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Plastic Surgery

DEFECTS OF HELIX AND SCAPHA-RECONSTRUCTION WITH ANTERIOR CERVICAL TUBE FLAP -IS MULTISTAGE PROCEDURE STILL GOLD STANDARD IN THE FIELD OF PLASTIC SURGERY?

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ABSTRACT Helix gives the definition for the pinna. The loss of even a part of the helix and scapha gives an illusion of significant loss of the pinna.

Background When the defect exceeds half of the pinna circumference local tissues are insufficient and the distant tissue transfer from anterior neck in stages gives good cosmetic result and a satisfied patient.

Materials and methods 20 cases of helical defect due to trauma and assault who attended our emergency room from 2012-2017 were managed with anterior cervical tube flap transfer in stages- 2 stages in flap dissection and 2 stages in flap inset

Results All the flaps settled well without any necrosis or dehiscence. Donor site morbidity was minimal. Many don't require support. All the patients were highly satisfied about the post-op result

Conclusion Though this is a multi-staged procedure, good colour match ,helical fold preservation and minimal donor site morbidity make this a gold standard in helical reconstruction

KEYWORDS : Anterior Cervical Tube Flap, Helical Defect, Multi Staged Procedure,Tube Pedicle.

INTRODUCTION

The projection ,size and depth of the pinna largely depends on the helx. A well formed helix also camouflage the deficiencies in the rest of the frame work of the pinna. In terms of the surface area the helix and scapha contribute to more than 1/3rd of the total surface area of the pinna. Even in microtia,while preparing theframework, an exaggerated projection of the helix ensures better definition of the ear. Hence ,helix occupies the centre stage in any ear reconstruction

Though multiple options are available for helical reconstruction most methods are suitable for partial helix reconstructions. Pre auricular and post auricular flaps are limited by the tissue availability.For large defects temporo Parietal fascial flap with Split skin grafting offers an excellent single stage reconstruction.But hyperpigmentation of the skin grafted surface in our population greatly limit it's use. Tube pedicle flaps ,the work horse in the early phase of modern plastic surgery are largely relegated to history.[1] But as documented by White etal the techniques in reconstructive surgery which stood the test of time should not be forgotten even when the most recent reconstructive options are available.[2]

Cervical tube flap from the anterior neck offers enough tissue for the reconstruction of the entire helix and scapha. A flap of 3 to 3.5 cm width gives adequate tissue for both anterior and posterior aspects. Donor site morbidity is also negligible as the defect is closed primarily and the suture line lies in the neck crease. Technically it is far less demanding than the temporoparietal fascial flap.

Patients and methods

This is a prospective study of 20 patients between 2012-2017 . Mean age group was 25 years. 19 of our patients were males .All the cases were done under local anaesthesia as day care surgery.

The template of the defect was obtained by appropriate marking on the normal side pinna.The pattern after giving an allowance of 25% was laid on the anterior neck abutting the cervico mental crease. A pinch test was always done with the neck in the neutral position to ensure the possibility of primary closure.The flap elevation was done in two stages.Only the lateral thirds of the flap on both sides were tubed at first. The middle 1/3rd of the flap was not elevated and tubed at the second stage which was done 3 weeks after the first stage. After a delay of 3 weeks ,the distal end of the tube was divided and attached to the inferior aspect of the defect in the pinna. Further 3 weeks later ,the proximal attachment of the tube was divided and the inset was given all along the helico scaphal defect.

In 19 cases the defect of the pinna is an acquired deformity due to assault or accidents. In one case the defect is post microtia reconstruction and the indication was small pinna with loss of helical definition.The lone female patient in our series with the sub total loss of helix and scapha suffered an assault during a domestic quarrel. In one patient the cause was post burn chondritis.

In all the cases the staged reconstruction was completed in12 weeks.The cases were followed up for 6-12 months. There was no case of total or partial flap loss.

DISCUSSION

At the time of presentation to our emergency room, they were managed with skin suturing at the injured site and 1st stage anterior cervical tube flap was done. The major disadvantage of this procedure is multiple stages . But, the main advantages are tissue availability, a relatively reasonable colour match and minimal donor site morbidity.

Acquired defects of the pinna are classified as upper third,middle third and lower third to select an optimal method of reconstruction.[3]But in reality the defects overlap to defy the optimal flap selection.Though the temporoparietal fascial flap with Split skin grafting, is a single staged reconstruction, post operative hyper pigmentation is the major disadvantage. This may not be a problem in fairer populations.[4]Though post auricular/preauricular local flaps are available, tissue quantity is less. Hence, they are not sufficient for complete helical reconstruction . Ingenius methods like chondro cutaneous advancement flaps and post auricular advancement flaps offer aesthetically pleasing reconstructions.[5,6] But they are suitable only for partial helical defects.

