POSTERIOR CANAL WALL REPAIR AFTER RADICAL MASTOIDECTOMY OPERATION

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SUMMARY

Otologic surgery has gone through a gradual evolution since Wullstein's first use of the word "tympanoplasty" in 1953 (1). During the learning phase, many surgical techniques had been tried, some of which have been abandoned while the others gained common application among many surgeons. Still there is no strict rule for any given technique currently applied.

It is very obvious now that if better hearing results were to be obtained some method of creating a satisfactory middle ear space must be necessary. Most of the surgeons tried to solve this problem by preventing to create an exteriorized cavity. Although this concept led to better hearing results; troublesome complication may be encountered during the long term follow up of these patients.

In current otologic surgery area both open and closed techniques have taken their places respectively, after long term results of these operations reported. Since mid 1960's varios methods of repairing the posterior bony canal wall defects begun to appear on otologic literature.

Various material such as tragal or septal or knee cartilage homologous dura, ceramic bone, compasite graft of tragal cartilage with attached pericondrium, hydroxy apetite were used for repair of these defects. (2-7).

Methods of using bone grafts are various. External tabula of temporal bone, reformed bone chips or bone with fibrin glue can be used (8-10). Even reinsertion of the posterior bony canal wall after en bloc resection was experienced (11,12).

Since 1985 we have been using a simple and effective method of reconstruction of the posterior canal wall defects which were inevitably created to eliminate the disease process; mainly cholesteatoma.

TECHNIQUE

The bony posterior canal wall is preserved as much as possible with a standard closed cavity technique. Open technique is usually preferred in attic cholesteatomas, by following the course already taken by the cholesteatoma itself.

First the tympanomeatal flaps are created superiorly and inferiorly and the osseous annulus of the attic can be drilled away. The bone work is continued by opening up the cavities from front to back. All diseased tissue thus can be removed.

The graft material is obtained from the cortex of temporal bone. After skin incision, soft tissues are removed away until reaching the periosteum. Then self retaining retractors are inserted, incisions are made and utilizing an elevator, the periosteum is dissected free till to the planned bony graft margins. A graft considerably larger than the defect is taken from the external layer of the temporal bone by using fine chisel and mallet. (Fig. I, II).

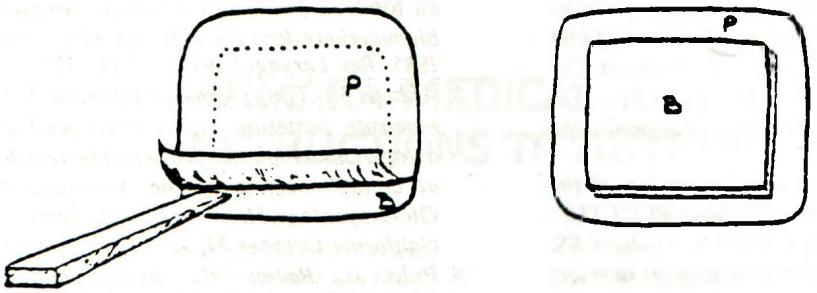

Fig 1. Preparation of composite graft

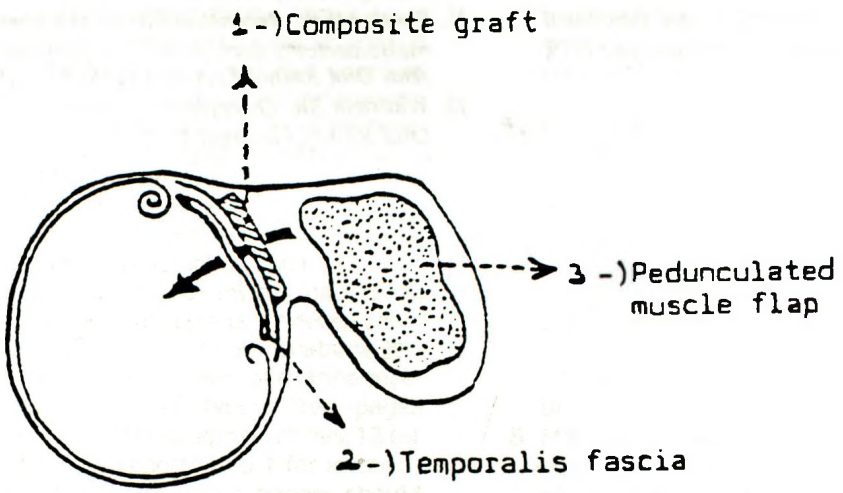

Fig 2. Upper view of graft in position

Mastoidectomy has been performed in the majority of these cases. The composite graft is introduced through the mastoid cavity and the bone is adjusted in position to seal the defect. The surrounding periosteum must lie on the anterioinferior or tympanic aspect of the bony canal wall (9).

If the ossicular chain is not intact, ossicular columella reconstruction is made first, then the middle ear cavity is covered with thin sylatic or teflon sheet. Small gel foam particles inserted on sylastic sheet and then graft is adjusted to seal the bony defect of the posterior canal wall. The tympanic membrane and canal skin flap are then replaced over the composite graft.

Mastoid cavity is obliterated with pedunculated muscle flap and bone dust in all cases.

CONCLUSION

The aim of the repair of these defects is to prevent formation of a retraction pocket and cholesteatoma again. Among various material used for repair of these defects, better results are reported with composite tragal cartilage (9).

There are several advantages of using composite boneperiosteal graft. The attached periosteum helps to anchor the bone to the canal wall and provides stabilization during and after surgery so as not to interfere with ossicular chain and with their function. Besides this periosteum increases the viability of composite bone graft.

Our results are not statistically documented in this report because of insufficient follow up periods of our cases.

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