

## **Glasgow Temporal Bone Skills Course**

### **INTRODUCTION**

The aspiring otologist needs to develop surgical skills in the laboratory prior to entering the operating theatre. This is because the anatomy of the temporal bone is complex and variable. Moreover, surgery on the ear requires mastery of the operating microscope, drill, suction and irrigation plus the use of very fine instruments. No amount of book study, success in examinations or observation of seniors can provide the surgeon with these skills. Only hours of practice in the laboratory on temporal bones can equip the young otologist to confidently and safely operate on the ear.

Previously we used cadaver bones but for the last six years we have used "Pettigrew Bones". These polyurethane castings have advantages and disadvantages. We leave you, the customer, to decide if necessity has been a good spur to invention. Pink food dye has been added to the bones to enhance the bony detail for the photographs.

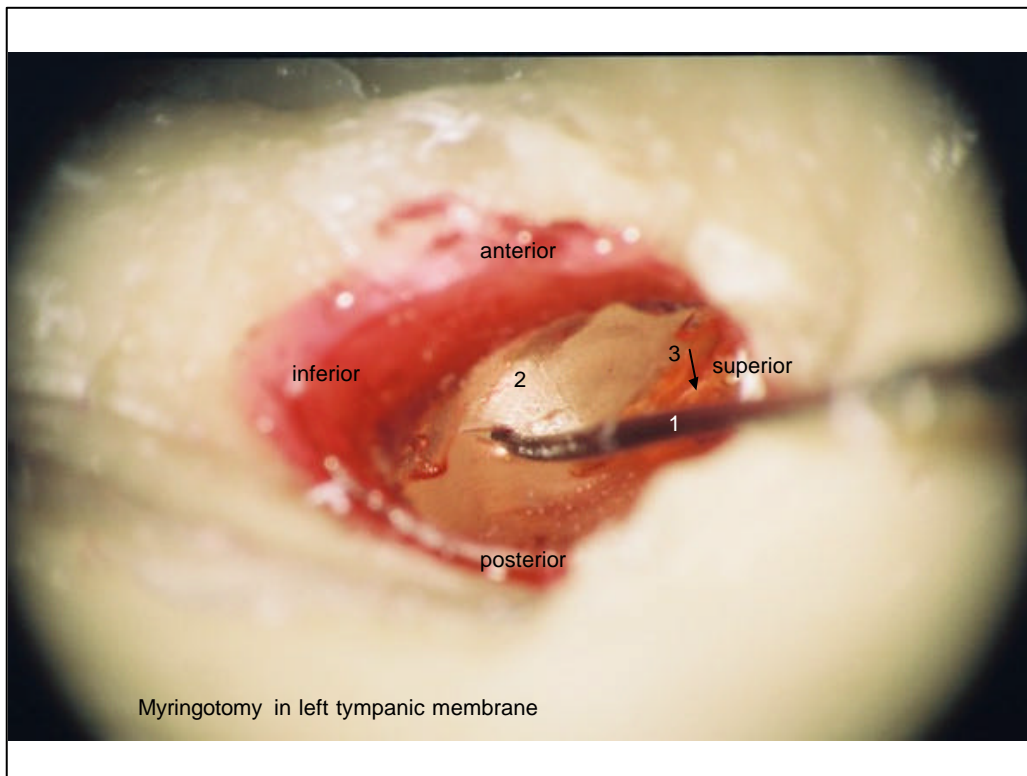


Since the inception of the course in 1976 over 1200 otologists in training have attended. They have taught us the areas where the beginner has special difficulty and we hope each modification to the manual will make the anatomy more comprehensible. The series of procedures described is designed to make best use of a temporal bone. Once you can acquired this collection of skills you can mix and match to meet your particular patient's needs.

The words anterior, posterior, superior, inferior, medial, lateral, are used in the manual presuming the standard anatomical position, with the head erect and facing anteriorly. Terms such as "in front of" or "just below" are confusing anatomical descriptions. Usually a temporal bone laboratory is shared with colleagues. Care for the fine instruments and protect them from damage never misuse or bend an instrument. When you have finished working leave the laboratory clean and tidy for your next colleague - hopefully he or she will do the same for you.

How many temporal bones require to be dissected before acquiring minimum skills to allow you to operate on patients under direct supervision? For some surgeons ten bones are sufficient, for others twenty are not.

