

- ossicular reconstruction by interpositioning of various ossicular grafts.
- Type 3 : Absent or defective stapedial arch (collumella effect)
- Type 4 : Sound protection of round window with cartilage graft.
- Type 5A : Fenestration of lateral semicircular canal.
- Type 5B : Platinectomy (oval window filled with perichondrium)

VARIOUS GRAFTS USED FOR RECONSTRUCTIVE EAR SURGERY

(1) Natural and (2) synthetic/biomaterials

1. Natural

Four types of grafts can be defined according to the genetic relationship between donor and host:

1. **Autograft:** Tissue transplanted from one part of the body to another in the same individual, e.g. ossicular bone, cortical bone, cartilage and fascia.
2. **Isograft:** Tissue transplanted between genetically identical individuals, e.g. ossicular bone, cortical bone, cartilage and fascia.
3. **Homograft/allograft:** Tissue transplanted between genetically non-identical members of the same species, e.g. ossicular bone, cortical bone, cartilage and fascia.
4. **Xenograft:** Tissue transplanted between members of different species.

Advantages and Disadvantages

A. Ossicles and cortical bone (auto-/isograft)

Advantages

- Best tolerated.
- Least likely to extrude

Disadvantages

- Displacement
- Refixation
- Tendency to adhere to surrounding bone.
- Atrophy

thereby facilitating dissection of the perichondrium from the cartilage as compared to the traditional method. The approach described is technically easier, and removes any potential for cosmetic deformity associated with tragal cartilage amputation and reimplantation. Furthermore, both the anterior tragal perichondrium and the temporalis fascia remain intact, if further surgery is required. We recommend this approach for perimeatal, tragal perichondrial grafting of small to medium sized tympanic membrane perforations.

SURGICAL PROCEDURE

The 1.5 cm incision is made 2 mm medially from the tragal crest line, so the scar will be hidden. The incision extends along the whole crest of the tragus from the helix to the antitragus. The skin is undermined and the tragus is dissected on both its sides as close as possible to the perichondrium. Tragal crescent must be maintained to avoid the tragal deformity (Fig. 7.2).

The whole tragus or only a part of it can be removed by cutting through the areolar tissue and cartilage. The cartilage should not be cut or crushed by scissor but cut with 11 or

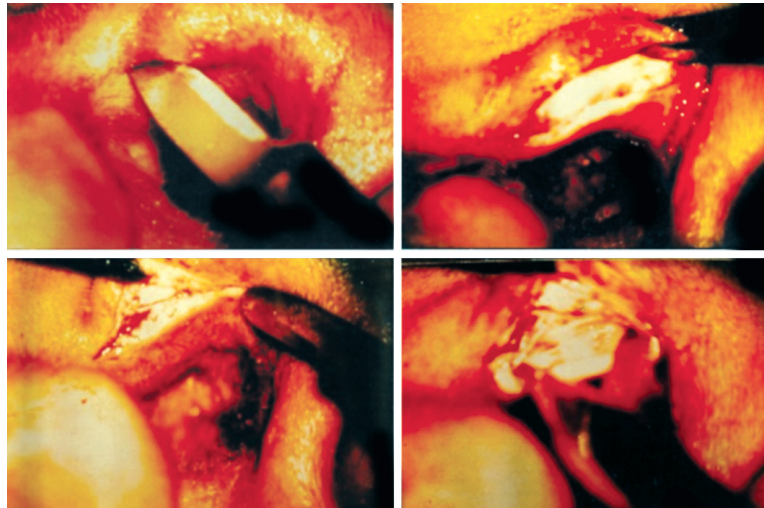


Fig. 7.2. Step-by-step surgical dissection for tragal cartilage perichondrium

membrane with stapes footplate via either an intact or reconstructed ossicular chain.

The detail ENT examination with otomicroscopy and suction clearance to be done preoperatively in each and every case. Medical treatment consists of broad-spectrum antibiotics, antihistaminics and anti-inflammatory drugs along with local antifungal and antibiotic-steroidal eardrops to be prescribed for 4 to 6 weeks prior to planned surgery.

Routine X-rays mastoid, CT scan, audiometry and biochemistry tests and wet gelfoam patch test as preoperative parameters should be done.

Septic foci in tonsils, adenoid and sinuses must be adequately treated for full two weeks before surgical intervention.

Xylocaine sensitivity test must be performed before surgery.

Gelfoam Patch Test

A gelfoam patch test (Fig. 7.4) is extremely useful before operative procedure. The preoperative audiogram is done and second audiogram is repeated after closing the perforation with a moist gelfoam. If the ossicular chain is intact and mobile, the hearing will improve.

The patch test also decides good hearing prediction, which site first to be done.

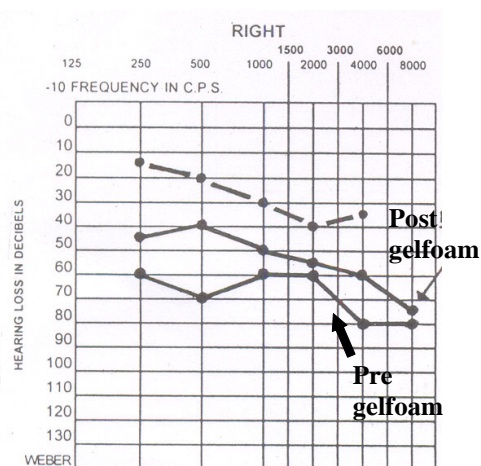


Fig. 7.4. Gelfoam patch test

patients had undergone type I tympanoplasty, and the middle ear pathology was considered to be similar between the two groups. The number of cases was too small for a case-control study.

Gerber studied 11 cartilage and 11 temporal fascia graft tympanoplasties in 2000 cases and observed comparable hearing results in both groups.

In 2004, Anderson performed 32 cartilage and 32 temporalis fascia graft tympanoplasties. He observed a 6% TM retraction in the cartilage group and a 36% TM retraction in the temporalis fascia group.

In 2004, Gieriek performed 112 cases with cartilage and 30 cases with temporalis fascia. He observed that there was no significant hearing difference between the two groups.

In 2005, Couloinger, observed 59 cartilage graft tympanoplasties and 20 temporalis fascia graft tympanoplasties and reported no postoperative hearing difference between the two groups.

Tympanoplasty is a common surgical procedure for treatment of chronic otitis media. Although the temporalis fascia is considered the best grafting material, various surgeons have used alternatives to simplify the grafting procedure. In general, cartilage graft is the most predictable material of choice for ear surgeries and can be used as an alternative to fascia graft.

CARTILAGE TYMPANOPLASTY—OPERATIVE PROCEDURES

In this monograph, mainly four techniques have been described for cartilage tympanoplasty, namely the inlay butterfly graft, perichondrium/cartilage composite island graft, palisade graft, and cartilage shield graft.

Surgical Approaches

1. Post-aural
2. End-aural
3. Endomeatal
4. Transcanal transtympanic
5. Canalplasty in narrow EAC