapy · Carbon dioxide laser Secondary intention

Introduction

Rhinophyma is a progressive, localized or generalized nasal deformity resulting from hypertrophy of sebaceous and connective tissue [1]. It is a centropacial dermatosis that causes severe cosmetic disfigurement. Patients usually present because of psychosocial embarrassment, and occasionally respiratory obstruction due to the weight and

bulk of their nose [2]. It is generally stated to be the final stage of rosacea, but most patients do not demonstrate clinical features of the disease [1]. It is seen predominantly in middle aged to elderly Caucasian men and rarely in Asians. Treatment options for rhinophyma are very limited. Isotretinoin suppresses sebum secretion and will reduce a modest rhinophyma. Surgical treatments include partial- or full-thickness excision with or without skin grafting or flap reconstruction, dermaplaning and dermabrasion, cryosurgery and excision with heated scalpels and loops, electrosurgery, coblation and ultrasonic scalpel [3–7]. Laser options include CO₂, erbium: yttrium–aluminium–garnet (Er: YAG) and argon lasers [8–10]. Here we report a case of severe rhinophyma which showed a excellent response to trimodal therapy.

Case Report

A 56-year-old man, farmer by occupation presented to us with a 5-year history of progressive nose enlargement (Fig. 1). There was no pain, itching or bleeding in the nasal area. There was no history of shortness of breath, photosensitivity or episodes of facial flushing. He was not a smoker or alcoholic. On cutaneous examination, soft to firm, non-tender, lobulated swelling measuring 7 cm × 5 cm involving distal half of the nose with marked dilatations of skin pores and thickened hyperpigmented skin was noted (Fig. 2). Systemic examination was unremarkable. Laboratory tests were within normal limits. Chest X-ray and ECG were normal. A diagnosis of major rhinophyma was made. Initially the patient was medically managed with oral Isotretinoin 40 mg for 3 months, however, the swelling did not respond and increased in size. Hence we opted for surgical management. Trimodal therapy which is a combination of

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Fig. 1 Severe rhinophyma-frontal view

Fig. 2 Nasal tip irregularity-basal view

scalpel excision, subcutaneous abrasion and carbon dioxide laser resurfacing was done in this patient.

The procedure was done under general anaesthesia with aseptic and laser safety precautions. Tangential excision was done with a 22 size scalpel blade taking care not to cut through the cartilages. It was followed by subcutaneous abrasion to expose the enlarged sebaceous gland pits, right down to the base and cartilage using a dermabrader burr.

Fig. 3 Post operative photograph at 3 weeks

This ensures epithelial cell nests for future secondary healing. The bleeders were cauterized using the carbon dioxide laser and resurfacing was done in a paint brush fashion at 5 W setting in continuous mode. Adequate precaution was taken to avoid the nasal alar rim and scroll area to prevent postoperative alar tenting. The lasered wound was left for healing by secondary intention and followed up for 2 years with follow-up initially at 2 weekly intervals and later at 3 month intervals (Figs. 3, 4, 5, and 6). The patient was advised to apply local antibiotic cream mupirocin thrice a day until complete healing was achieved. No additional dressing or skin grafting was used.

At the follow-up visit 2 years after the trimodal therapy, the patient was extremely satisfied with the result for his disfiguring deformity and normal contour of the nose was maintained (Fig. 7).

Discussion

The term ‘phyma’ signifies a chronic, oedematous, sebaceous and connective tissue hypertrophy and is considered to represent the end stage of severe rosacea. Rhinophyma is the commonest and other variants include gnatophyma (chin), metophyma (forehead), otophyma (ear) and

Fig. 4 Post operative photograph at 6 weeks

blepharophyma (eyelids) [1]. Rhinophyma was initially described by Hebra in 1856 [11]. It occurs almost exclusively in middle aged to elderly men with a male:female ratio of 5:1 to 30:1, predominantly in Caucasians and rarely in Asians or African Americans [12–14]. Clinically it is characterized by a combination of erythema, telangiectasia, thickening and coarsening of the nasal skin texture. Four variants of rhinophyma can be recognized: glandular, fibrous, fibroangiomatous, and actinic. In glandular form, the nose is enlarged mainly because of sebaceous gland hyperplasia. In the fibrous form diffuse hyperplasia of the connective exists. In the fibroangiomatous form fibrosis, telangiectasias, and inflammatory lesions are present. In the actinic form, nodular masses of elastic tissue distort the nose [15]. Although different histological subtypes do seem to occur; the diagnosis of rhinophyma is clinical. According to a classification proposed by El-Azhary et al. [10], rhinophyma can be classified as minor (if telangiectasia and mild thickening or textural skin changes are seen), moderate (if skin thickening and lobules are present) or major (if nasal hypertrophy and prominent lobules are present).

Despite the good response of rosacea to medical therapy, the treatment does not appear to prevent progression to rhinophyma, and established rhinophyma does not

Fig. 5 Post operative photograph at 9 weeks

respond well to non-surgical measures like antibiotics and isotretinoin, as in our case [16]. Surgical approaches include individual or combined treatments like cold steel excision, scalpel excision, hot loop excision, electro-surgery, radiofrequency, dermabrasion, cryosurgery, and Lasers: CO₂, Neodimium:YAG, Erbium:YAG, combined Erbium:YAG/CO₂ and 1450-nm diode laser. Surgery is aimed at tissue reduction; this requires a four-step approach: debulking of gross nodules and tissue, fine contouring, hemostasis, and postoperative care [17].

Each surgical procedure has a few disadvantages when used individually. Surgical excision causes excessive bleeding which leads to poor visualisation, making tissue removal much less precise [18]. Deep dermabrasion causes significant scarring and demarcation around the edges of the treatment site and adjacent normal tissue leaving a poor cosmetic result [19–21]. Electrocautery solves the bleeding problem; however, it leaves a wide zone of thermal induced tissue destruction, leading to poor texture or hypertrophic scarring [22, 23]. Disadvantages with cryosurgery include the need for multiple visits, scarring and dyspigmentation, and lack of depth and contour control [24]. Although carbon dioxide laser has the advantages of excellent hemostasis, limited thermal effect reducing the risk of scarring, and less postoperative pain probably due to

Fig. 6 Post operative photograph at 12 weeks

its ability to seal nerve endings, the main problem in using the CO₂ laser to ablate rhinophyma is that it is a slow process [17, 22, 23, 25, 26].

However, trimodal therapy technique, which is a combination of scalpel excision, dermabrasion and CO₂ laser addresses each of the four steps of rhinophyma surgery and tackles all the disadvantages of other surgical procedures. It has the advantages of being a fast procedure, bloodless surgical field with excellent visualization, limited thermal effect, reduced postoperative pain and excellent cosmetic outcome with high patient acceptability.

The psychological stress experienced by patients with even mild rhinophyma is significant and in severe rhinophyma is life ruining. Patients are often subject to inappropriate comments, lack confidence, avoid social situations and become reclusive [1]. Successful treatment is associated with high satisfaction and improved quality of life in these patients.

Conclusion

Trimodal therapy appears to be an excellent and novel tool in the treatment of rhinophyma, and probably the treatment of choice in view of its superior aesthetic outcome, patient

Fig. 7 Completed healing with excellent cosmesis at 2 years

acceptability and maintenance of results for a long term. Larger controlled studies are required to further establish the efficacy of this novel modality of treatment.

Compliance with Ethical Standards

Conflict of interest All authors declares they have no conflict on interest.

Ethical Approval All procedures performed in this study involving human participant were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from the patient included in the study.

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