



SHORT REPORT

The trap door flap for reconstructing defects of the concha[☆]

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KEYWORDS

Conchal defects; Trap door flap; Post auricular artery

Summary We report six cases of conchal neoplasms where the defect was reconstructed with a Trap Door Flap based on the post auricular vessels. The flap was reliable and gave good cosmetic results.

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Neoplasms of the ear are common on the helical rim or the posterior surface of the pinna, usually related to solar exposure or ultraviolet rays. Excision and reconstruction of these lesions is for the most part straight forward giving a reasonable result. Those lesions in the conchal fossa especially if large, pose a difficult reconstructive problem. Commonly the lesion is excised with underlying cartilage and the defect repaired with a full thickness graft. This may result in problems with colour match and contour. The use of local flaps for ear reconstruction is well documented.¹⁻⁶ One such flap is the Trap Door Flap. It is ideal for defects of the conchal fossa and even those impinging on the external auditory canal.

Patients and methods

This flap is a random pattern flap based on the post auricular artery. The vessel ascends between the mastoid process and the post auricular cartilage. It divides giving upper, middle and lower branches which are usually parallel and travel in a cephalic direction toward the helical rim.⁷

The flap is designed on the mastoid and post auricular surfaces according to the conchal defect. It is raised anteriorly and posteriorly with the hinge

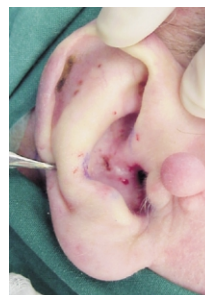


Fig. 1 Biopsy proven extensive BCC of the conchal fossa.

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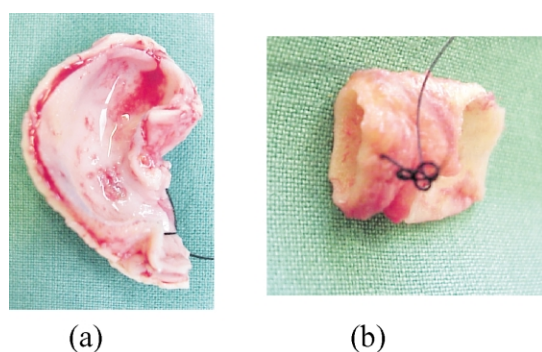


Fig. 2 The excised specimen including cartilage (a) and (b) the external acoustic meatal component.

or pivotal axis of this flap lying in the post auricular groove. The flap is then rotated about the vascular axis to fill the defect in the conchal fossa. The donor site is then closed primarily with a subcuticular suture. A drain may be necessary for 24 h post operatively.

Results

Six male patients were operated on by one surgeon for neoplasms of the conchal fossa. There were three basal cell carcinomas and three squamous cell carcinomas. The age range was 61-73 years. All lesions were completely excised. Post operatively there was no flap loss, either partial or complete. One patient had some delayed healing with his donor site. This was treated conservatively and healed well. The follow up between 4/12 and 3 years saw no local or regional recurrences of the neoplasms. The cosmetic result was very satisfactory. No debulking of any flap was necessary nor was any retro positioning of the ear noted (Figs. 1-6).

Discussion

Masson first described this flap in 1972.² No direct

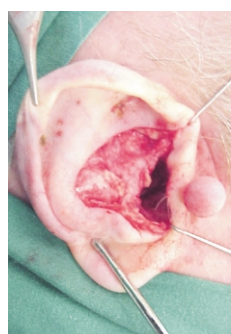


Fig. 3 The conchal defect after excision of the lesion.

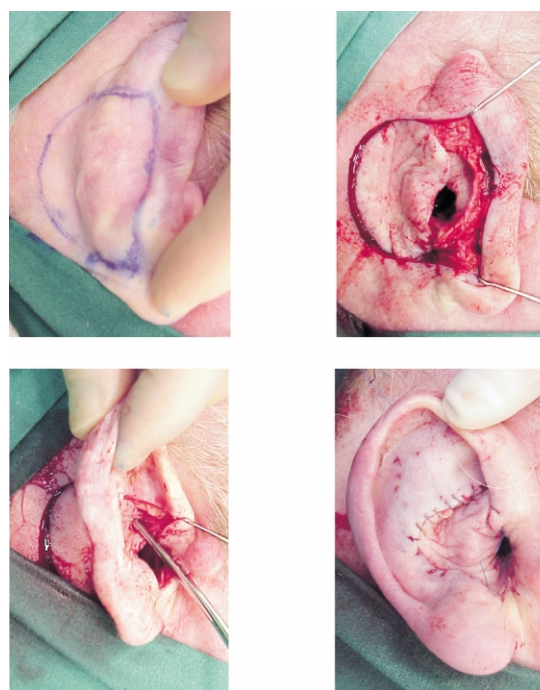


Fig. 4 The flap designed on the post auricular surface. The flap raised, rotated forward 180° and inset to fill the conchal defect. Note the extension into external acoustic meatus.

reference was made as to the size of flap that could be raised. Talmi et al.⁶ and Krespi et al.³ both described a similar flap on the post auricular muscle up to 6x6 cms in size. A flap big enough to fill the conchal fossa may certainly be safely designed. Conchal skin is thin. It is often essential to excise skin along with the underlying cartilage to ensure tumour clearance. The Trap Door Flap has many advantages. It is a one stage procedure. It may be done under local anaesthetic and in many cases, on an outpatient basis. When used for conchal reconstruction, the flap is an excellent colour and texture match. It gives a good contour to the reconstructed conchal fossa with an overall good cosmetic result.



Fig. 5 A cosmetically acceptable Trap Door Flap 1 year post op.



Fig. 6 A good cosmetic result 2 years after excision of a BCC and reconstruction with a Trap Door Flap. Note the new lesion on the helical rim.

There is minimal donor site morbidity with the donor site scar well hidden behind the ear. It is a reliable flap based on the well documented post auricular blood supply. External acoustic meatal stenosis associated with repair by skin grafting may be prevented with the Trap Door Flap.

Conclusion

This flap has proven reliable in six patients and gives a very satisfactory cosmetic result. We would recommend it as an extremely useful technique for the closure of skin and cartilage defects of the conchal fossa as well as those defects extending into the external auditory canal.

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