SOCIETIES' PROCEEDINGS

ROYAL SOCIETY OF MEDICINE—SECTION OF OTOLOGY

March 6th, 1964

MR. FRANCIS BAUER (Liverpool) said: "Glue ear" being so common and osteoma of the middle ear so extremely rare, it does not seem likely that the osteomata result from irritation of the middle ear by the inflammatory process. Moreover, the fact that the osteomata of the middle ear occurred in a brother and sister suggests that a hereditary factor played a part in the ætiology.

MR. W. MCKENZIE said that if a polythene tube is used to connect the stapes directly with the drum, there is always the possibility that a perforation may occur and the tube may be extruded. Mr. Hammond described an interesting case where the stapes had been dislocated by injury. In replacing the stapes in the oval window, the protective membrane must have been broken, and this raises the possibility of revision of a stapedectomy by removal of the oval window membrane. Most writers have advised against a second exploration of the oval window, for fear of damage to the internal ear.

MR. FRANCIS BAUER (Liverpool) said: I have recently examined audiograms of cases of interrupted ossicular chain behind an intact tympanic membrane. Dislocated incus following a head injury is by definition a case in point. I have found that these cases have a characteristic audiogram: (1) the conductive deafness is very severe, amounting to some 50 db. at least. (2) Carhart's notch in the bone-conduction audiogram is absent, therefore (3) the course of the air- and bone-conduction curves is practically parallel; (4) the air-bone-conduction gap is large, some 40 db. In the third case of Mr. Hammond's the patient's hearing was relatively so good, that I would go so far as to say that in this case the disruption of the ossicular chain could not have been complete.

Discussion on Tympanotomy for "Glue" Ears

H. ZALIN (Liverpool) said that he was most grateful to Mr. Mawson for his contribution to the most difficult problem of the glue ear with which he himself had been struggling for the past ten years. He had, however, rejected the idea of tympanotomy exposure of the middle ear in this condition for the following reasons:

Where the major accumulation of exudate is primarily intratympanic, complete evacuation by suction aspiration through a myringotomy incision, although tedious, is entirely feasible. If, however, there be gross exudate in the mastoid, no method of clearance confined to the middle ear will suffice. Cortical mastoidectomy will probably be necessary.

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There is also the very real practical objection presented by the technical difficulties of tympanotomy in the restricted confines of the meatus of a young child, and so many of these cases, as the literature shows, occur in infants and very young children.

Furthermore, we have two major theoretical contraindications to this operation. First, on the basis of a vacuum ætiology although we attempt to break a vicious circle by aspiration, there must essentially be access of air to the tympanum if the exudate is not to recur. An incision allows this, if only for a time and part of the success of aspiration is attributable to this prolongation of ventilation.

The literature contains numerous references to methods of providing more permanent ventilation, such as polythene stopples, cautery of margins of incisions, etc. After tympanotomy the middle ear is sealed off at once and there is no possibility of further ventilation. Secondly, there is the very real danger of late collapse of the posterior half of the tympanic membrane in these exudates from a combination of inflammatory softening with prolonged vacuum. This danger can only be increased by dislocation of the tympanic membrane from the posterior annulus and one should not be lulled into a state of false security by the manner in which a *normal* drum heals back into place after stapedectomy. The drum in exudative otitis media is infiltrated, sodden and inelastic and any procedure which tampers with its attachment threatens permanent derangement.

Mr. Norman L. Crabtree (Birmingham) said that he did not consider aspiration of the tympanum in exudative otitis media either by myringotomy or tympanotomy to be a good procedure because of the many cases which relapsed. Reduced middle ear pressure and defective ventilation due to the inability of the glutinous exudate to evacuate through a patent eustachian tube suggested that aeration of the tympanum by an indwelling prosthesis was more logical. His present practise of inserting a small polythene stopple into the tympanic membrane after paracentesis involved minimal trauma, an immediate return of normal hearing and by restoring middle ear aeration, permitted the secretion to evacuate via the eustachian tube. Later removal of the stopple when the middle ear had returned to normal was an easy minor operation. This type of procedure should be adopted more often particularly in school children where delays in treatment and relapsing deafness interfered with education.

Mr. David Hanna Craig (Belfast) said: It has not been my experience in the Royal Belfast Hospital for Sick Children, where we see a lot of this condition, that a tympanotomy gave significantly better results in "glue ear" than making about three incisions in the drum. When this is done I find there is no great difficulty in getting all the "glue" out. Certainly the recurrence rate was just as high after a tympanotomy as after multiple incisions, but I think that upper respiratory conditions vary very much in their virulence in different parts of the country. The later stage of this condition is a very interesting one. The curious ring-like depression in the posterior part of the drum is actually a pouch

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with its apex drawn towards the eustachian tube. This sometimes fills up with epithelial debris and can be the beginning of a cholesteotoma.

