POST-TRAUMATIC CONDUCTION DEAFNESS

By I. B. THORBURN

FIG. 1 is the audiogram of a man aged 32, when first seen in April, 1955. It shows a bilateral conduction deafness worse in the right ear. He gave a history that deafness was first noted after a severe head injury in 1941. There was bleeding from the left ear for a few days, but no vertigo and no subsequent ear discharge. He considered that the deafness, once it had developed, remained stationary. The hearing in the right ear had been defective since otitis media caused by scarlet fever in childhood, so there was considerable disability.

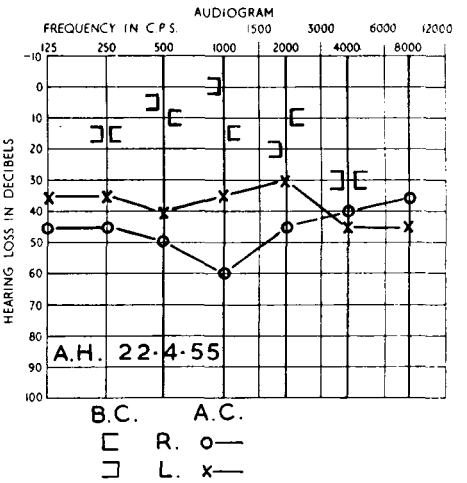


FIG. 1.

Examination showed that the right eardrum was thickened with a large posterior perforation which was occasionally a little moist. The left eardrum appeared intact, unscarred and mobile. Rinne's test was negative in both ears, and Weber was lateralized to the left ear. Absolute bone conduction was normal in both ears for tuning forks 512 and 1024.

On May 16th, 1955, a Wullstein Tympanoplasty Operation, type 3, was carried out on the right ear (Fig. 2). The long process of the incus was defective and this ossicle was removed. The stapes was found intact and showed good transmission to round window. A full thickness skin graft

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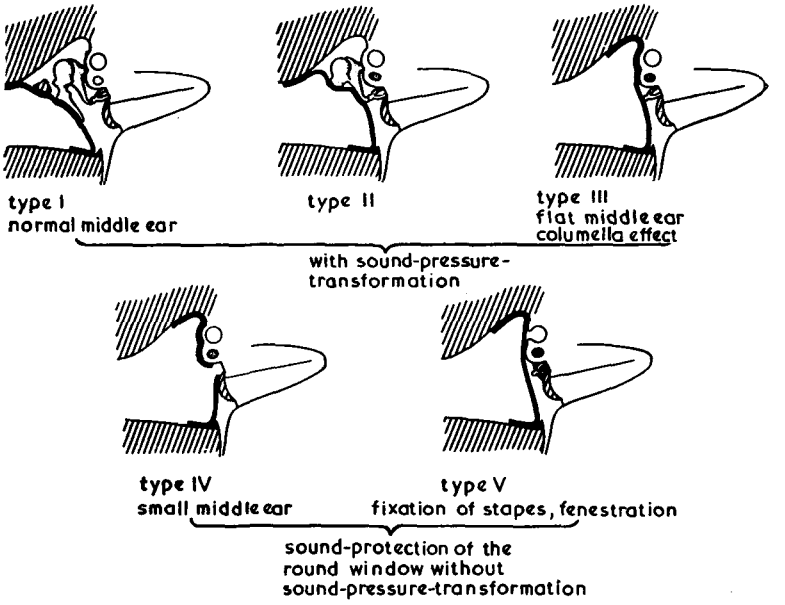


FIG. 2.
(*By courtesy of Prof. Wullstein*)

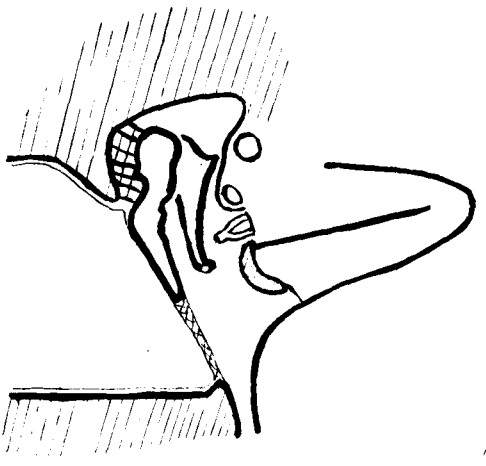


FIG. 3.

