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Case Report

Customised auricular stent - a valuable adjunct for preserving auriculocephalic angle: A case report

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ABSTRACT

Maxillofacial stents find their application in traumatic and post reconstructive surgical cases. A stent is a supplementary device used in conjunction with a surgical procedure to keep a skin graft in place. Various materials can be used in their fabrication such as acrylic resins, soft liners and modelling plastics. They can either be intraoral or extraoral, in the maxillofacial region they aid in stabilizing the deformity, prevents scar contracture, stops haemorrhage, and reduce the severity of maxillofacial defect by aiding in fabrication of a better fitting prosthesis. This paper displays the role and application auricular stent in maintaining auriculocephalic angle post-surgery.

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1. Introduction

Maxillofacial stent is a supplementary device used in conjunction with a surgical procedure to keep a skin graft in place; often modified with acrylic resin or dental modeling plastic impression compound that was previously termed Stent's mass.¹ Various materials can be used in their fabrication such as acrylic resins, soft liners and modelling plastics. They can be used intraorally or extraorally. In the maxillofacial region these aid in stabilizing the deformity, prevent scar contracture and minimize the surgical stent by acting as a spacer.² This paper highlights the role and application of auricular stent in a case of surgically reconstructed left auricle so as to preserve normal auriculocephalic angle and ear elevation by preventing wound contracture.^{3,4}

2. Case Report

A 26-year-old male suffered trauma to his left ear during a road traffic accident. Subsequently he underwent surgical reconstruction of the left auricle and was referred for fabrication of an auricular stent post-surgical reconstruction. Examination of the patient revealed that he was alert and well oriented with no acute distress. Patients hearing abilities were found to be normal. History revealed that patient had a road traffic accident while riding a two-wheeler. First aid was provided at primary health care centre and was referred to a tertiary hospital for the repair of auricular defect. Patient underwent a converse retro auricular advancement flap surgery with reconstruction of left ear.⁵⁻⁷ A custom made auricular acrylic stent was planned for the patient to prevent post-surgical contracture and maintain the auriculo-cephalic angle. The following procedure was followed for fabrication of the auricular stent-: Patient was seated upright with the affected ear in view and a thin layer of petroleum jelly was applied at the affected site (Figure 1). Desired amount of polyvinyl

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siloxane impression material (putty consistency) was mixed and adapted behind the reconstructed ear (Figure 2).



Fig. 1: Left auricle post-surgery



Fig. 2: Impression of the defect with putty consistency polyvinyl siloxane material

Once set, the impression was retrieved (Figure 3), and poured using Type IV dental stone. After the stone had set, impression was separated and gross structural reproduction was assessed. Area to be covered by the stent was outlined. The outline was extended to cover the anterior aspect of reconstructed auricle (Figure 4).



Fig. 3: Retrieved impression

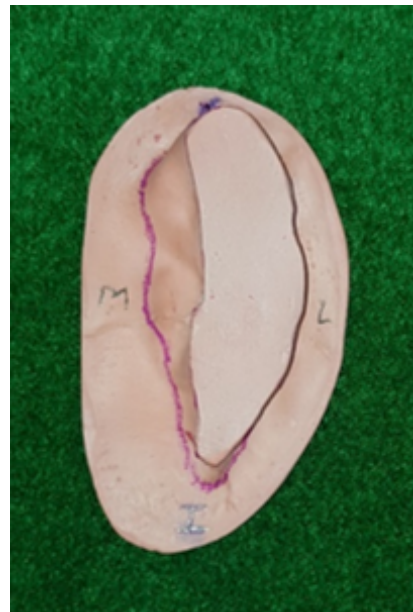


Fig. 4: Outlined Master cast (In Type IV Dental Stone)

Two layers of base plate wax (DPI, Mumbai India) were adapted to cover the defect (Figure 5). Wax pattern was tried in and checked for retention and fit. The working cast along with the wax pattern was processed (Figure 6) and auricular stent was fabricated in clear heat cure acrylic resin using the conventional acrylic processing procedures (Figure 7). Prosthesis thus obtained was finished, polished and extrinsic stains were incorporated in the prosthesis to match patients shade. Auricular stent was sterilized, and delivered to patient (Figure 8). Patient was educated regarding the

postinsertion handling, insertion and removal and post-insertion maintenance & care of the stent (Figure 9).



