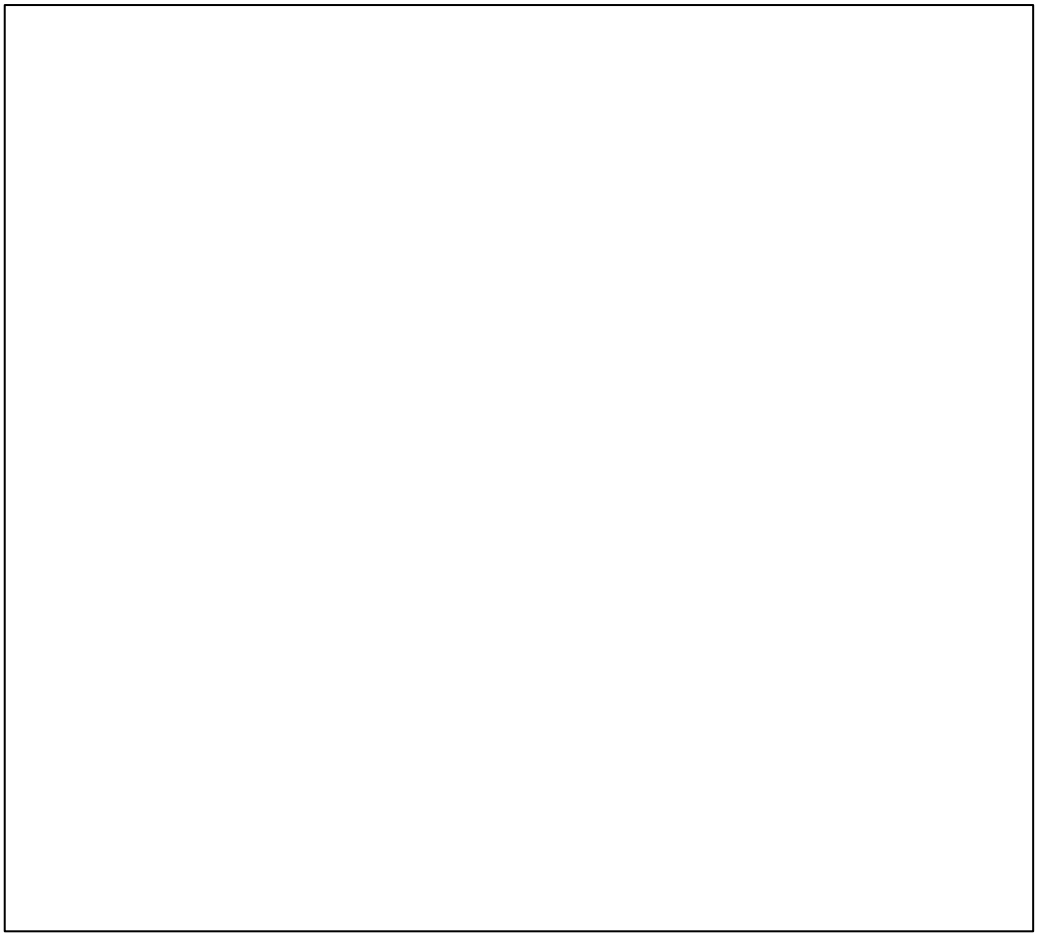
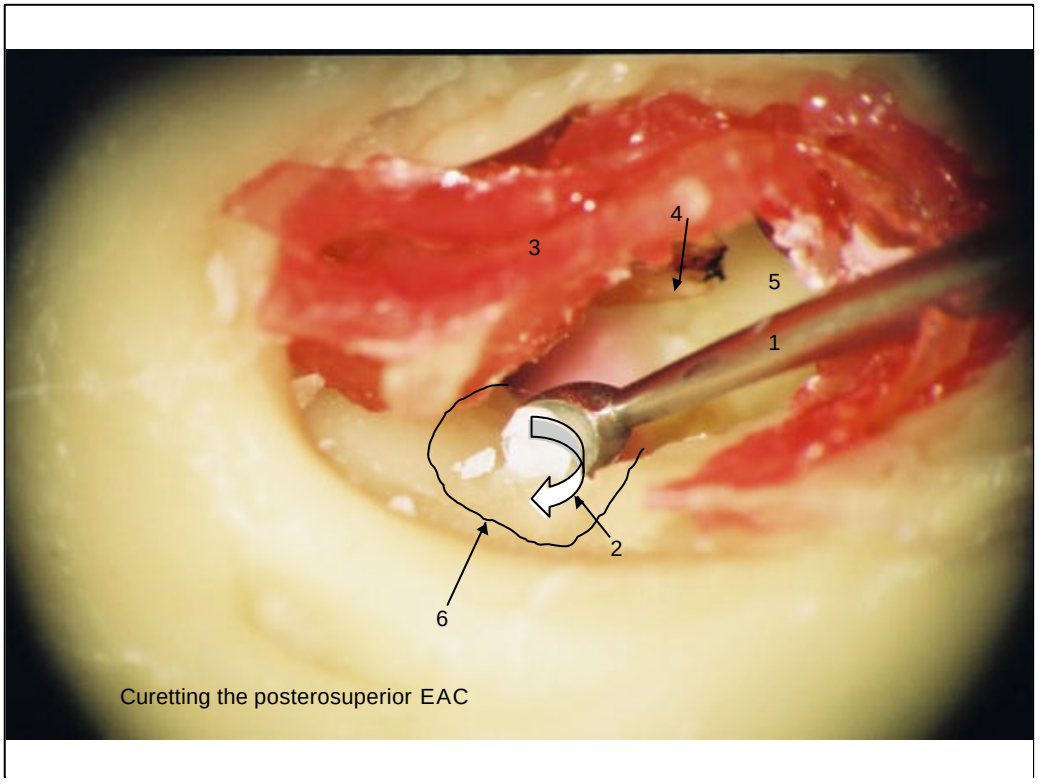
Exposing the stapes

