SOCIETIES' PROCEEDINGS

ROYAL SOCIETY OF MEDICINE—SECTION OF OTOLOGY

Discussion on A Case of Traumatic Disruption of the Incudo-stapedial Joint

March 2nd, 1962

WING CDR. P. F. KING: I congratulate the opening speakers on their interesting papers. I am particularly interested in Mr. Ballantyne's paper on ossicular dislocation, and in this respect would like to mention a small series of my cases of this sort which has been reported elsewhere.

I refer to eight cases of ossicular dislocation occurring in a series of 267 ears which I have opened by the permeatal route for conductive deafness. Three of these were due to trauma in the head, one arose from trauma to the ear, two from the effects of previous otitis media and in two the exact cause was obscure, but was presumed to be a slight degree of trauma to the head.

In five cases it was possible, sometimes with difficulty, to re-position the incus on the mobile stapes. In three cases this was not possible and a fair degree of improvement in the hearing was obtained by advancing a tympano-meatal flap to lie on the head of the mobile stapes—thus creating a columellar tympanoplasty.

Cases	Average Hearing Level at 500, 1,000, 2,000 c/s in dB.		Gain in dB.
Re-position	Before operation	After operation	
1	40	7	33
2	42	28	14
3	58	22	36
4	57	28	29
5	60	40	20
Columellar Tympano-plasty			
1	60	23	37
2	62	22	40
3	57	38	19

In the typical case the condition should be suspected with a history of head injury, particularly when a wide air-bone gap is present. In one case it was possible to see the dislocation through the tympanic membrane. In four cases a confident diagnosis was made of ossicular dislocation before operation.

If the condition is suspected it is helpful to cut a long tympano-meatal flap so that there is plenty of tissue to advance into the middle ear if one fails to re-position the incus.

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I consider with an incidence of about 3 per cent. in my cases the condition is not too uncommon, that it should be looked for, and if surgical treatment is carried out, I advocate the use of a long tympano-meatal flap.

(Photographs and slides illustrating typical examples of the condition, together with audiograms and a comparative graph showing the hearing gain achieved in all eight cases, were shown.)

The results are tabulated on page 694.

MR. WILLIAM MCKENZIE said that he had experience of two cases. In the first, the incus returned easily to its original position and the hearing returned to normal 7 years after the head injury. In the second, the incus could not be replaced to articulate with the neck of the stapes, and it was used as a columella to connect the drum with the foot-plate. The result was not a success.

Mr. McKenzie gave a warning of the possibility of other injuries of the temporal bone which might exist in these cases, such as a fracture of the wall of the labyrinth. The use of the hammer and chisel was not advised, because it might damage the internal ear by widening the original fracture, and complete deafness might result. He knew of one case where this had occurred.

Mr. McKenzie referred members to the article by Hough in the *Laryngoscope* dealing with this subject, which showed a large number of coloured photographs.

REFERENCE

HOUGH, J. V. D. (1959) *Laryngoscope, June*, p. 644.

MR. DAVID BAWTREE: I have recently had a case very similar to these already described, but a different form of trauma. A woman aged 32, had her left ear syringed by her doctor 13 years ago for removal of a peanut. Forty-eight hours later she was treated in hospital for severe pain and inflammation involving the tympanic membrane and whole external ear. This rapidly responded to treatment but she has always been deaf since. He saw her recently finding the left tympanic membrane with a healed perforation.

Left tympanotomy was carried out and the distal end of the long process together with the lenticular process of the incus was found missing and there was no contact with the normal stapes. A length of polythene tube bent at one end was slipped over the remains of the long process of the incus so that the bent end was in contact with the stapes.

The patient showed a 30 decibel improvement immediately after operation, maintained so far for 6 weeks.

Discussion on A Case of Traumatic Disruption of the Incudo-stapedial Joint and Discussion on Tympanic Neurectomy

MR. FRANCIS BAUER said that audiograms done the day after an operation on the middle ear, as in the case of the patient with dislocation of the incus, were unreliable. The presence of fluid in the hypotympanum (blood, serum) interfered with transmission of sound through the ossicular chain by conducting the sound

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wave directly to the round window as a kind of fluid "columella". This was probably the reason why patients who had a fenestration of the stapedial foot-plate performed, as suggested by Rosen, could hear for a few days. When the fluid from the middle ear disappeared, deafness returned (Bauer, 1960). At least a week should be allowed to lapse before audiometry following operations on the middle ear, if deceptive results are to be avoided.