Fig. 5: Wax pattern on master cast

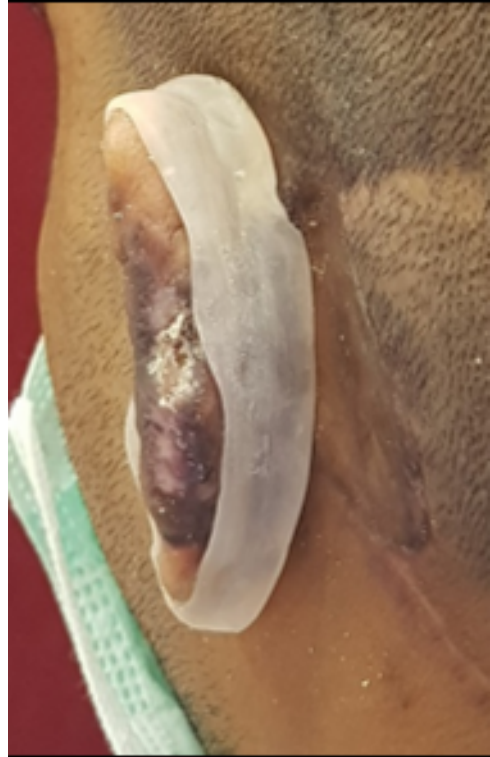


Fig. 7: Trial of Auricular stent



Fig. 6: Flasking of wax pattern

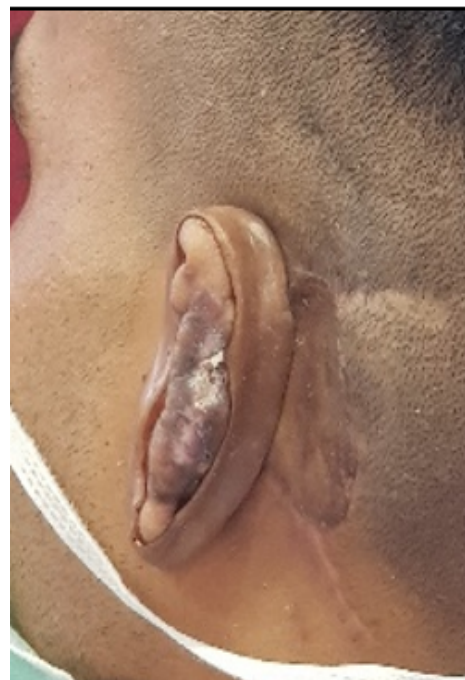


Fig. 8: Stent in situ

3. Discussion

After post-surgical reconstruction of auricle, the challenges a prosthodontist faces are the post-surgical contracture

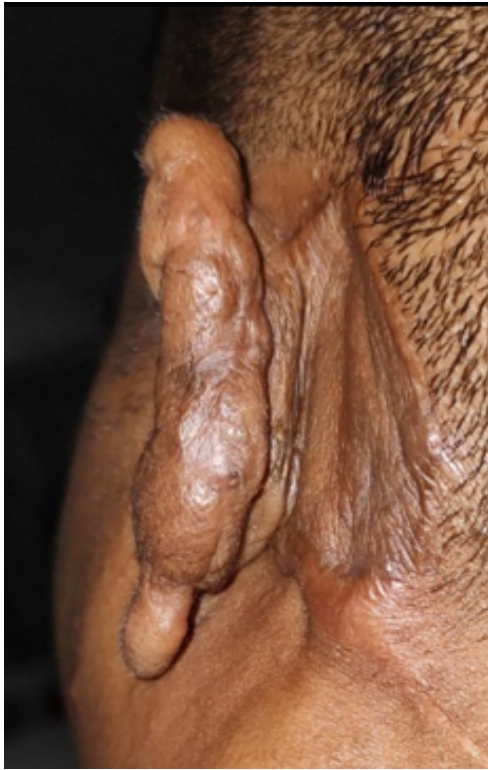


Fig. 9: Post-Op view

and obliteration of auriculocephalic angle. The benefit of the early treatment with an auricular stent following reconstruction of an auricular defect is of paramount importance for the success of surgery, future definitive rehabilitation & psychological well-being of the patient.⁸ An auricular stent should be strong enough to resist distortion, light in weight, comfortable to wear, and easy for the patient to apply, and remove.^{2,9} It must provide uniform space for the maintenance of auriculocephalic angle while also prevent post-surgical contracture and afford normal form.¹⁰ It should also be inexpensive, easy to fabricate, aesthetically acceptable, and easy to clean.^{2,9} The procedure described here for fabricating auricular stent was primarily to maintain auricular cephalic angle and preventing post-surgical contracture. This technique is simple and yet a very important one. The patient was examined at two-week intervals. The tissue acceptance of the prostheses was excellent barring very minimal inflammatory response initially.

4. Conclusion

Auricular stents are useful adjunct in maintaining auriculocephalic angle and reduce post-surgical tissue contracture thus restoring proper form and contour to the reconstructed tissue which aids in better retention of

a maxillofacial prosthesis at a later stage of prosthetic rehabilitation.

5. Conflict of Interest

The authors declare no relevant conflicts of interest.

6. Source of Funding

None.

References

1. Chalian VA, Bennett JE, Sayoc AM, Ghalichebaf M. Auricular compression stent. *J Prosthet Dent*. 1985;54(4):560–3.
2. Beumer J. Rehabilitation of facial defects. Beumer J III, Curtis TA. Maxillofacial rehabilitation prosthodontic and surgical consideration. 3rd Edn. Quintessence Publishing Company; 2011. p. 255–310.
3. Berghaus A, Toplak F. Surgical concepts for reconstruction of the auricle. *Arch Otolaryngol Head Neck Surg*. 1986;112(4):388–97. doi:10.1001/archotol.1986.03780040028007.
4. Gupta L, Pujary P, Agarwal P. Lobule separator prosthesis to prevent adhesion of reconstructed ear lobe. *J Indian Prosthodont Soc*. 2016;16(4):405–7. doi:10.4103/0972-4052.167950.
5. Gillies HD. Plastic surgery of the face. vol. 1920. London: Oxford University Press; p. 381–7.
6. Armin BB, Ruder RO, Azizadeh B. Partial auricular reconstruction. *Semin Plast Surg*. 2011;25(4):249–56. doi:10.1055/s-0031-1288916.
7. Carl JA, Haug SP. Facial Prosthesis Fabrication: Technical Aspects. In: Taylor TD. Clinical Maxillofacial Prosthetics. 2ndn. Ed Berlin: Quintessence Publishing Company; 2000. p. 233–44.
8. Pradeep KC, Mohammed SM, Anisha M. Fabrication of postsurgical auricle separator stent in reconstruction of the ear. *J Prosthet Dent*. 2017;117(4):566–8.
9. Converse JM. Reconstruction of the auricle. *Plast Reconstr Surg Transplant Bull*. 1958;22(2):150–63.
10. Kumar P, Shah P. Preauricular flap for post burn ear lobe reconstruction - a case report. *Burns*. 2000;26(6):571–4.

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