The interposition of a cartilage frame work within the flap is said to be mandatory to prevent the shrinkage and collapse of the reconstructed helix. But In our series all the flaps were rigid and hence frame work augmentation was not necessary. The prior tubing before the inset might have been responsible for the preservation of the helical fold.

CONCLUSION

For the irrefutable reasons of good colour match in comparison to the temporo parietal fascial flap, adequate availability of tissues even for reconstruction and the preservation of helical fold without the need for cartilage frame work the anterior cervical tube flap should always be considered for reconstruction of the helix when the defect involves more than half of the helix and scapha. The donor morbidity is minimal with imperceptible scar.

Figure legends:

1a-Reconstruction of the total helix,scapha and part of the ear lobule
1b-Well settled scar in the neck
2a-Post burn total loss of helix and scapha
2b-Cervical tube designed in stages

2c-Ist attachment to the superior aspect of the defect.The tube is long enough to reach the root of the helix
2d-Reconstructed helix
3c-Sub total loss of helix and the lobule
3d-Reconstructed helix and the ear lobule

FIGURE1a,1b

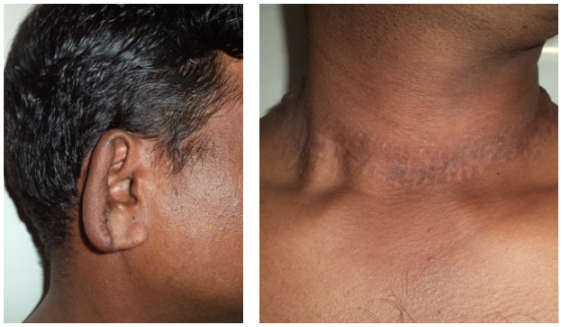
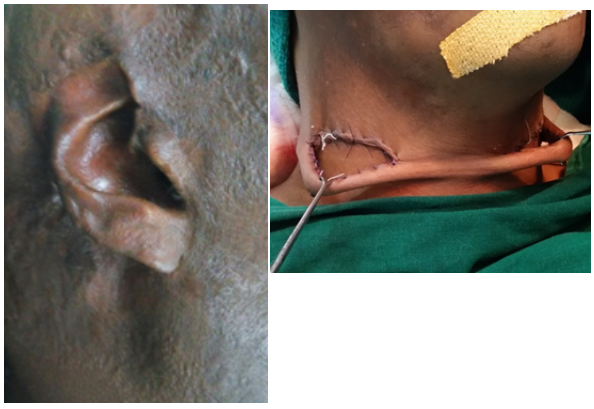


FIGURE2a,2b,2c,2d



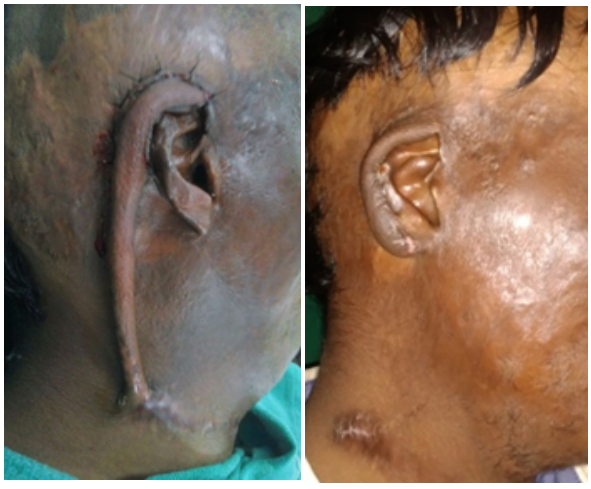
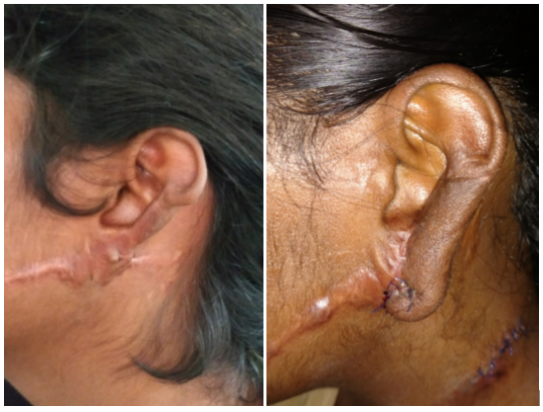


FIGURE3a,3b



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