One of the most important points in cases of traumatic dislocation of the incus is the fact, that the stapes remains mobile for many years (Bauer, 1958) in Thorburn's case 14 years, in Gisselsson's case 8 years. There is therefore no justification for stapedectomy and these patients should be treated by tympanoplasty type III. The tympanomeatal flap must be cut long enough to allow of its application to the head of the mobile stapes. The results of this treatment are excellent without exposing the patient to the risks of late degeneration of the inner ear, which is known to occur in a certain percentage of cases following stapedectomy.

Concerning Mr. Golding-Wood's paper, Mr. Bauer drew attention to the condition of "Unilateral sweating of the submental region after eating", (Chorda tympani syndrome), (Young, 1956). This is analogous to the auriculotemporal syndrome but concerns the submandibular salivary gland as distinct from the parotid gland. Bauer (1956) and Roland (1956), suggested sectioning the chorda tympani for the relief of the submental sweating and this treatment proved successful (Young and Stein, 1960). Thus the "chorda tympani syndrome" is another condition which is likely to benefit from "tympanic neurectomy".

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YOUNG, A. G. (1956) *Brit. med. J.*, **2**, 976.
———, and STEIN, G. E. (1960) *Brit. med. J.*, **1**, 620.

Discussion on A Case of Traumatic Disruption of the Incudo-stapedial Joint

MR. H. J. M. STRATTON said in view of the rather fragile blood supply to the incus, it may be wiser in cases of traumatic dislocation of the incus, to perform a columella type of operation rather than a reduction of the dislocation, thereby bettering the long-term hearing results.

Discussion on Macewen's Triangle

MR. S. W. ALLINSON: When I operate on the mastoid I find that Macewen's triangle is a useful landmark and I should not personally wish to raise the upper boundary of it. Why should I differ in this respect from the opinion of the Speaker. I think the reason is that when operating on the mastoid I rotate the

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head sideways and allow the head to tilt down naturally or place a pillow under the shoulders to encourage this tilt. In addition, I wish to avoid damage to the dura.

Discussion on Tympanic Neurectomy and Discussion on Bell's Palsy and Early Stellate Block

MR. HENRY VINCENT FORSTER said he believed we should hear at future meetings a good deal more about disorders of the Autonomic Nervous System and their treatment in our department. A severe example of recurrent non-suppurative parotitis was not easily forgotten and he had had to be content to relieve such a patient from time to time during the acute attack by inflation of the duct with alkaline saline but remembering the risk to its branches from undue pressure.

He would remind the President that Mr. Mollison when in the chair some years ago had asked members for helpful suggestions in a particularly resistant case of Secretory Otitis Media. He, Mr. Forster, had found their cause in the adult to be at times uncertain and in one of them, 8 months later, petechiae were seen in the mouth, the patient dying eventually of what proved to be a rare type of white blood cell disease.

Discussion on Bell's Palsy and Early Stellate Block

MR. F. BOYES KORKIS: Thank you for discussing my paper.

I was not aware that any electrical excitability test gave reliable prognostic information as early as the third day. The psychological upset produced in a patient with a sudden and unexpected facial palsy is out of all proportion to the seriousness of the condition and every effort should be made to restore perfect facial symmetry, at rest and on movement, as soon as possible.

The time for treatment should thus be measured in minutes and hours, not in days. A delay of 3 days is far too long and many patients are now seen by me within 24 hours of the occurrence of the palsy, and some within 12 hours. Therefore, the electrical excitability test on the third day is too late to be a guide to prognosis. It cannot be sufficiently emphasized that Bell's Palsy is an emergency, demanding immediate intervention.

The results from the Royal Free Hospital presumably refer to total experience of all cases—complete and incomplete together. In a comparison of recovery rates, the incomplete cases in the series treated by cervical sympathetic blockage (which all recover) would have to be added to the complete cases to give the total recovery rate which would raise the percentage of success to a significant degree.

Cervical sympathetic blockage is such a simple procedure that it can be carried out by anyone with a knowledge of how to use a syringe. It is free from danger, and the injection which only takes a few minutes can be given at the patient's home, workplace or in the hospital out-patient department. There is, therefore, no reason why patients with Bell's Palsy should not receive treatment as soon as they report, and no harm is done if the injections are given while awaiting the results of prognostic tests.

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MR. P. H. BEALES: I would like to refer to Mr. Zalin's paper on the fate of the skin within the mastoid segment.

