MASTOIDECTOMY
General Aspects
Mastoidectomy approach, a post-aural incision pattern that permits optimal exposure for most mastoidectomy surgical purposes. A posteriorly placed incision permits best anterior middle ear inspection.
MASTOIDECTOMY
Classification

Intact EAC
- Simple/cortical mastoidectomy
- Combined approach tympanoplasty (CAT) /
  Canal wall up (CWU) mastoidectomy /
  Intact canal wall (ICW) mastoidectomy

Open cavity mastoidectomy
- Radical / modified radical mastoidectomy
- Atticotomy
Incision line for optimal exposure of a mastoidectomy site, passing from a plane superior to the tragus along the hairline to the level of the mastoid tip.
Initial exposure, developed in the avascular plane between skin and periosteum/fascia.
Incision onto bone begins at the zygomatic root above the anterior EAC, but below the superior rim of the root, as the middle temporal artery emerges at this point.
Initial incision onto bone, passing posteriorly, then slightly superiorly, along the line of the supra-mastoid crest.
Second incision along the rear of the mastoid process, outlining an inverted-L flap of mastoid periosteum.
The flap is elevated working antero-inferiorly. In robust males, the inferior extent is best divided off the bone using the flat of a scalpel blade on the bone.
Forwards elevation of the flap, exposing the suprameatal (McEwan’s) triangle and the spine of Henle.
The Temporalis and its underlying pericranium are then elevated intact off the squamous temporal bone, leaving these tissues intact as these may be used for vascular flaps in later repairs.
Elevation of the temporalis soft tissues exposes the root of the zygoma, lying lateral to the site of the attic, thus providing optimal access to disease in this area.
Completed exposure, demonstrating the critical approach to the attic.
Superficial landmarks for initial mastoidectomy surgery: 1 lateral sinus, 2 dura, 3 EAC.
Deeper critical simple mastoidectomy landmarks: Isc, lateral semicircular canal; VII, descending facial nerve; Is, lateral sinus.
Rt simple/cortical mastoidectomy cavity: 1 lateral sinus, 2 dura, 3 EAC, 4 LS-CC.
Critical relationships of the facial nerve and surrounding structures in mastoid surgery. The arrow indicates the site of the posterior geniculate artery that warns of the approach to the genu.
View of the Rt mastoid, aditus and attic, after ICW mastoidectomy. The arrow indicates the geniculate artery at the postero-lateral-inferior corner of the lateral semicircular canal.
Rt Mastoid relationships. The sucker tip indicates the geniculate artery position. D: dura; S: lateral sinus.
Demonstration of the PGA at the posterior genu. The artery is constant except in very stony mastoid cells, varying from a minor blush to a frank arterial spurt in inflamed cells.
Popper/Palva flaps are commonly used to obliterate dead space in mastoid cavities, but are avascular and poorly shaped to adapt to the site.
The wing flap enjoys demonstrable vascular supply and tissue bulk that can be more accurately delivered into the cavity depths, but no flap suffices to fill the largest cavities.
Post-operative mastoidecotomy incision line. This pattern permits better angulation to inspect the Eustachian orifice and also avoids irritation from glasses or webbing in the post-aural sulcus.
Rt “flat ear syndrome” due to collapse of tissues into a mastoidectomy cavity
Past bilateral mastoidectomies. Both auricles flattened against the skull.
Correction/prevention of tissue collapse into the mastoid cavity, using coarse titanium mesh (Jung).
Use of coarse titanium mesh to cover a mastoidectomy defect. A large Palva flap is used to cover the sheeting to minimise the risk of tissue reactions under the wound.
Post-mastoidectomy fistula. Granulations may result from diathermy-related fat necrosis at the inferior end of an incision, but the finding is ominous for deeper infection.
Extensive bruising after a pressure bandage, used over a mastoidectomy site. Blood has tracked in the avascular subcutaneous plane into the neck and face.
Haematoma after mastoidectomy surgery. Protruding auricle.
Post-mastoidectomy haematoma. Lateral aspect.