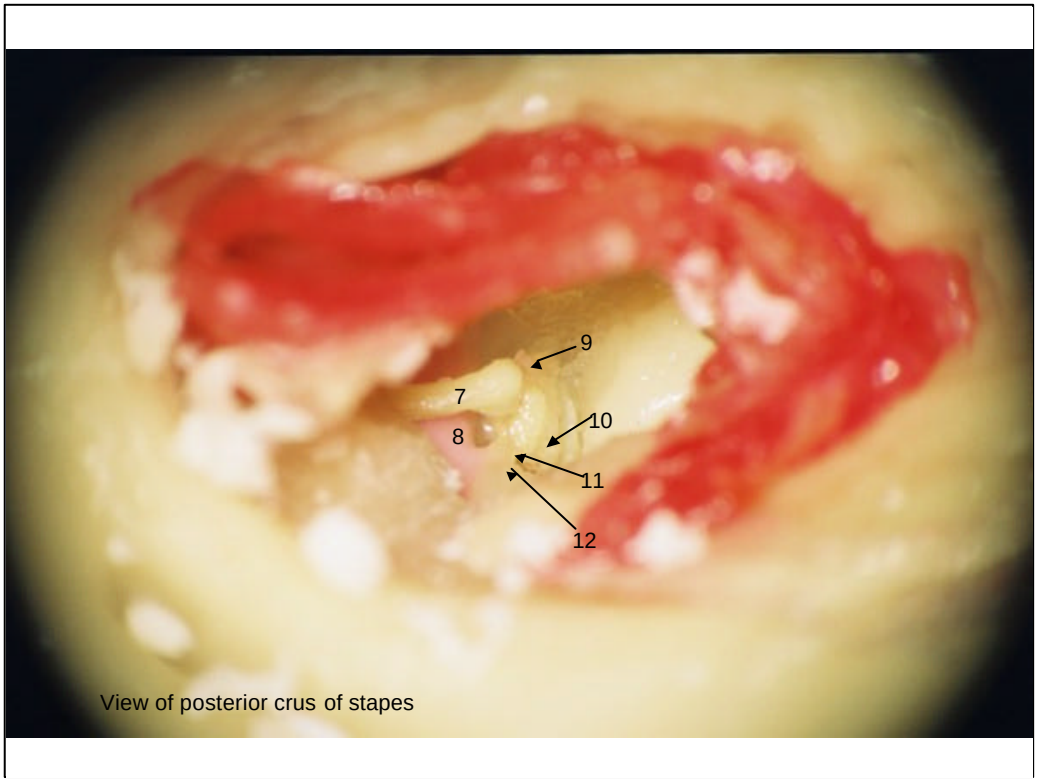




1 House curette. **2** Direction of curette **3** Tympanomeatal flap folded anteriorly. **4** Handle of the malleus. **5** Promontory. **6** Limits of bone removal.