MR. J. SIEGLER (Liverpool) said: I would like to thank my colleague, Mr. Mawson, for his interesting paper dealing with the surgical treatment of secretory otitis media. He is perfectly correct in emphasizing the difficulty in removing the thick middle ear secretion. Unfortunately we are still ignorant of the reason for this to have occurred and, despite effective removal by suction, it does re-accumulate. This disease is extremely common in Liverpool and there are frequently three or four such patients on an operating list of mine for myringotomy and suction and very often both ears are involved. Following up these patients at monthly intervals with repeated audiograms many of them become deaf again due to re-accumulation of the secretion and in some children I have had to perform a myringotomy six or eight times. Would Mr. Mawson be prepared to repeat a tympanotomy as many times?

MR. STUART R. MAWSON (London) said that in reply to Mr. Zalin he had not been asked to see any cases of conductive deafness in children under one year in which a clinical diagnosis of "glue" ears had been made. Since he believed that nearly all cases of "glue" ears resulted from modification of otitis media by antibiotics he did not find Mr. Zalin's objection to tympanotomy a very practical one. However, if "glue" ears was suspected in a child under one year it would obviously be better to do a myringotomy.

In reply to Mr. Punt he had not thought it very likely that it would be possible to hear "glue" escaping down the eustachian tube on inflating the middle ear. The only thing he had been able to hear on these occasions was air. He still thought the only certain method of getting rid of the "glue" was to aspirate it.

To Mr. Wilson's objection to the word "glue" he felt that the word is the only one at present in general use both sides of the Atlantic. Until a better word was forthcoming he preferred to use the word "glue" so that everyone knew what it referred to.

He thought Mr. McKlintock's suggestion of alpha-chymotrypsin a very good one. He had used it after aspiration in the hopes of preventing further accumulation of "glue" but would certainly try pre-aspiration injection into the middle ear.

Discussion on Experience with Fat and Polythene Stapedectomy

MR. W. MCKENZIE said that Mr. Taylor had suggested that a fat plug in the oval window gave greater protection than a vein graft. Mr. McKenzie preferred a fat graft but for a different reason. The fat seems better tolerated in the middle ear than a vein, but the final result is the same, for both substances are transformed into a thin membrane, and the final protection to the cochlea is the same in both instances.

MR. JOHN F. SIMPSON (London) said: With regard to Mr. Lionel Taylor's contribution I would like to mention a parallel procedure which I have been using.

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In this the stapedial replacement consists of a wedge shaped strut of auricular cartilage which is taken from behind the pinna with a portion of the lobular fat attached along its length on one side.

The perichondrium with the attached fat is divided transversely opposite the centre of the strut. The perichondrium is then raised distally towards each end, but not completely, so that a blob of fat remains attached near each end of the strut.

The pointed end of the strut covered by the adjacently attached cushion of fat is then inserted into the oval window. The broad end of the strut having been cleft by a knife-cut receives the long process of the incus. The latter is secured in the cleft by overlaying it with the fat attached to the broad end of the strut.

The functional results obtained are no better nor worse than those by other conventional methods.

The advantage of this procedure appears to be that the replacement is entirely autogenous and readily accessible. Furthermore, it is a continuous structure which cannot separate into its component parts and a locking device to the incus is provided. (A slide of the replacement was shown.)

Mr. David Bawtree (Guildford) said: After using Shea's vein graft stapedectomy (with occasional Portman technique) for 150 cases with very satisfying results, over 2–3 years, I have now changed my technique to Shea's Teflon piston procedure ever since the Academic Conference in June, 1963, when I was converted by Shea himself.

I have operated on 80 consecutive cases of conductive deafness by stapedectomy and insertion of the Teflon piston.

Ten of these cases were due to the results of old otitis media and *not* otosclerosis.

Of the true cases of otosclerosis four results must be excluded as they are too recent.

Two more cases showed only 10 db. improvement both of which, however, had very poor pre-operative nerve function. *One* other case showed only 10 db. improvement probably due to blood entering the labyrinth.

Two further cases produced massive adhesions in the middle ear as confirmed by revision tympanotomy and there is *no* improvement or *loss* in their post-operative levels.