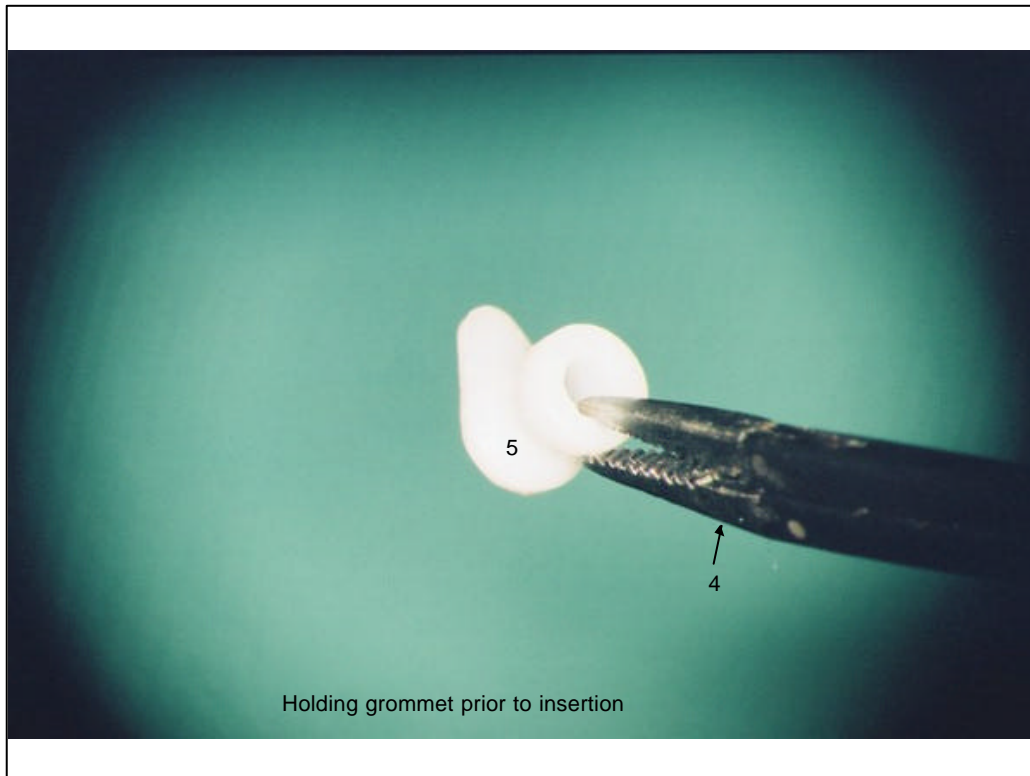
# Insertion of ventilation tubes



**1** Myringotomy knife. **2** Cone of light. **3** Handle of malleus.

#### **Insertion of Ventilation Tubes.**

Organise your operating microscope and the bone to give a view of the anterior part of the tympanic membrane. Make a radial incision anteroinferiorly in the TM about 3mm long. Pick up the grommet with microforceps and insert the anterior edge through the myringotomy. Press the posterior edge and grommet will pop into the membrane.



