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Views and Practice

# Radiofrequency electrosurgery in the treatment of rhinophyma

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## Introduction

Rhinophyma is a form of acne rosacea that causes a lobular and bulbous appearance of the nose due to sebaceous gland and connective tissue hyperplasia, although the underlying bony and cartilaginous structures remain intact.[1] It is a significant cosmetic problem that causes progressive deformity of the nose, affecting patients psychosocially. Medical treatments are usually ineffective in late stage rhinophyma and many different techniques have been used to reduce excessive tissue such as dermabrasion, liquid nitrogen, laser ablation, surgical excision, and radiofrequency.[2,3] The most commonly used method is surgical excision, but this is associated with problems of excessive bleeding and difficulty in evaluating the depth of excision.[1] Reduction of bleeding without damaging the underlying tissue with coagulation makes radiofrequency a viable option for reshaping the nose. Reepithelialisation after the procedure occurs rapidly through the epithelium in the hypertrophic sebaceous glands.[4]

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## Case illustration

A 45-year-old male patient with late stage rhinophyma, who had diffuse exophytic growth in the lower two thirds of the nose which had not responded to previous medical treatments, was treated with radiofrequency electrosurgery (model: Elmann surgitron leofarma) (Figures 1a, 2a, 3a). Neural block anaesthesia was performed with 2% lidocaine to the infratrochlear, infraorbitalis and external nasal nerves before the procedure. The radiofrequency electrosurgical unit was used at 40 W in cut/coagulation mode. Hypertrophic tissue was peeled in thin layers with wire loop electrode in cut mode, paying attention to nasal symmetry and protection of sebaceous unit, and the nose was reshaped. Haemostasis was achieved using the device in coagulation mode. After the procedure, topical mupirocin ointment was applied to the operation area. The patient was reviewed on postoperative days 1, 2, 3, 7, 14, 28 and at two and three months. The patient's progress was documented before and after the procedure and subsquent follow-up visits. Reepithelisation was seen at day 14 after the operation. On day 28, erythema was minimal and the wound had healed. Possible complications such as infection, hyperpigmentation, and scar formation were not observed after the procedure (Figures 1b, 2b, 3b). After reepithelialisation, broad-spectrum sunscreens were recommended to avoid postinflammatory hyperpigmentation. A good cosmetic outcome was obtained in terms of the nose size, symmetry and skin colour at two months post-operatively.

