

THE ANTERIOR TYMPANOTOMY

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The mesotympanum can be approached by the two well known approaches, i.e. (1) the (per meatal) tympanotomy, by lifting the posterior annulus tympanicus and (2) the posterior tympanotomy, via the facial recess. Based on surgical experience of 1113 cases, this paper describes in detail the advantages, uses, limitations, possible complications, etc., of an (as yet) anonymous approach to the middle ear i.e. approaching the middle ear by lifting the anterior annulus tympanicus. The paper recommends a possible new nomenclature so as to avoid confusion in our understanding of the terminology.

The Technique : An incision is made on the anterior canal wall about 4 mm lateral to the annulus form say 1 O'clock position to 5 O'clock position for the right ear. The meatal skin is lifted, in the usual way, off the anterior bony canal till its medial limit of the anterior annulus tympanicus. The anterior annulus is exposed along its entire length before lifting it off from the sulcus tympanicus. It is advisable to begin by lifting the anterior annulus off the anterior sulcus from its superior extent to avoid a possible injury to an unnoticed anomalous internal carotid artery. The rest of the annulus is then lifted of the sulcus and the middle ear is approached.

The Advantages : While doing tympanoplasties, the following advantages of the anterior tympanotomy are observed :

1. *View of the aural end of the eustachian tube :* The approach gives an excellent view of the aural end of the eustachian tube. By tilting the head of the patient the whole cone of the aural end of the eustachian tube can be fully visualized via the anterior tympanotomy (fig. 1).

2. *Disease Removal :* If any pathology is found in and around the tubal orifice in the form of granulations (fig. 2), tympanosclerosis etc., this can be very well removed under direct vision. Removal of a few bits of granulations or any other pathology from around the mouth of the eustachian tube can make a vital difference in the success of the surgery.

3. *Firm Anterior Anchorage of the Graft Material :* One of the common reason for the failure of the

present techniques is absence of firm anterior anchorage to the graft. By slipping the graft under the anterior tympanomeatal flap, the graft gets a *very firm series of 1113 cases, there has been only one failure due to loss of the anterior anchorage* (Table I). This patient had an extremely thin anterior meatal skin and during the post operative period she had total necrosis of the anterior tympanometal flap with loss of the anterior anchorage of the graft. This seems to have resulted in a remnant anterior perforation.

Table I
Remnant Anterior Perforation in Tympanoplasties Experience with 1113 Cases

Total Cases	Remnant Ant Perforation	Percentage
1113	1	.09%

4. *Avoidance of blocking of the eustachian tube by the graft material :* If the anterior end of the graft falls medially, as it would invariably happen if the graft is not anchored anteriorly, the graft tissue itself may block the middle ear aeration by blocking the aural end of the eustachian tube, particularly during the healing phase, when the graft becomes oedematous. By firm anterior anchorage, this can certainly be avoided.

The Disadvantages : There is such no disadvantage of the anterior tympanotomy, but if the graft material is anchored anteriorly, as suggested earlier, at times we see at the end of the healing process a mildly lifted annulus off its sitting in the sulcus. This observation under

microscope has as such no influence on the hearing acuity nor does it cause any symptom. This is not blunting of the anterior tympanomeatal angle. Also in the present series not a single case of graft cholesteatoma was observed.

Table II
Findings of Pathology in the Cone of Eustachian Tube

Pathology	No	%	Surgical Intervention
Normal	570	51	Nil
Mucosal Oedema	301	27	Nil
Granulations	233	21	Removal
Tympanosclerosis	5	.4	Scraping
Cholesteatoma	2	.2	Removal
Bony Shelf	1	.1	Drilling
Anomalous ICA	1	.1	Nil

The findings : In a series of 1113 cases the observations made are listed in Table II.

Of the total 1113 cases, 241 cases, i.e. 22% needed active surgical intervention around the mouth of the eustachian tube after visualization of the disease process around it. This is substantially a large number to be neglected. In



Fig. 1 : Microphotograph (left ear) of the view of the cone of eustachian tube through the anterior tympanotomy

general, not doing anterior tympanotomy routinely is the reason for ignorance about the disease process around the aural end of the eustachian tube.

One particular case is of great interest. A patient had two previous ear surgeries by an experienced surgeon. On both the occasions following the surgery, the patient had dry ear for

about a year, to be followed with otorrhea. When the patient was seen in this clinic he had a retracted tympanic membrane with a posterior perforation. During surgery, after performing an



Fig. 2 : Microphotograph (left ear) of the Granulations in the cone of the eustachian tube seen through the anterior tympanotomy

anterior tympanotomy, he was found to be having a bony shelf was drilled and the mouth of the eustachian tube was completely bared. Since surgery, now 3 years, the patient is asymptomatic and has normal looking non retracted tympanic membrane.

The Danger : Anomalous placed internal carotid artery can be a real danger and should always be kept in mind while doing the anterior tympanotomy. It is for this reason that the lifting of the anterior annulus tympanicus should begin from its superior extent so as to avoid a possible risk to the anomalous artery.

The Limitations : Patients having a very large bulge on anterior canal wall, or with very curved canal have rather thin or very thin anterior canal wall skin. It is then at times difficult to lift such thin anterior meatal flap without the risk of tearing it.

The Nomenclature : It is appropriate to discuss the nomenclature at this juncture so as to avoid confusion. The site of lifting of annulus tympanicus should carry the name of the tympanotomy accordingly. Thus, (permeatal) tympanotomy should be named as posterior tympanotomy since it is the posterior annulus tympanicus which is lifted. In the present paper since it is the anterior annulus tympanicus which is lifted, it should be named as the anterior tympanotomy. Since approach via facial recess

is medial, it should be named as medial tympanotomy. See Table No. III.

Table III The Nomenclature of the Tympanotomy		
Approach	Presently Accepted	Suggested
Lifting Post at Facial Recess	(Permeatal) T'Tomy	Post T'Tomy
Lifting Ant at	Posterior T'Tomy	Medial T'Tomy
Lifting Inf at	Anonymous	Ant T'tomy
	Anonymous	Inf T'Tomy

(Key — AT : annulus tympanicus ; T' Tomy : Tympanotomy)

The Conclusion : The approach has not been described elsewhere previously, and the nomenclature (The Anterior Tympanotomy) is likely to cause confusion. To avoid this a new nomenclature has been suggested. The purpose of presenting this paper is to highlight the simplicity and the utility

of the Anterior Tympanotomy. Further advantage of having no complications in a large series makes it all the more viable. The paper also forcefully puts forth, based on surgical data, that a lot of cases having pathology that need surgical intervention around aural end of eustachian tube (22% in the present series) go unnoticed, if we do not do anterior tympanotomy routinely while doing tympanoplasties. And above all the single most important aspect of the anterior anchorage of the fascia grafts, with prevention of blocking of the eustachian tube due to the graft material itself, has been vividly proved by the large series with only one (0.09%) failure due to loss of anterior anchorage. The new nomenclature is worth considering, if the "anonymous" tympanotomy becomes popular with the operating surgeons.

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References

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