COMPOSITE CARTILAGE-PERICHONDRIUM MYRINGOPLASTY GRAFTS
General aspects
Early cartilage myringoplasty (Heerman), using tragal cartilage, since refined considerably.
Heermann cartilage palisade technique. This method used strips rather than sheets, aimed to facilitate precise closure, but risked defects and necrosis of the strips.
Heermann palisading technique, leaving the stapes site exposed to permit ossicular reconstruction.
Heermann combined cartilage drum grafting and mastoid cavity obliteration. Autograft grafting is limited by the quantity of cartilage available, particularly in revision surgery.
Cartilage-perichondrial composite grafts, donor sites: 1. inter-crural/triangular fossa, 2. cymba conchae, 3. conchal bowl, 4. tragus.
Tragal cartilage composites. The tragal cartilage is frequently thick, requiring thinning and resultant “curl” away from the cut side. Countered by cross-hatching incisions.

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Cymba conchae and inter-crural fossa donor sites. The cartilage is thin, slightly curved and more suitable for drum repairs. Harvested from a post-auricular approach.
Fashioning a composite graft. Thinning the edges improves audiological function and straightens the graft.

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Techniques to site and fashion a composite. A slot may be created to accommodate the handle of the malleus or a neomalleus strut, sited over the stapes.

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The various graft shapes used to adapt to the site, stiffen the drum, and repair drum defects.
Composite repair of a diffusely retracted drum, if the malleus is intact. The slot for the malleus handle retains overlying perichondrium to stabilise the graft.
Use of composite grafts in combined attic and pars tensa collapse, after loss of the malleus. The attic repair may be onlay, inlay, or in conjunction with HA/titanium support.
“Slab” repair of a hopelessly obliterated middle ear. A thick cartilage graft is used for maximum long term durability.
Composite grafting pattern commonly used in ICW mastoidectomy surgery, sealing the attic, plus combined drum stiffening and prosthetic protection. HA or titanium is used to support the wall repair.
A variety of composite roles for a range of clinical situations. 1. attic. 2. attic + pars-tensa. 3. Posterior drum collapse. 4. Total repair with retained malleus.
Wall erosion/damage/resorption is common in cholesteatoma and ICW surgery. Composite wall repairs prevent recurrent cholesteatoma.
Composite repairs used to stiffen the posterior drum in uncomplicated pars tensa pattern cholesteatoma.
Attic wall composite repairs for attic cholesteatoma. Note that the upper pars tensa should also be stiffened, as this site is frequently weakened during cholesteatoma removal. HA or titanium underlay supports are recommended.
Composite graft protection of an underlying Spanner MSA prosthesis.
A cross-hatched composite overlying an Oval-Top prosthesis. The latter adapt poorly to composite grafts, tending to skid under the usually flat composite undersurface.

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