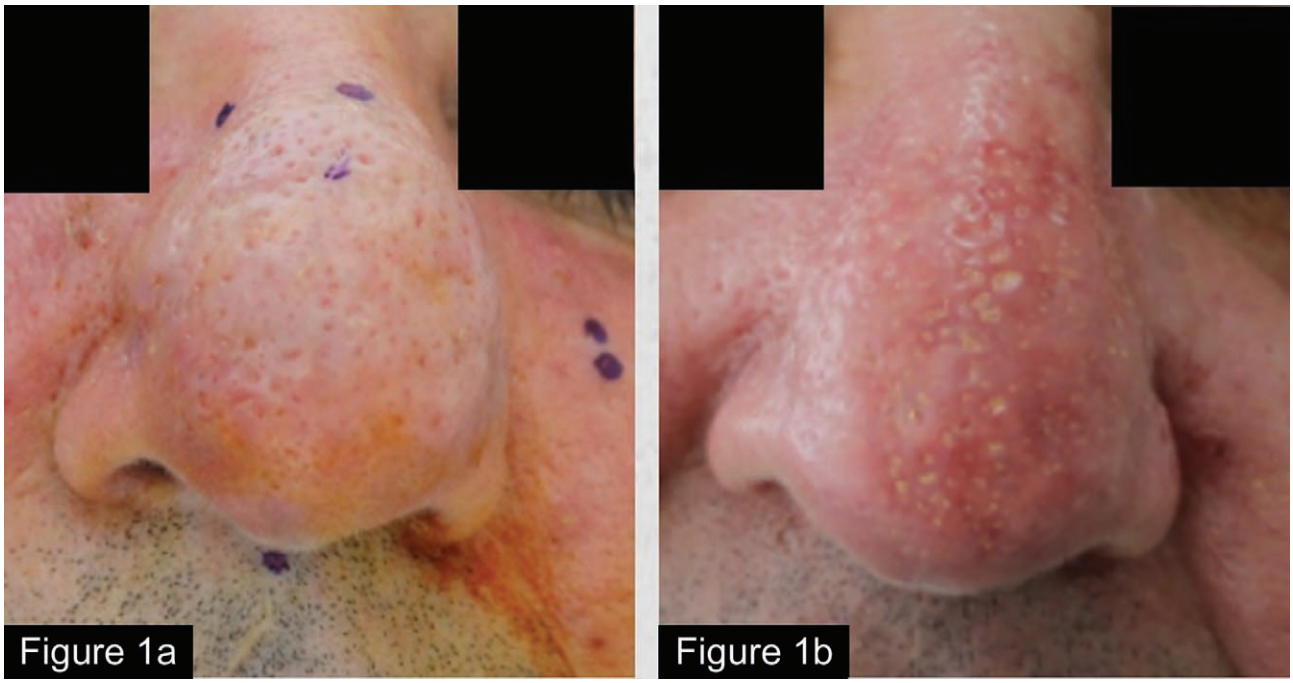


**Figure 1.** (a) Clinical appearance of diffuse exophytic growth in the lower two-thirds of the nose; (b) Clinical appearance of day 28 post-op (front side).

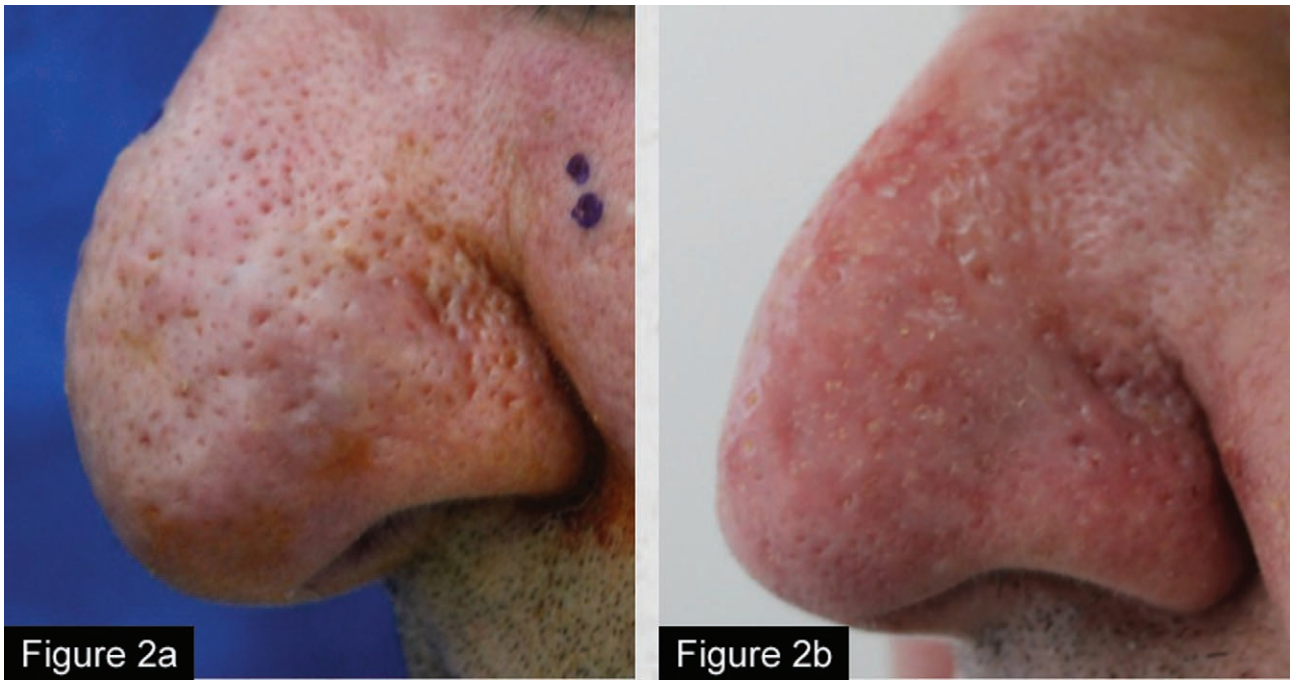


**Figure 2.** (a) Clinical appearance of diffuse exophytic growth in the lower two-thirds of the nose; (b) Clinical appearance of day 28 post-op (left side).

