Endoscopic Management of Chronic Otitis Media and Tympanoplasty

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KEYWORDS

• Tympanoplasty • Endoscope • Tympanic perforations • Chronic otitis media

KEY POINTS

- The endoscope allows for better inspection for cholesteatoma in cases with chronic otitis media.
- The endoscope increases the odds of preoperative detection of ossicular chain disruption associated with perforations.
- The endoscope allows better access to selective epitympanic poor ventilation and secondary selective chronic otitis media.
- The endoscope allows for better visualization of anterior poor ventilation of the mesotympanum and reestablishes adequate ventilation to the mesotympanum.
- The endoscope allows better visualization and reconstruction of anterior tympanic membrane perforations.
- The endoscope allows use of Sheehy's lateral graft tympanoplasty through a transcanal approach.

Videos of endoscopic detection of stapedial reflexes; endoscopic medial graft tympanoplasty with ossicular reconstruction; two for endoscopic medial graft tympanoplasty; endoscopic butterfly button tympanoplasty; endoscopic lateral graft tympanoplasty; and interlay tympanoplasty techniques accompany this article at http://www.oto.theclinics.com/

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INTRODUCTION

As discussed in the article elsewhere in this issue by Tarabachi, Marchioni, Presutti, and Nogueira, Endoscopic Transcanal Ear Anatomy and Dissection, the endoscope allows greater access to the tympanic cavity[1] and therefore offers a fresh outlook on conditions that affect this space and offers distinct advantages in the understanding of this condition and the management of its sequela.

ASSESSING STATUS OF MIDDLE EAR VENTILATION

Although the cause of chronic otitis media without chlolesteatoma is poorly understood, poor ventilation of the different air spaces within the temporal bone is believed to be at the center of this disease process. Combined tympanomastoidectomy with exenteration of air cells is considered the treatment of choice. Failure to exenterate tegmental cells from disease is a common cause of failure.[2] The endoscope allows for expanded access to the attic, especially anteriorly, and this allows for removal of any granulation tissue in that area.[1] Beyond any Eustachian tube dysfunction, there are multiple opportunities for obstruction within the narrow ventilation pathways of the tympanic cavity, which result in selective poor ventilation of the areas proximal to these sites. The 2 main areas lie anteriorly within the anterior mesotympanum and posteriorly and superiorly within the epitympanic diaphragm, 2 areas that are more accessible with the endoscope.[1] Classic surgical approaches to the attic with microscopic transmastoid technique results in poor access to the anterior attic and extensive removal of much of the associated anatomy to access these areas. In contrast, the endoscope offers clear glimpses of the anatomy and disease without undue disruption of the anatomy, making it easier to understand both the underlying anatomy and any disease process within this area.[1–6] This situation is particularly true when considering the tensor fold. Because of the location and orientation of this fold, it is a structure that cannot be seen through traditional microscopic transcanal and transmastoid approaches to the anterior attic.[7] The only exception to this situation is a widely opened facial recess, and only after removal of the incus. It is often helpful to push the handle of malleus laterally for a more open view. This observation of the tensor fold is usually made more difficult while operating on diseased ears because of the existing medialization of the handle of malleus and the fact that blood tends to pool in this area because of the position of the head in traditional mastoid surgery. The endoscope allows for inspection of this fold in healthy ears by using a 30° endoscope and looking through the isthmus (**Fig. 1**). In diseased ears, the isthmus is obstructed and narrow because of medialization of the handle of malleus, and the tensor fold can be visualized endoscopically either by looking superiorly and posteriorly with an angled scope that is positioned anterior to the handle of malleus (**Fig. 2**) or by looking forward with an angled scope after removal of the incus and ahead of malleus (**Fig. 3**).

Examination of the tympanic cavity in the clinic through perforations is helpful in assessing the status of the middle ear mucosa beyond the perforation and the presence of inflammatory webs in the anterior epitympanum as well as any obstruction of the isthmus, which can result in recurrent episodes of drainage or poor response to local treatment.[3] The endoscope allows for better surgical access to the tensor fold and the anterior epitympanic space to establish ventilation without disrupting the ossicular chain.[1]

ASSESSING THE STATUS OF THE OSSICULAR CHAIN

The incudostapedial joint and the stapes suprastructure are almost universally accessible for inspection endoscopically through a perforation or a thin retracted