I think it is now generally agreed that free skin grafts will not survive when applied to the bare bone of the mastoid cavity and so if one is to obtain good healing of such a cavity it is necessary to line it with a flap of skin.

I have used the post-auricular flap which I first described in *1958* with good results for some years. However, this method is a little tedious and for this reason I have been trying the method of filling in the mastoid cavity with a flap of temporalis muscle which Thorburn described last year. I have had experience of about 30 cases treated by this method and there is no doubt that it gives excellent healing. All these operations went well except for my last operation which was a modified radical operation for chronic otitis media. This patient developed the complication of a brain abscess 4 weeks after the mastoid operation.

I think it is important at this stage to be critical of operations which obliterate the mastoid segment and especially of those which fill in the superior aspect of the mastoid cavity, as they may not be as safe as operations which maintain a mastoid cavity which one can inspect.

Mr. Zalin's method is, I think, a good one as a small cavity is left at the end of the operation which can be inspected by the surgeon.

Discussion on Short Papers

MR. H. ZALIN: I am grateful to Mr. Beales for his contribution which supports my own reluctance to regard routine filling of the mastoid as a whole, as being entirely free from risk. We are inclined to forget that the operating microscope is not, in fact, a microscope at all, and that when we have apparently removed all disease from the mastoid there may well be true microscopic pyogenic osteitis still present. Furthermore, whilst infected cells in the retro-facial, sino-dural and tegmental areas are readily accessible and easily exenterated, the same is not true as far as perilabyrinthine osteitis is concerned. Repeatedly one finds infected cells between and behind the vertical canals, situated deeply and burrowing inwards. Indeed in advanced mastoid suppuration the vertical canals themselves are repeatedly found to be eroded and invaded and it is of interest that this occurs entirely without symptoms and signs of labyrinthitis. Removal of the major part of the vertical canals is necessary in the face of such pathology and is not followed by any post-operative vertigo or nystagmus. This localized, chronic, erosive, symptomless suppurative labyrinthitis occurs quite regularly and is a strong contraindication to complete obliteration of the mastoid segment.

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A CASE OF POST-TRAUMATIC CONDUCTION DEAFNESS

By V. T. HAMMOND (London)

We were presented with this case at St. Thomas' early in *1961*. The patient, a woman of *27*, was injured in a road accident in *December, 1957*, and sustained a fractured base of skull involving both petrous bones. Following the injury there was bleeding from both ears and a left C.S.F. otorrhœa which persisted for several days. When, after 4 weeks, she regained full consciousness, it was found that she was very deaf and she was subsequently given a hearing-aid.

When we first examined her in *April, 1961*, she was stone deaf on the left side and had a severe conduction deafness on the right (Fig. 1). The tympanic membranes were intact but there was considerable scarring in the attic region on both sides.

