A very severe case of rhinophyma requiring a three-stage reconstruction with a forehead flap

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ABSTRACT

Rhinophyma is a skin condition that affects the nose. It is often characterised by a large, red, bulbous nose. It can have a physical, psychological and social impact on the patient. Management options include conservative medical therapy such as retinoids or surgical excision followed by reconstruction as required. The reconstruction options can range from a dermal substitute full-thickness skin graft to local flaps, depending on the wound bed. We present a severe case of rhinophyma that required a complex reconstruction with a three-stage forehead flap because of the mass effect and the wound that resulted from the surgical excision of an extremely large and troublesome rhinophyma.

KEYWORDS

Rhinophyma – Rosacea – Forehead flap reconstruction – Biopsychosocial impact

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Background

Rhinophyma is a skin condition that affects the nose, and is often characterised by a large, red, bulbous nose.¹ It results from hypertrophy of the sebaceous glands and connective tissue. Rhinophyma affects people who are known to have acne rosacea, and forms the fourth and most advanced stage of acne.¹ Acne rosacea is commonly recognised to have four stages which include frequent facial flushing, thickened skin and surface telangiectasia of the nose, acne rosacea and rhinophyma.¹ Rhinophyma commonly affects males and has a peak presentation at the age of 50+.^{1,2} It can have a physical, psychological and social impact on the individual.¹ Physical symptoms can include difficulty breathing, snoring and, in extreme cases, distortion of inferior vision.^{1,2}

There is currently no gold standard treatment for rhinophyma, although a wide range of non-surgical and surgical options are available.^{1–3} Medical treatment for this condition includes topical and/or oral antibiotics and retinoids.^{1,2} The aim of medical therapy is to slow the progression of the disease and not provide a cure.^{2,3} The surgical options, which tend to aim for complete resolution of the disease, include surgical excision with reconstruction in the form of skin grafts or a flap such as a nasolabial, V–Y advancement and cheek advancement flap if necessary.^{1–3} Other surgical methods include dermabrasion, electrosurgery, carbon dioxide ablation, radiofrequency and cryosurgery.^{2,3}

Forehead flap: the three stages

The forehead flap has long been used to reconstruct nasal defects commonly resulting from excisions of skin cancer.^{1,3} The colour and texture of the forehead flap

make it an ideal choice to resurface the nose, often resulting in superior aesthetic results to other treatment modalities such as skin grafts.^{1,3,4} Initially the forehead flap reconstruction is carried out in two stages: 1) the flap is harvested from its forehead donor site and inset into the recipient site; 2) the pedicle supplying the flap is divided, usually three to six weeks after the initial procedure, once it has healed.⁴

However, the recognised differences between the forehead tissue and the nose, in that the forehead has a much thicker, bulkier skin and assumes a two-dimensional shape compared with the three-dimensional contour of the nose, has meant that forehead flap reconstruction is now commonly performed in three stages to address this concern.⁴ The additional intermediate stage involves thinning the forehead flap, where excess soft tissue is excised, before the pedicle is divided in the third and final stage of reconstruction.⁴

Case history

A 66-year-old man presented complaining that the tip of his nose had grown rapidly over 18 months. His past medical history included acne rosacea, hypertension, knee osteoarthritis and obesity. The rapid growth of the nose resulted in him developing nasal obstruction symptoms, breathing difficulties (particularly at night when lying flat) and interference with his inferior vision (Fig 1).

Given the history of rapid growth, it was crucial to exclude sinister causes such as Basal cell carcinoma, squamous cell carcinoma and angiosarcoma.⁵ He underwent

Figure 1 The rapidly growing rhinophyma resulted in nasal obstruction symptoms and interface with inferior vision

Figure 2 Appearance post-shave excision

Figure 3 Stage one of the forehead flap reconstruction one week postoperatively

an urgent shave excision of the nasal mass and the wound was left as it appears in Figure 2 while awaiting histology results. Histology proved to be a simple rhinophyma. As the mass was so extensive it resulted in a mass effect, softening and distorting the cartilage, which meant that the patient required a complex reconstruction to ensure that his alar did not completely collapse post-shave excision biopsy.

He subsequently underwent an auricular cartilage grafting and a three-stage forehead flap over a three-month period to reconstruct the resulting defect. Stage one of the reconstruction involved the addition of the auricular cartilage, the harvesting of the forehead flap and inserting it into the recipient site, the wound bed on the nose (Fig 3). Stages two and three involved debulking the forehead flap (Fig 4) and the division of the pedicle (Fig 5). He made an uneventful recovery and was found to have a satisfactory cosmetic and functional outcome, whereby his troublesome symptoms completely resolved (Fig 6).

Discussion

Once the decision is made to manage rhinophyma surgically, the aim is to completely remove all diseased tissue, which should reduce the likelihood of recurrence. Complete excision of the disease often means deep excision to try to remove all diseased tissue. Superficial excision often results in spontaneous re-epithelisation, and thus recurrence. However, deep excision results in a defect that needs reconstruction usually either in the form of a full-thickness skin graft, dermal substitute or even a local flap.

The method used to reconstruct the defect depends on numerous factors, which include the status of the wound bed, and patient and surgeon preference. The severe case of rhinophyma shown here, where, although the cartilage

Figure 4 Stage two of the forehead flap reconstruction: forehead flap debulked, donor site healing by secondary intention

Figure 5 Postoperative appearance three weeks after the final stage of the forehead reconstruction, pedicle division, donor site completely healed by secondary intention

Figure 6 Appearance one year post-shave excision biopsy and the three-stage forehead flap reconstruction procedure: satisfactory cosmetic and functional results

was not invaded, it was softened and distorted by the mass effect of the rhinophyma, required an auricular cartilage for support, and a complex reconstruction process in the form of a three-stage forehead flap. This ensured that his alar did not collapse and adequate coverage was achieved.

It is essential to highlight that this case does not reflect how the majority of rhinophyma cases are managed. The auricular cartilage graft and forehead flap were required to manage the distorted cartilage caused by the large mass effect, and the resultant defect post-shave excision. Our case highlights the importance of providing patient-tailored care, dictated by their condition, wound bed, as well as patient and surgeon preferences.

Conclusion

Rhinophyma the most advanced stage of acne rosacea can have both cosmetic and functional impact on the patient. Sinister causes for rapid growth must be considered and managed accordingly. Although a wide range of management options are available for this conditions, no gold standard

therapy currently exists. Patients are instead treated on an individual basis, with the personalised approach of managing their most pressing symptoms and presenting complaint. This severe case required a three-stage forehead flap reconstruction post-surgical excision, as a rare but necessary management option.

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