Bilateral Single Sitting Myringoplasty Using Tragal Cartilage from One Ear

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Abstract Though single sitting myringoplasty using temporalis fascia under general anesthesia has been documented in many studies, but ours is the first center to have started using tragal cartilage harvested from one ear to do bilateral myringoplasty in one sitting using local anesthesia with excellent results including very good graft uptake rate and audiological improvement without significant complications.

Keywords Myringoplasty · Tragal cartilage · Temporalis fascia

- easy availability at the site of operation
- non-toxic
- less extrusion
- minimum shrinkage, and lateralization
- very cost effective
- done under local anesthesia
- maintains its rigid quality and resists resorption and retraction, even in the cases of severe eustachian tube dysfunction
- better cosmesis
- stable and resistant to negative middle ear pressure

Background

There are several advantages of single sitting bilateral myringoplasty using tragal cartilage from one ear under local anesthesia over the conventional unilateral techniques.

Main advantages of single sitting include the following:

- single hospital stay, resulting into less expenses and less off from school of children
- reduces the waiting list for surgery
- less morbidity
- less post-operative uneventful period
- no pre-operative and post-operative complications of general anesthesia

Advantages of tragal cartilage from single ear include the following:

Pre-Operative Case Selection

Adult patients with dry bilateral central perforation of the tympanic membrane showing mild to moderate conductive hearing loss (30–40 dB) are selected. Ears should be free of infections, patients are counseled regarding the output and single sitting techniques, written consent is obtained. Routine blood and urine investigations and pure tone audiogram are obtained. Patient is admitted 1 day prior to the surgery.

Procedure

Local infiltration is given with 2% xylocaine with 1:100,000 epinephrine at the site of harvesting the tragal cartilage around the incision line and all the walls of the external auditory canal. Operative site is cleaned and draped. Injection ceftriaxone 1 gm bd is started. A generous tragal cartilage with perichondrium graft is harvested from one ear. A cut through the skin and cartilage is made on the medial side of the tragus of one ear, leaving 2 mm of

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cartilage in the dome of the tragus for cosmesis. The tragal cartilage is harvested together with the perichondrium. The edges of the perforation are scrupulously denuded to promote good capillary blood flow. All tympanic membrane remnants with tympanosclerosis are removed. The middle ear is explored and any pathological material is removed. The graft is cut into two halves, one half is placed sterile myringoplasty set for the other ear. Using a beaver blade, a 2 mm circumferential incision is made on the cartilage to create a groove with an appearance similar to the wings of a butterfly. After the perforation rim is freshened, the cartilage graft is anchored onto the perforation similar to a tympanostomy tube. Tragal cartilage myringoplasty is done

using butterfly technique or inlay technique. Pledgets of Spongostan® are placed over the graft for stabilization. Wound is dressed and mastoid bandage is applied covering both ears.

Patient is routinely kept on antibiotic for 10 days. During stay in ward, alternate day mastoid dressings are done. Patient was sent home after 7th post-operative day, after removal of ear pack on 5th day. Then, the follow up is on 2nd, 3rd week, 2, and 6 months. On each visit, complications if any are noted, and pure tone audiogram is performed at 2–6 months. Figs. 1, 2, 3, 4, 5, and 6

Progress

Preoperatively patient showed bilateral mild conductive hearing loss, of about 36 dB in right ear and about 35 dB in

Fig. 1 2 months post-operative left ear tympanic membrane with the graft

Fig. 3 4 months post-operative right ear tympanic membrane with the graft

Fig. 2 2 months post-operative right ear tympanic membrane with the graft

Fig. 4 4 months post-operative left ear tympanic membrane with the graft

Fig. 5 Pre-operative pure tone audiogram (PTA)

Fig. 6 2 months post-operative pure tone audiogram (PTA)

left ear on pure tone audiogram. Postoperatively after 2 months, patient showed marked improvement in hearing. Her thresholds were 15 dB for right ear and 13.3 dB for left ear. During post-operative follow up, the graft uptake was well without any complications.

Outcome

Results analyzed in this case showed excellent graft uptake, without any complications, with excellent hearing improvement.