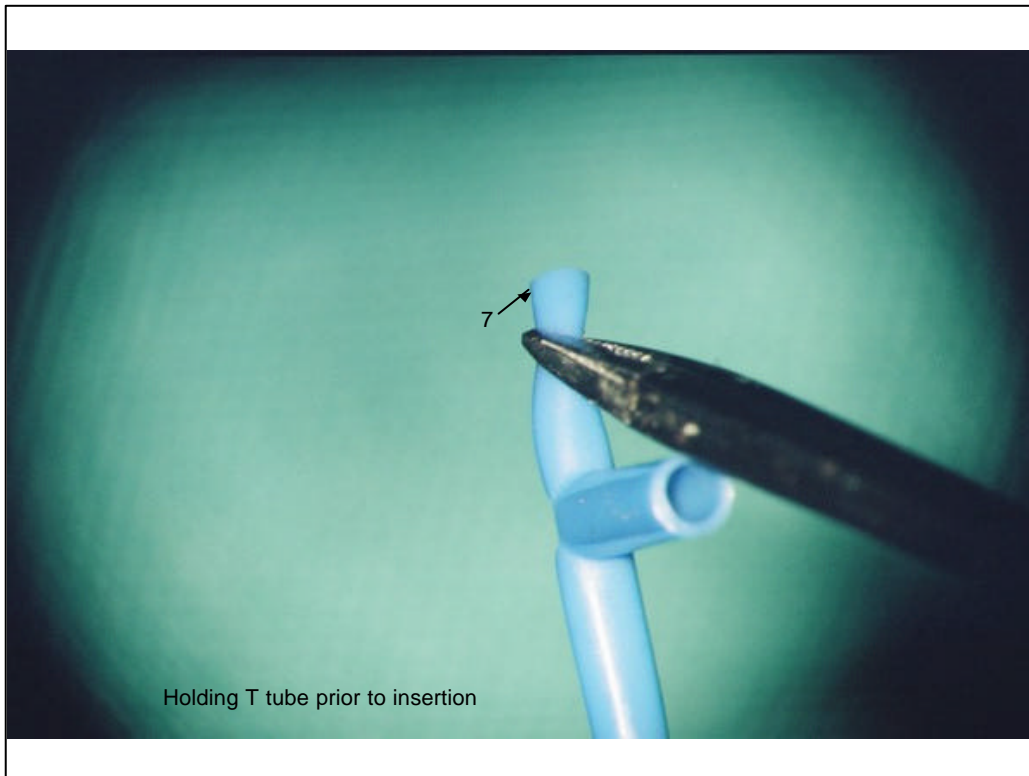
**4** Microforceps **5** Grommet

**Insertion of Ventilation Tubes.**

Pick up the grommet with microforceps and insert the anterior edge through the myringotomy. Press the posterior edge and grommet will pop into the membrane.

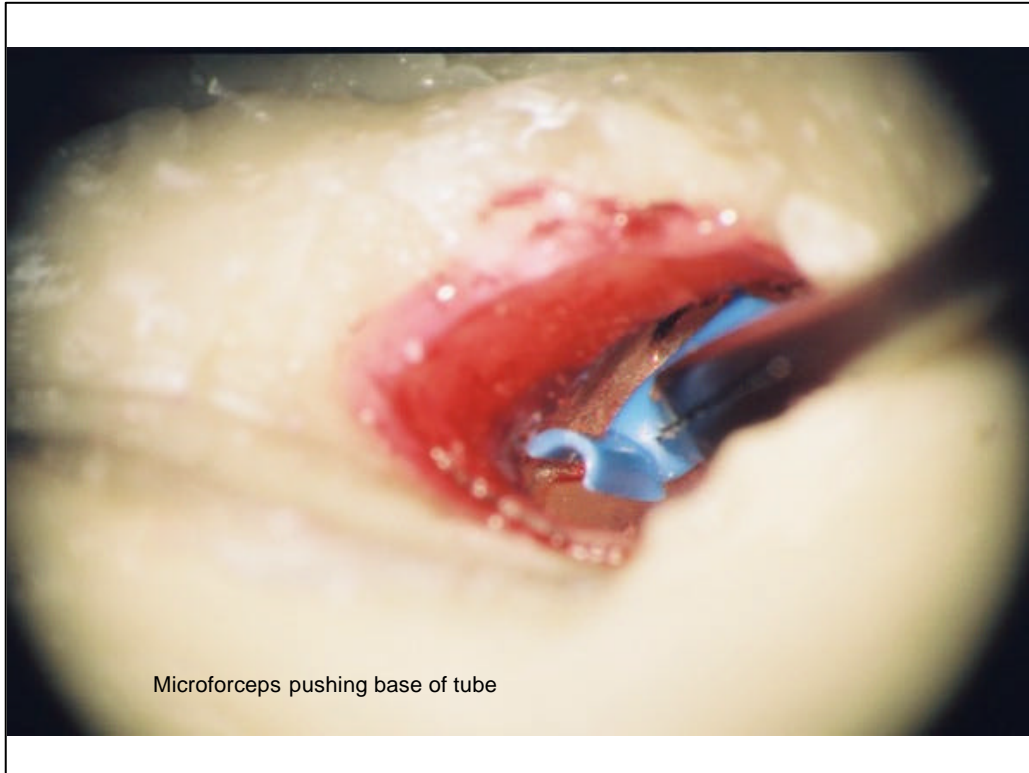


Pick up the grommet with microforceps and insert the anterior edge through the myringotomy. Press the posterior edge and grommet will pop into the membrane.



**7** Leading limb to be inserted first.

Pick up the T tube near the anterior limb and push through the myringotomy.