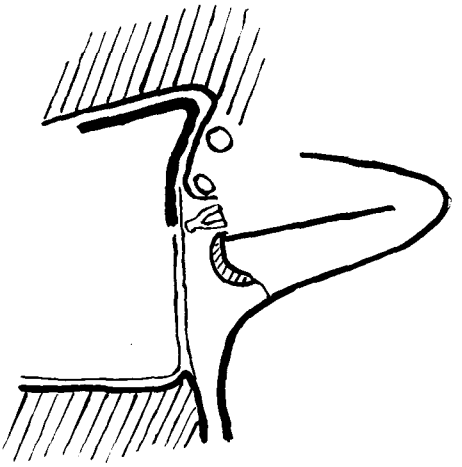


FIG. 4.

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was fitted to close the gap in the drum and make contact with the head of stapes.

A year later the hearing in the right ear, though considerably improved, was still inadequate. Careful examination of the left eardrum now, showed that, although the drum was mobile, the malleus handle was fixed.

On July 2nd, 1956, the left ear was explored. The malleus head was found fixed by ossification inside the attic. The malleo-incudal joint was normal, but the long process of the incus projected beyond the stapes without making contact with it (Fig. 3). It looked as if the incus had been dislocated at the time of his accident. With the incus removed the stapes itself was seen to be healthy, mobile, with good transmission to the round

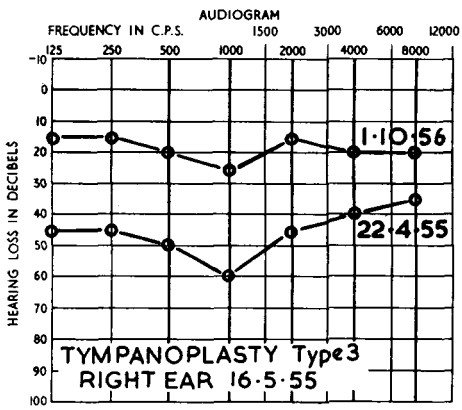


FIG. 5.

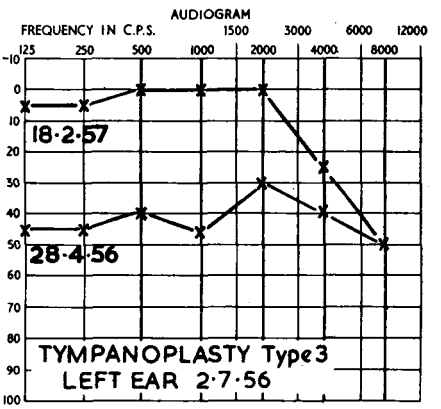


FIG. 6.

window. The head of the malleus was now fractured free and removed. A Wullstein Tympanoplasty, type 3 was completed by mobilizing the drum posteriorly to bring it into contact with the head of the stapes, and closing the upper tympanum with a skin graft (Fig. 4).

Comparative audiograms are shown for the right ear eighteen months after operation (Fig. 5) and for the left ear seven months after operation (Fig. 6).

Comment

I can recall quite a few cases of conduction deafness which had followed head injury. Until I had gained some experience with tympanoplastic procedures, it had not occurred to me that one might tackle some of these cases surgically. Although this case was like an otosclerotic deafness, there was the clear history that deafness followed immediately after the head injury. In retrospect there was also the interesting observation that, although the drum looked normal and was mobile, the malleus handle was

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fixed. This fixation of the malleus (Fig. 3) caused deafness, firstly by immobilizing the ossicle chain and secondly by keeping the drum from making contact with the head of the stapes. In cases of chronic middle ear disease I often have seen fixation of malleus or incus, but I have not previously seen this apparent dislocation of the incus. The healthy state of the tympanic cavity with no fibrosis or mucosal thickening and with freely mobile window function have combined to produce the remarkably good hearing result. Indeed I would consider the conditions in these respects were as near ideal as possible for a Wullstein type 3 Tympanoplasty. By contrast the right ear shows a good result for this operation where the deafness is the result of old standing chronic middle-ear disease.

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