



RESEARCH ARTICLE

OVERLAY MYRINGOPLASTY- TECHNIQUE REVISITED AND REDEFINED WITH ENDOSCOPE

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ABSTRACT

Overlay myringoplasty is a time tested method to repair perforated ear drum. Underlay techniques for myringoplasty has become the preferred technique due to complications in overlay method like lateralization, blunting and epithelial pearl formation. In this paper we describe how the use of endoscope has helped in preventing the complications in overlay method and the advantages of endoscope in dealing with perforations of various sizes and locations.

INTRODUCTION

Myringoplasty is the surgery to repair a perforated ear drum. Overlay, underlay and interlay are the techniques used, based on the placement of graft lateral or medial to the annulus tympanicus, or between the fibrous and mucosal layers of remnant drum respectively (Singh, 2003 and She, 2008). With the advent of tympanoplasty, ossiculoplasty techniques pioneered by wullstein and zollner underlay myringoplasty has be-come the preferred method to close the perforation as the middle ear can be assessed and dealt with at the same time. But in situations like poor Eustachian tube function, medialized handle of malleus, tympanosclerosis of remnant drum underlay technique had its own pitfall. In this context we revisit the over-lay method with the help of endoscope, and how complications were avoided.

could not be introduced along with size 18 suction tip) were excluded. Cholesteatoma cases and actively dis-charging central perforation cases were not included. All patients underwent PTA before the planned surgery and paper patch test was done. Patients who had residual AB gap after paper patch test were not offered overlay grafting and were hence excluded from this study. Adult patients between the age group of 18-50 without any co morbid factors were selected. Institutional ethical committee approval was obtained.

MATERIALS AND METHODS

50 cases were selected for overlay myringoplasty. All patients had central perforation. Inactive and quiescent cases were selected. Patients with ear canals that were very narrow less than 6 mm in its widest diameter (where 4mm endoscope

Table 1. Success rate in study group

		Male	Female	%
	Total	28	22	100
overlay myringoplasty	Success	28	21	98
	Failure	0	1	2

Description of technique

Premedication with injection fortwin and phenergan was given as per the weight of individual. The ear was prepared with betadine skin prep solution. Thorough wash of ear canal was done with normal saline. Inj.2% lidocaine with 1:200000 adrenaline loaded in 2 ml syringe with 26 g 1 1/2" needle. Local anaesthetic medication was injected first in the posterosuperior aspect of ear canal and subsequent infiltrations were given in four quadrants of ear canal taking care not to raise a bleb. Injections were given till adequate hydro dissection was achieved. so that some amount of injected

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solution seeped through the perforation. The meatal skin was elevated till the sulcus was reached, the epithelial layer over the remnant ear drum was carefully elevated leaving behind the annulus (Fig. 3). A freshly harvested temporalis fascia was placed between the fibrous layer and the meatal skin epithelial layer (Fig. 5). Dry compressed bit of gel foam was placed to recreate the anterior angle. Bits of saline soaked gel foam were placed in the graft perforation interface to secure the graft in its position and to prevent migration (Fig. 7).



Fig. 1. Preoperative picture showing central perforation



Fig. 2. Incision made to raise tympanomeatal flap



Fig. 3. Separating fibrous and meatal skin epithelial layer



Fig. 4. After raising 360 degree tympanomeatal flap



Fig. 5. A freshly harvested temporalis between the fibrous layer and the meatal skin epithelial layer



Fig 6. Repositioning tympanomeatal flap



Fig. 7. Gelfoam kept finally in the graft perforation interface

Subtotal perforation

360degree flap elevation was done, trans tympanic and trans perforation examination with endoscope was carried out to assess the middle ear and ossicular status (Raj et al., 2001 and Yadav, 2009).

Tympanosclerotic patch on remnant drum (myringosclerotic patch)

Epithelial layer was diligently elevated taking care not to button hole. Graft was placed between the fibrous layer that is involved with tympanosclerosis and epithelial layer (Singh et al., 2003; She et al., 2008).

Anterior quadrant perforation

Trans perforation endoscopy with 2.7 mm paediatric endoscope was used for assessment of middle ear, (Tarabichi, 2012).

Tips to prevent complications and failure

- Anterior blunting: The graft and tympanomeatal epithelial flap should be repositioned in such a way that the anterior angle is recreated which is further secured by placing a compressed bit of dry gel foam, the anterior angle bulge which impedes from getting a clear view in conventional technique is not a problem with endoscope due to its wide angle and panoramic vision.
- HD camera with diligent and meticulous dissection and separation of epithelial layer taking care not to button hole the flap avoids epithelial pearl formation
- Fresh wet temporalis fascia graft is used which has greater adhesive property and strategic placement of saline soaked gel foam in the graft perforation interface helps in preventing migration of graft thereby reducing chance of graft lateralization.

RESULTS

We had 98% success rate in closing the perforation in our technique. one patient developed perforation as she developed chicken pox on the 9th postoperative day. She underwent overlay myringoplasty six months later which was successful. No patient developed lateralization, blunting or epithelial pearl formation. Most of the repaired drum developed cone of light after 3 months.

Conclusion

Endoscopic overlay myringoplasty (11) (13) is an excellent method to close tympanic membrane perforation. patients who are planning a career in armed forces can be operated using this technique as it seems to recreate a natural tympanic membrane. We suggest that this technique of closure should be offered to patients as it gives correct and consistent results.

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