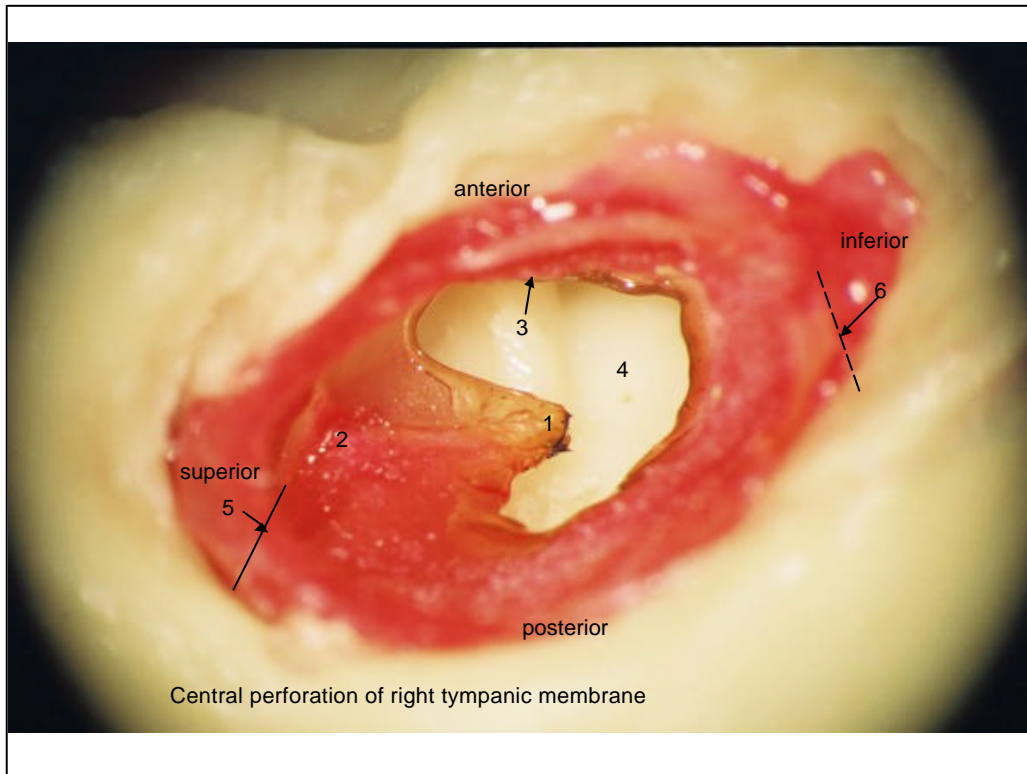
Using the microforceps unopened push the base of the tube anteriorly, stretching the lips of the myringotomy and allowing the posterior limb to slip into the middle ear.





Orientate the tube so that you can grasp the lumen easily with microforceps when subsequently you want to remove the tube.

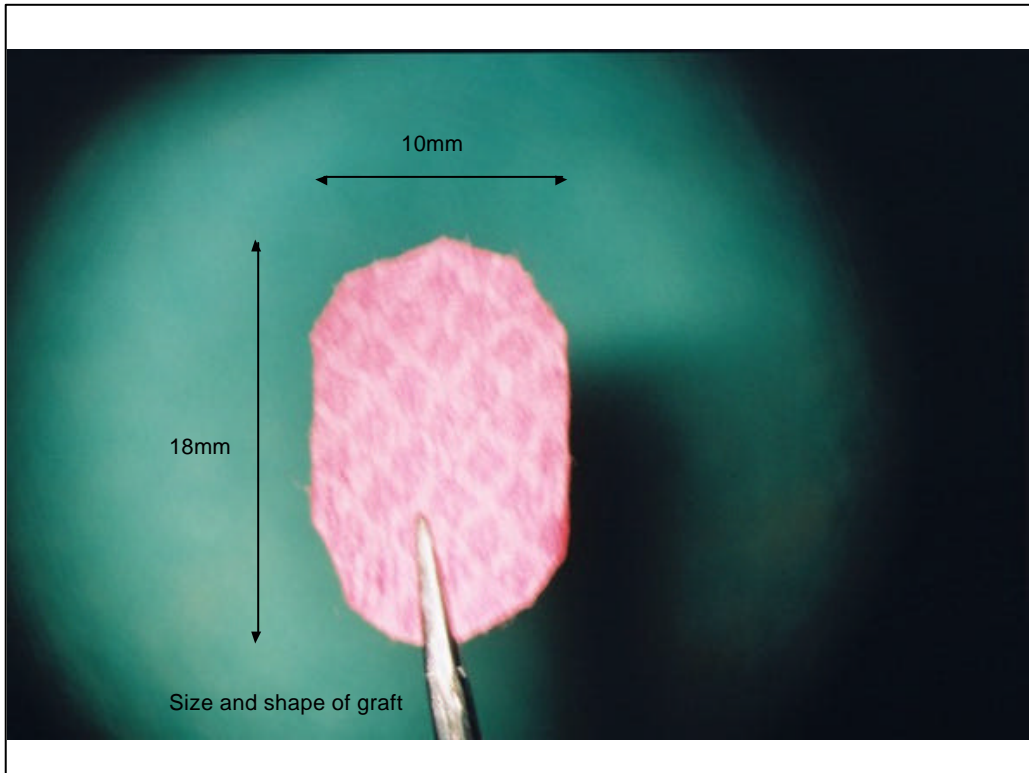
# Myringoplasty



1 Umbo 2 Lateral process of malleus. 3 Anterior edge of perforation. 4 Promontory. 5 Superior longitudinal incision. 6 Inferior longitudinal incision.