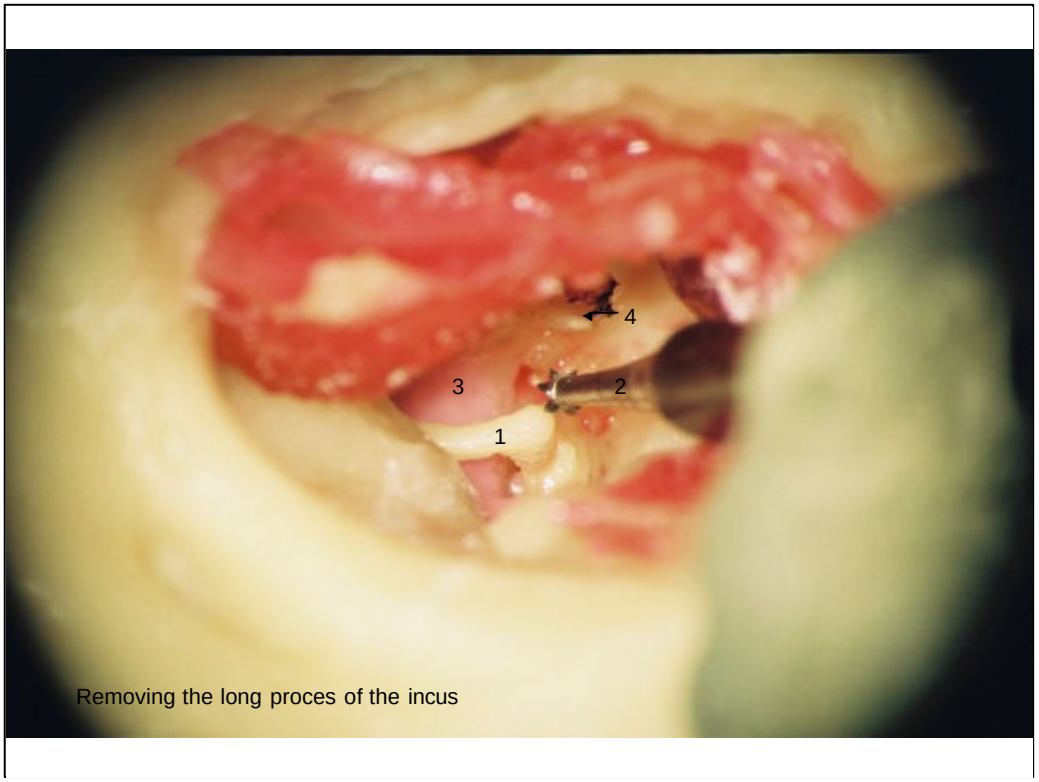
Exposing the Stapes

Remove the tympanic membrane graft. Take a House curette and with a circular motion of the wrist, similar to scooping hard ice cream, remove slivers from the posterosuperior bony annulus. Always use a curette in a fail-safe direction, that is, if the curette slips it will do no harm. In this case the fail-safe direction is laterally along the external auditory canal (EAC). The procedure is complete when you have a view of the pyramidal process.



7 Long process of incus. **8** Horizontal part of facial nerve. **9** Anterior crus. **10** Posterior crus. **11** Stapedius tendon. **12** Pyramidal process.

