

Auricular Splinting Following Severe Facial Burn Injury and Reconstruction

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Objectives

- Understand the design and fabrication of auricular splint for the purpose of preserving reconstructive surgical efforts
- To understand the specific construction of an auricular splint to position and provide benefits of silicone to maintain position of the ear lobe

Introduction

With a severe facial burn, injury often involves the ear(s) resulting in damage or loss which may require reconstruction. In consideration of the functional and psychological effect that loss of a defined ear lobe may entail, reconstruction is an important consideration for the burn survivor. In this specific case, an auricular contracture release was performed with a transposition flap to bilateral ears.



Preservation of the auricular reconstruction is accomplished by implementing necessary splinting. The auricular splint fabricated was made from a combination of silicone and low-temperature thermoplastic material. The splint maintains the space between the ear and head to properly position and prevent contracture through the healing and scar maturation process. It is secured with a one-inch head band that is sublime enough to foster compliance with wear. The auricular splint material also serves as scar management with the many proven benefits of silicone.

Methods/Design

The auricular splints were fabricated to stabilize and preserve the reconstructed ear lobe. The wear schedule was intermittent during the day and overnight in combination with scar massage. The patients reported good compliance with wear and stability of splint position with overnight wear. Skin integrity was not compromised with overnight or intermittent wear. The splint fabrication process is reviewed and illustrated with a simplistic innovative end result that is user friendly.

Materials Needed

- Low Temperature Silicone Lined Thermoplastic Splinting Material
- 1" Soft Strap
- Measuring Tape
- Adhesive Velcro
- Scissors



Fabrication/Instruction

Preparation for Fitting of Auricular Splint

- Measure total length and width of patient's ear. Add about an inch on all sides.
- With silicone side down, cut ear opening according to ear length measurement.
- The opening should be placed off center to allow for double the width of material posteriorly.



Fitting of Auricular Splint

- With Silicone side of material against side of face and head, mold onto patient keeping material in contact with ear, head and neck at all times.
- Create a lip of material posteriorly to support ear in position away from head/neck.



Securing Auricular Splint

- Adhesive Velcro added to posterior aspect of each splint
- Loop soft strap on one side and use 2-sided Velcro on the opposite side to loop secure the anterior strap
- This will allow for adjustment in tension to adjust strap for secure fit once donned



Completed Splint

- Measure area between ears posteriorly and anteriorly to determine amount of soft strap material needed
- Landmarks written on straps to indicate left/right as reference for donning



Recommend Wear Schedule

- Consider post-operative healing stage of ear/head/neck in contact with splint.
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- Regardless, begin with 2 hours and perform skin integrity check.
- Wear schedule was initially 2 hours on/off daily and progresses to overnight wear as the scabs were debrided to reveal epithelialized tissue.



Results /Findings

Surgical reconstruction was required following development of auricular contractures and partial loss. With post-operative bandage removal and wound closure, positioning was a necessary consideration to preserve post-surgical reconstruction.

Conclusions

Despite our best efforts of prevention with dressings, positioning, splinting and patient education, scar contractures do occur. In consideration of the functional and psychological effect that loss of a defined ear lobe may entail, reconstruction is an important consideration for the burn survivor. Effective splinting is necessary for the preservation of surgical reconstruction and to prevent contracture from sabotaging surgical efforts.

In conclusion, the peri-auricular splint is fabricated with low temperature splinting material lined in silicone proved worthy for effective positioning and reported comfort with wear.