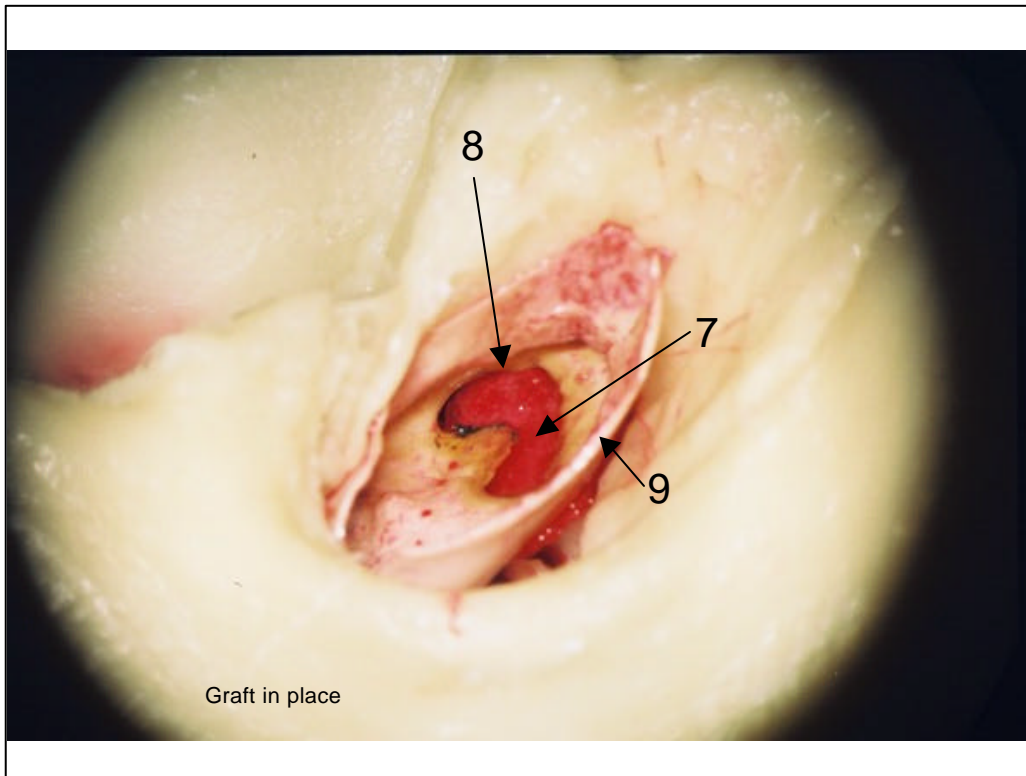
### **Raising a Tympanomeatal Flap**

Change to the bone with the central perforation of the tympanic membrane. Inspect the edges of the membrane then take a forward hook and freshen the edges. Using a Plester knife or scalpel make longitudinal incisions inferiorly and then superiorly from the annulus laterally for about 5mm. Use a Beales' raspator to elevate the skin from the bony canal, adhesions to the tympanosquamous and tympanomastoid sutures may have to be cut with microscissors. Inspect the middle ear, especially the integrity and mobility of the ossicular chain.



### **Myringoplasty**

Take a piece of lamb's fascia (or tissue paper) and holding the anterior edge of the graft with microforceps insert the graft until it can be seen through the perforation. Now take a Beales' and pressing the graft on the promontory drag the anterior part of the graft medial to the anterior remnant of the TM.



**7** Graft. **8** Good apposition anteriorly. **9** Tympanomeatal flap.

Spongastan may be used to support the graft anteriorly. A better way to support the graft is to make a myringotomy in the remnant of the TM either anteriorly or anterosuperiorly and “pull through” the graft thus ensuring good apposition of the graft to the medial anterior margin of the perforation. Use a straight needle with a small “snag” on it to pull a small tag of the graft through. Be careful to disengage the snag or you will pull all of the graft through.