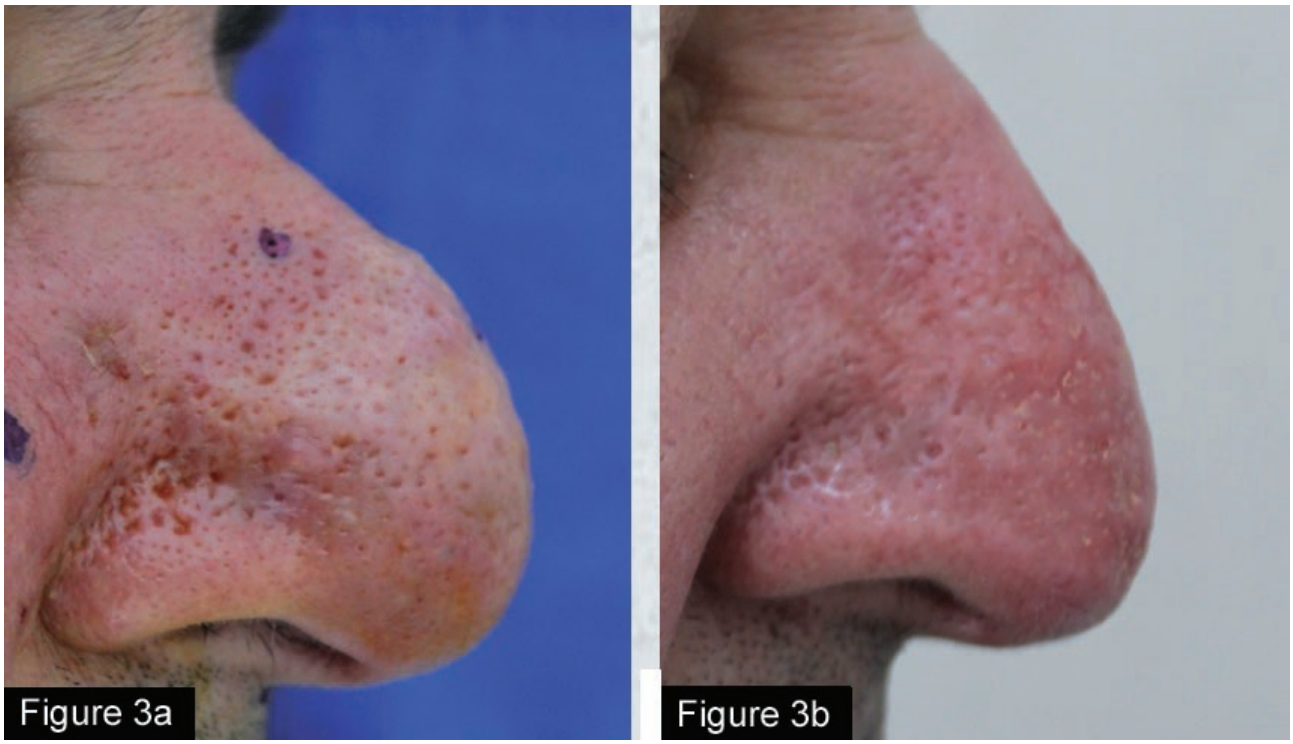


**Figure 3.** (a) Clinical appearance of diffuse exophytic growth in the lower 2/3 of the nose; (b) Clinical appearance of postoperative 28th day (right side).

## Discussion

The aim of surgical approach in the treatment of rhinophyma is to achieve a cosmetically acceptable result by removing hypertrophic tissue. Radiofrequency generates heat via an alternating current, with a low-voltage constant oscillating current in the cutting mode and a damped wave current in the coagulating mode, allowing the removal of tissue with minimal thermal damage.[1] However, obtaining a good result with this technique requires experience as the electrical exposure time will increase heat generation and tissue damage. In particular, the tip of the nose and alar regions are high-risk areas due to the close proximity of the dermis to the cartilaginous tissue.[2] For this reason, the peeling process should be kept short (5-10 mm/sec).[5]

In addition, the stem cells that replenish the regenerating epithelium are located in the deeper dermal tissue. In order to achieve good healing and to avoid necrosis of the treated area and unwanted scar tissue, preservation of this area and avoiding excessive tissue removal are key factors.[6] Wire loop electrode is preferred as the tissue is peeled in thin layers to achieve a good outcome.[7]

Postoperative wound care is another important issue for a successful outcome. After the procedure, a moist wound bed should be maintained to maximise reepithelialisation. Full reepithelialisation usually occurs in four weeks after radiofrequency. During this critical healing period, patients should be encouraged to apply a topical antibiotic ointment and gently rinse the wound several times per day with water.[8] Moreover, patients should be advised to avoid sun exposure and apply a broad spectrum sunscreen after reepithelialisation to reduce the risk of persistant erythema and postinflammatory hyperpigmentation.[9]

## Conclusion

Radiofrequency electrosurgical technique is a low-cost treatment that can be performed with local anaesthesia in the clinic setting and allows the control of bleeding. It is preferred in the treatment of rhinophyma as there is minimal pain, rapid reepithelisation after the procedure and good cosmetic results.

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