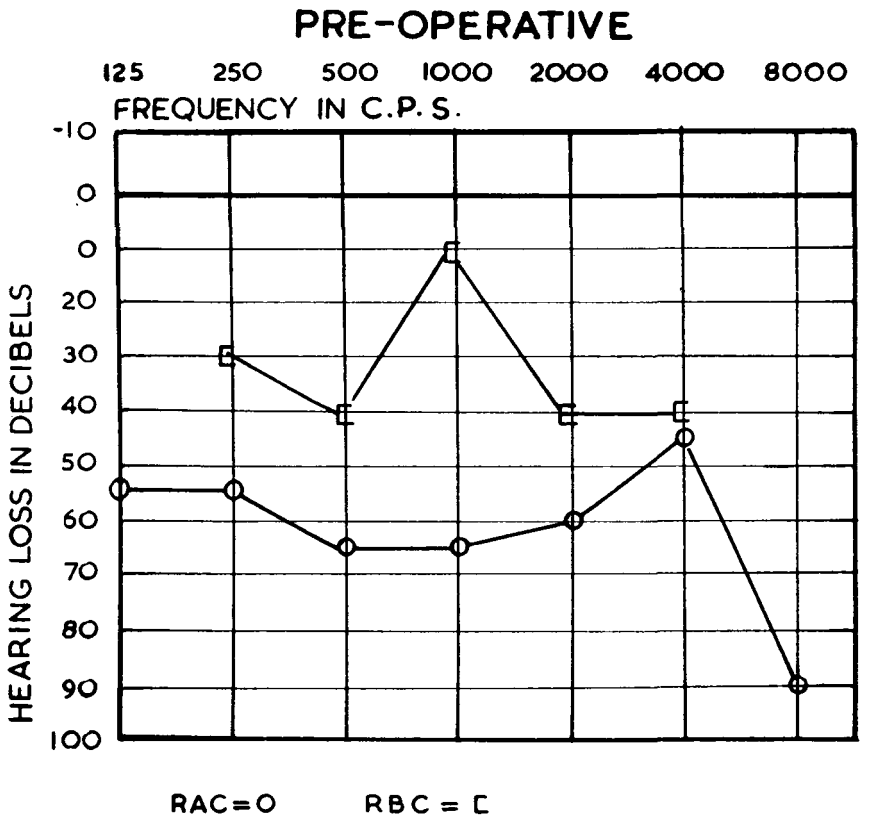


Fig. 1.
The pre-operative audiogram.

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We thought that there was probably a dislocation of the right incudo-stapedial joint and it was agreed that a right tympanotomy should be performed.

At operation it was found that the incus had been dislocated and rotated so that the long process pointed backwards. The incudo-stapedial joint had remained intact but the stapes had been avulsed from the oval window, which was sealed by a sheet of mucosa (Fig. 2). On closer inspection it was apparent



FIG. 2.
A general view of the right middle ear at tympanotomy.

that part of the outer attic wall had been infractured and was lying between the malleus and the incus (Fig. 3).

The fragment of outer attic wall was displaced laterally and after dis-articulating the incudo-stapedial joint it was possible to replace the incus in its normal position. Moving the incus produced a copious flow of C.S.F. from the roof of the attic.

The oval window was cleared of mucosa and the stapes replaced, the incudo-stapedial joint being re-articulated.

The C.S.F. otorrhœa continued for 24 hours post-operatively and then stopped spontaneously.

Fig. 4 shows the post-operative gain in hearing. Since the operation the

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FIG. 3.
The oval window region. Note the bone fragment just anterior to the incus.

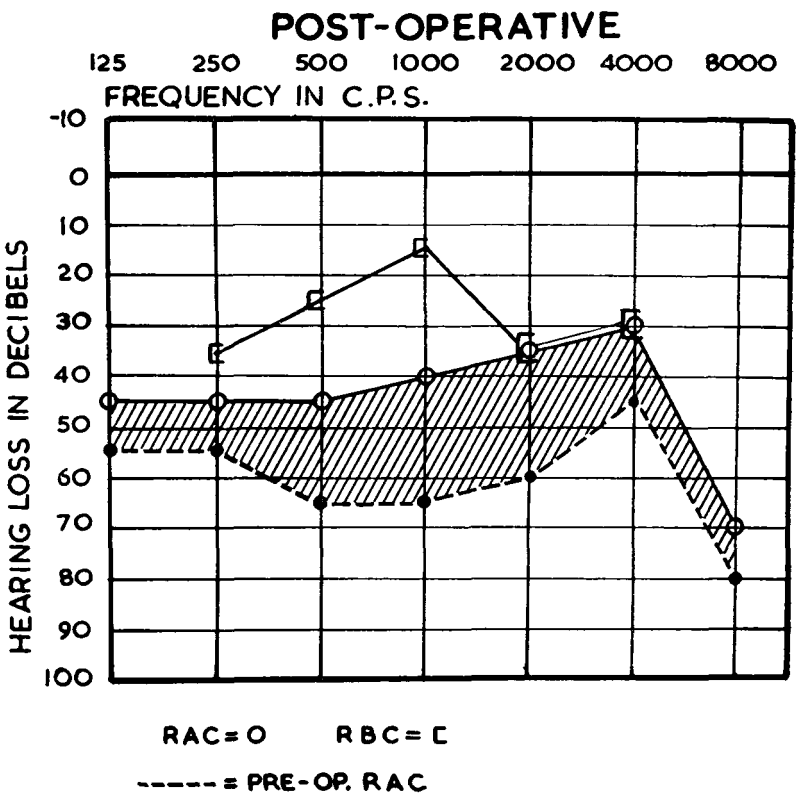


FIG. 4.
The post-operative audiogram. The cross hatching indicates the gain in hearing.

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patient has stopped wearing her hearing-aid and manages her work as a health visitor without difficulty.

It is hoped that this good result in what at first appeared to be a very unpromising case will encourage others to explore the middle ear in cases of post-traumatic conduction deafness.

I would like to thank Mr. Bateman for allowing me to present this case and for all the encouragement he gave me at the time of the operation.

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