MIDDLE EAR VENT TUBES

Handling aspects
Serous otitis media and the recommended grommet site (no vital structures at risk, little hearing disturbance in this drum quadrant).
Myringotomy technique. The incision is best performed in the antero-inferior drum, to avoid other middle ear structures.
Myringotomy technique for tube insertion

Looking through an operating microscope, the surgeon inspects the eardrum and makes a small incision in it about two to three millimetres long. This is known as myringotomy. Some of the fluid in the middle ear can then be gently suctioned out.
Duberstein phenol applicator (Olympus, Memphis). Saturated phenol solution is held between the prongs. Phenol may cause a temporary slight burn or sting. Avoid its use in children (use EMLA or Bonain’s solution).
Use of the Duberstein phenol applicator. A reflected gleam is seen off the drum just prior to contact, permitting delicate contact. A rapid white spot indicates the anaesthetic area.
Post phenol application to the drum (AOM). Incision with a fine myringotome may induce a painless slight crackle or pop, with immediate release of pressure.
Post myringotomy appearance. A radial incision is preferred to the circumferential; this causes less trauma to the radial collagenous pars tensa middle layer structure.
Application of Bonain’s solution (Cocaine-Phenol-Menthol). The solution takes 15 min +/- for effect but is more suited for children. EMLA is effective but requires suction removal and takes longer.
Drum post-Bonain’s application. The milky anaesthetic spot is less distinct than the phenol mark. Beware films of debris that may render topical applications ineffective.
Healing myringotomy 2/52 after AOM. Incisions frequently heal before the tubal problem clears, thus tube insertion is often preferred. In AOM cases, topical anaesthesia may be ineffective or sting. Quick drainage may be preferred.
3. Improved air flow

The grommet allows air from the ear canal to flow into the middle ear.

Ventilation of middle ear

“Opened” Eustachian tube

Drainage of “glue” down Eustachian tube

 Normally, air ventilates the middle ear by flowing through the Eustachian tube. If the Eustachian tube is not functioning properly, placement of a grommet restores good ventilation so that the thickened and inflamed lining of the middle ear can return to normal. Fluid in the middle ear can then be absorbed into the tissues or drain away.

Grommet placement is a “day stay” procedure, usually taking about 20 to 30 minutes. The child or adult does not feel the grommet sitting in the eardrum.
Insertion of a Shepard pattern tube into the pars tensa.
Shepard tube in situ, trans-tympanic view. A vent tube equalises pressure, preventing OME (in the absence of cholesterol granuloma or some muco-ciliary conditions).
Collar Bobbin in situ. Tubes dispel pressure differential, or drain acute infections. Used for deafness and pain, they alleviate symptoms but do not cure the original causative pathology.
Tube handling versatility. Appropriate direction of insertion may vary, requiring differing grips on the tube. The Collar Bobbin illustrated is optimal in this respect.
In most cases direct insertion along the line of vision is best. A grip on the “heel” of the Collar Bobbin allows the “toe” to be guided directly into the myringotomy
An alternative grip that allows direct “toe” insertion, but results in a bulkier grip that requires care to avoid EAC wall trauma. This grip is necessary on the .75 mm mini-tube.
Alternative grip on the rim of the Collar Bobbin. Handy for anterior drum insertions, but less steady and the angle required must be exact.
Similar offset grip for far anterior insertion or insertion into retracted drums. Less commonly used.
Insertion technique for the Duravent. The anterior flange is used as a “toe” to engage the drum incision. Once applied, the posterior toe is then pushed in.
Duravent insertion. After the anterior flange is inserted, the flexible silicone posterior flange is pushed into the site, not releasing the grip on the rim until sitting is secure.