All the 61 remaining cases have shown either complete, or almost complete, closure of the air/bone gap including one lady of 78 and another of 88, with whom it was impossible to communicate even with a hearing aid before operation, but both are now hearing without an aid, i.e. 61 cases air/bone gap closed or within 10 db.; 3 cases only 10 db.; 2 cases unchanged.

There have been *no* cases of dead labyrinth and no cases of any other complication in the series of Teflon piston technique for true otosclerosis.

I consider this technique simpler, giving less vertigo and very little post-operative disturbance to the patient and it can be used for very solid footplates requiring the "Drill Out" procedure and also for cases showing a deficient incus when the piston can be clenched to the handle of the malleus.

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PROFESSOR A. LASKIEWICZ said: Two cases of osteomas of the external ears belong to two brothers aged 30–38 years. Otoscopical examination has shown nearly complete obstruction of both external meatuses, covering view of the ear drum, while the hearing impairment was of moderate degree of the conducting type. Both patients were passionate swimmers and divers. It confirms fully the statement of Sir William Dalby and Mr. Daggett (published in *J. Laryng* in 1948) that this kind of sport promotes the formation of bony growth in the external ear.

Discussion on The Use of Vein Homografts in Tympanoplasty

IAN B. THORBURN (Blackpool) complimented Dr. Peter Alberti on his interesting presentation regarding the migration of surface epithelium over the drum and the deep external auditory meatus. Having obtained a base line from the study of normal ears it might be profitable to study the migration behaviour of the apparently healthy ear opposite to one which is known to have an extensive cholesteatoma. Such ears tend to exhibit a peculiar diffuse corrugation of the surface epithelium but when marked with dye they still successfully migrate. It was also Mr. Thorburn's impression that the thin tympanic membrane seen in an apparently recovered exudative otitis media shows some disorder of epithelial migration. This may coincide with a marked retraction of the thin drum into the epitympanum or into the sinus tympani, so that keratin can accumulate; this could be the starting point of a cholesteatoma. Mr. Thorburn disagreed completely with Commander King's suggestion that there is any danger in obliterating a mastoid cavity with a muscle flap because of infection. It should always be possible to exenterate chronic disease from the mastoid so that one reaches healthy bone or dura. If the cavity is small it can be left to heal but if it is large enough to create a cavity problem it can be safely obliterated with a pedicled temporal muscle flap. On the other hand the successful immediate lining of such a large mastoid cavity with vein or for that matter skin, prevents any natural filling in by granulation and creates a permanent cavity problem. Mr. Thorburn considers that this is unnecessary and undesirable.

MR. FRANCIS BAUER (Liverpool) said: Lining of mastoid cavities instead of obliterating them seems to me a retrograde step. I agree entirely with Mr. Thorburn's remarks concerning obliteration by pedicled muscle-grafts. There is no need to try "saving tympanoplasties" by using frozen homografts of varicose veins instead of skin; temporal muscle fascia gives perfectly satisfactory results.

MR. PHILIP H. BEALES (Doncaster) said: I would like to refer to Wing Commander King's interesting paper on the use of vein homografts in tympanoplasty. Vein grafts can be used with success for the repair of perforations of the tympanic membrane but they give rise to an abnormally thin membrane. One should remember that the normal tympanic membrane consists of three layers with a strong central fibrous layer. Plester introduced the method of repair of tympanic membrane defects using temporalis fascia and deep meatal skin and this gives rise to excellent results with the production of

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a drum which is difficult to distinguish from the normal one. This method is being used by many workers all over the world. I myself use this method and when possible use a pedicled meatal skin flap for covering the temporalis fascia. As this method gives such good results I do not see any reason for changing it at the present time.

WING COMMANDER P. F. KING (London) said: In reply to Mr. Thorburn and Mr. Francis Bauer, while he could not deny that good surgical results were being obtained using a pedicled muscle graft to the cavity, he considered this to be unsound. His main reason for this was that while macroscopic evidence of disease and infection could be removed, and removed efficiently, bacterial contamination must be present. In his experience, in the chronic ear the infecting organisms were *B. coli*, *B. Proteus* and *Ps. Pyocyanea*, which were often very resistant to both local or general antibiotics.

In reply to Mr. Beales, he said that he considered that the results spoke for themselves. In the body of the paper he had not had the opportunity of showing or discussing all the material he saw. It was opportune at this time to state that histological evidence of the fate of the homograft had been obtained at all stages, including a case in which a perfectly satisfactory tympanic membrane had formed but had later perforated. The patient had requested a revision and when further operation was undertaken the opportunity was taken to section the grafted tympanic membrane. This showed that it had the same histological structure as the normal membrane.

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