Ossiculoplasty

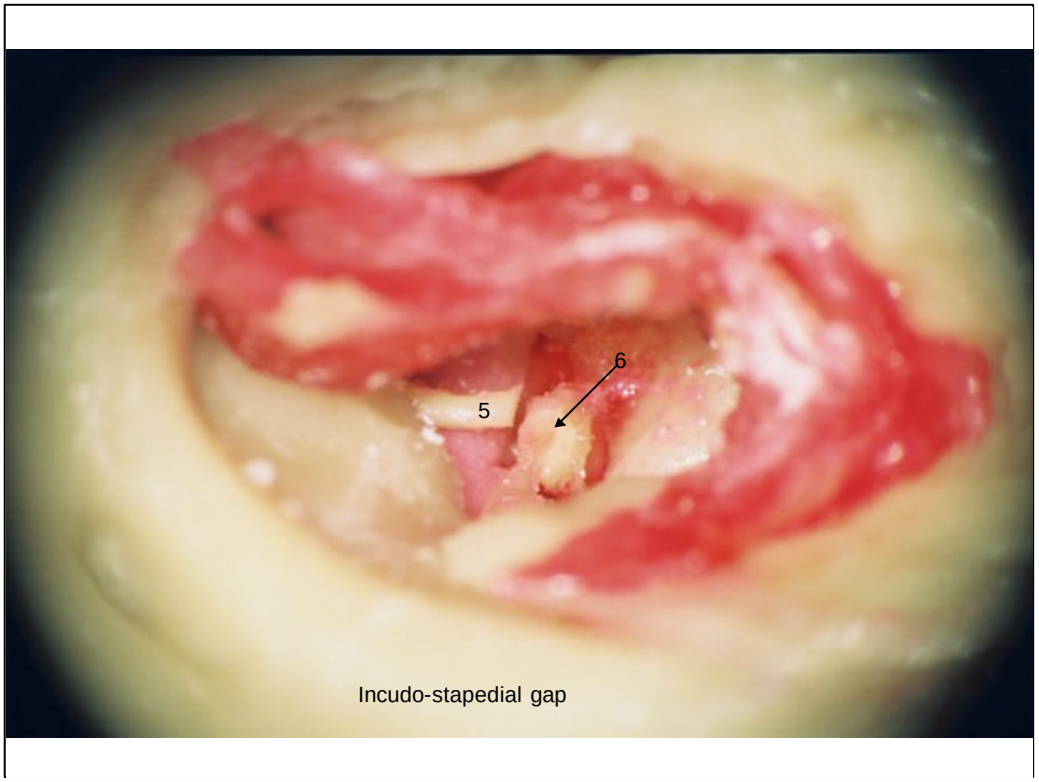


Removing the long proces of the incus

1 Long process of incus. **2** 1mm bur. **3** Facial nerve. **4** Umbo.

Ossiculoplasty

In order to provide ossicular discontinuity we need to remove the lentiform process of the incus. This can be done with the careful use of a 1mm bur or House Dieter malleus nippers. You would **never do this manoeuvre in a patient.** The tympanomeatal flap can be held anteriorly away from the operating field with small artery forceps or a spot of Superglue gel.



Incudo-stapedial gap

5 Eroded long process of incus. **6** Exposed head of stapes.

7 Biocompatible cement

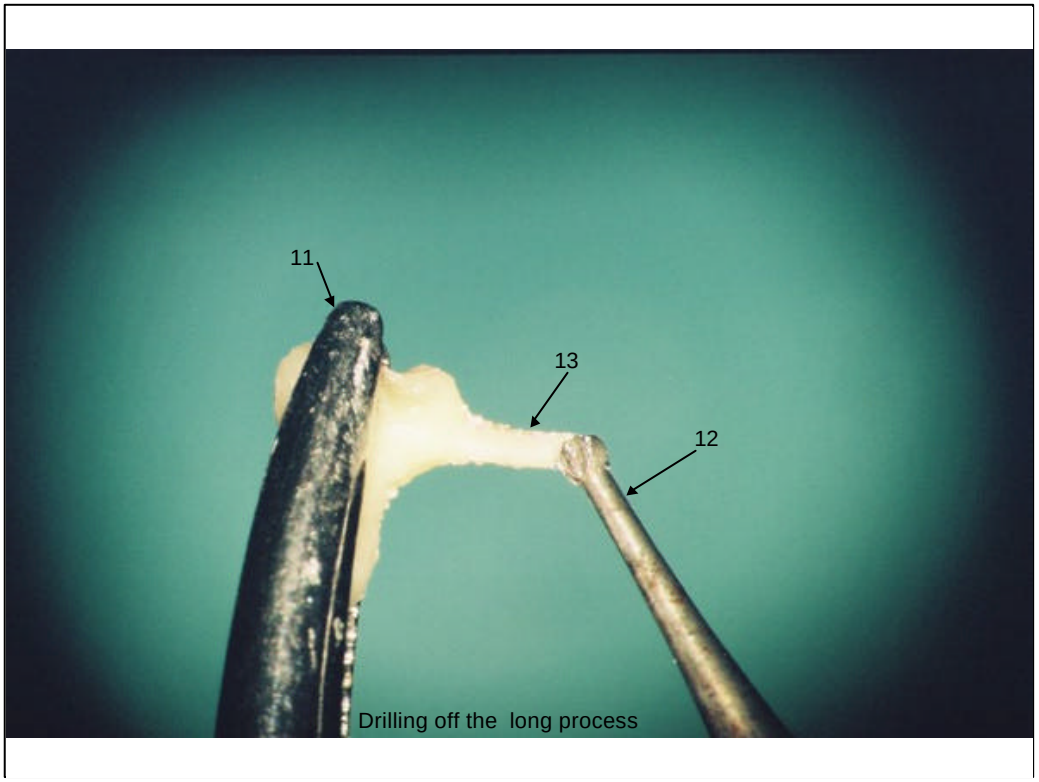
There are many techniques for ossiculoplasty. Biocompatible cement is mixed according to the manufacturer's instructions and a tiny spot is picked up on a whirlybird and stretched across the gap, from the long process of the incus to the stapes head. This manoeuvre is repeated several times during the 5 minute working period of the cement. Wipe the instrument between each pickup of cement. When the cement is set test the integrity of the chain by moving the malleus and watching for stapes movement.

Sculpting the incus

8 Bone to be drilled away. **9** Acetabulum for stapes head. **10** Body of incus to lie parallel to handle of malleus.

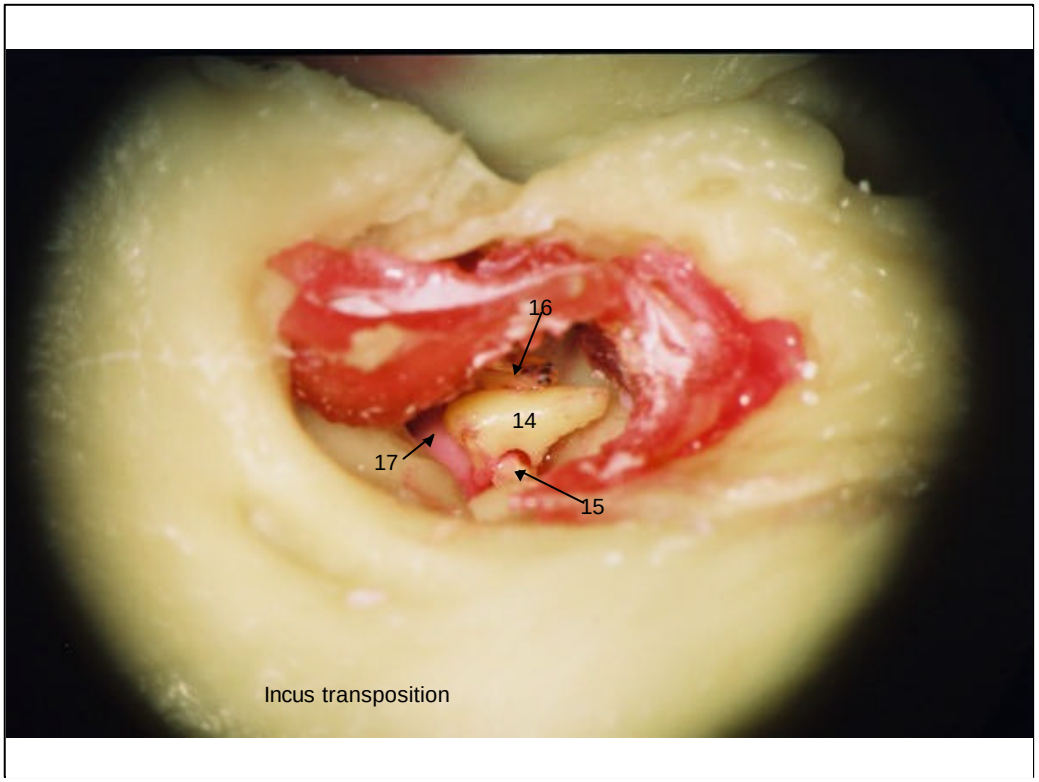
Now remove the incus by removing the cement, disrupting the malleolar incudal joint with a hook, grasping the long process near the body and extracting the body from the epitympanum.

Traditionally incudes have been sculptured to provide an ossiculoplasty prosthesis and each surgeon has his/her favourite design. Hold the incus lengthwise in a fine artery forceps and drill off the long process. Make a 1mm diameter acetabulum for the stapes in the body of the incus.



11 Fine artery forceps (**not** microforceps). **12** 1mm bur. **13** Long process of incus.

Hold the incus lengthwise in a fine artery forceps and drill off the long process. Make a 1mm diameter acetabulum for the stapes in the body of the incus.



14 Body of sculpted incus. **15** Head of stapes. **16** Handle of malleus.

17 Facial nerve.

The sculptured incus will sit atop the stapes with the body lying longitudinally along the posterior surface of the malleus. Make sure the prosthesis does not touch any structure apart from the TM or handle of malleus.