The post-superior quadrant*

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MR. DAWES has given us a characteristically encyclopaedic, one might say statesmanlike, survey of this very complex problem. My own scope is much much more limited, being more of the nature of a historical review. As far back as 1931 Dan McKenzie in discussing epitympanic cholesteatoma suggested that it might be approached by permeatal removal of the outer attic wall. This operation had been desultorily attempted on the continent but had been roundly condemned in this country by Sir Charles Ballance (1919), and in America by the elder Shambaugh, as being far too hazardous to the facial nerve. It remained for an obscure Liverpool surgeon to demonstrate that these criticisms were unfounded. His monograph (Tumarkin, 1938) established without any peradventure the feasibility and justification for the permeatal approach postulated by McKenzie. The advantages of this operation in the acellular mastoid were enormous. A few strokes of the chisel could achieve what previously had required half an hour's work or more by the classical route. Of course the limitations of the operation were obvious to the author and I quote here an extract from the monograph published nearly forty years ago. 'Where conservative treatment has failed the operation of choice in chronic perforating epitympanitis is a preliminary permeatal atticotomy; the only reservation is that, as is usually the case, the mastoid should be of the acellular variety. This will result in a complete cure in a considerable proportion of cases, but where suppuration persists a second stage must be undertaken, namely mastoid exploration.' Unfortunately the initial belief that the mastoid was usually acellular proved fallacious. In the years that followed all degrees of hypocellularity were encountered, not to mention the occasional infantile case with widespread pneumatization. Thus the original limited atticotomy gradually expanded into a permeatal mastoidectomy not dissimilar to Lempert's endaural operation. At the same time it became apparent that the original high hopes of functional improvement were ill-founded. A temporary improvement was, indeed, frequently achieved but all too often was followed by peri-ossicular fibrosis and fixation. The operation of ossicular segregation was one of many modifications aimed at exenterating the mastoid whilst preserving the ossicles, but all such efforts failed.

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Otology moved out of the pre-historic gloom of the Tumarkin era into a sunshine of bright promise in which everything seemed possible. I need not remind you of the pianforte keyboards that sprouted in every journal as enthusiasts competed, one with the other, to see who could restore normal hearing to the most people in the shortest time. This era was, I think, within the memory of even the youngest member of this audience and so I need not detail the disillusionment that crept remorselessly over even its most ardent proponents as modification after modification failed with monotonous regularity. At this point it is a pleasure to pay tribute to the doyen of Newcastle otology. I hope we shall hear from Mr. McGuckin himself. Meanwhile I believe I am correct in saying that having been an ardent believer in tympanoplasty he finally rejected it entirely, realizing that the only really successful functional surgeon is Nature herself, and that, broadly speaking, if dedicated conservative treatment fails, then tympanoplastic procedures have little or nothing to offer. This, I may say in general, is our own attitude today.

The twilight of these gods, the Wullstein and Zullner Gotterdammerung, was a period of unrest during which sundry bizarre techniques such as muscle-plasty, flourished, and in due course also faded. And then, when all seemed lost, there emerged a new hero. Like Siegfried down from the Rhine strode Jansen with his much publicized combined-approach tympanoplasty. Like many others I duly made the pilgrimage to Gummersbach. Once more I served an apprenticeship in the dissecting and post-mortem rooms before embarking on this new and promising technique. Then, alas, followed the now familiar years of frustration and disappointment as case after case failed to live up to its bright promise. Time and again re-exploration became necessary only to reveal the inevitable accumulation of cholesteatoma debris, often of terrifying proportions; and so realization was forced upon me that in my hands at least, the operation was a disastrous failure, and with that realization came the fear that the fault might indeed lie with me, that I was surgically incompetent. I had no alternative but to abandon the operation and set to work to re-explore all those unfortunates in whom I had so lamentably failed.

Then, when I was invited to take part in this symposium I had to face the prospect of a humiliating ordeal, publicly confessing my incompetence. My discomfiture was accentuated by articles such as this, by Smyth (Smyth *et al.*, 1971), in which it is clearly stated that although the Jansen and allied procedures can surely yield results little short of the miraculous, nevertheless they are so difficult that they should only be undertaken by a select band of the chosen, whilst incompetents, such presumably as myself, should content themselves with simpler procedures within their limited capacities. Naturally, they must not expect the resounding triumphs that appear to be so commonplace, and in fact routine, in Belfast. You will observe that these

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authors, having solved the problem of recurrent disease encountered occasionally in their initial cases, are left only with 3·5 per cent of 400 cases of residual disease. In other words they claim, in a series of 400 cases, 96·5 per cent healed, dry ears and at least 70 per cent striking improvement in hearing.

This was indeed a bitter pill to swallow and before taking my medicine I decided to discuss my dilemma with a number of colleagues, men in whose surgical ability I have every confidence. To my amazement, and I must admit relief, they declared without exception, that the operation had, in their hands, proved to be a disappointment if not a disaster. Now I hope others will speak as frankly as I am doing on this subject because I believe we are facing a situation of the utmost importance. How many younger surgeons naively fired by these awe-inspiring claims are treading the same path that I have trod? How many hapless patients are even now suffering elaborate, unnecessary and futile operations because of this involuntary conspiracy of silence? And so I am compelled to ask where does the truth lie? This is not a matter that can be ascertained by general discussions of this nature, although I hope that many members will give us the benefit of their personal experience. Perhaps, however, the most satisfactory method would be for the Section to appoint a committee to examine and report the results over a cross-section of our community.

Let me state my position unequivocally. I have said that in general the Wullstein–Zöllner procedures have been profoundly disappointing. I do not assert that they are inevitably so. Nor do I decry the immense effort that went into their development. They have left us with myringoplasty and reconstitution of the ossicular chain by bone graft or ossicular transposition, enabling modest improvement in function in a significant number of cases. These procedures have no relevance to the infected ear. They can only succeed in a dry and stable structure in which the primary pathology is well and truly burnt out and in the presence of a functioning eustachian tube. The actively infected mastoid is quite unsuitable for this type of surgery and indeed presents a formidable threat to all forms of tympanoplastic reconstruction. This may appear to some of my readers as an extreme view but I can assure you it is held by more than one international authority. Portmann (1973), for example, prescribes an open technique in such cases, closely approximating to the standard radical mastoidectomy.

Now let us apply these conclusions to the mastoid with active suppuration with cholesteatoma. In the forty years that have elapsed since Tumarkin did his first permeatal atticotomy how many different procedures have been invented in the hope of dealing with this dreadful problem, culminating with Jansen? How much more has been achieved by these complex procedures, utilizing all the advantages of modern sophisticated machinery than we originally achieved using hammer and chisel, working monocularly

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and without benefit of antibiotics? I do not deny that the dedicated surgeon, prepared to operate on all and sundry, may well be rewarded by a small percentage of successes. I realize that these few successes would not be achieved by the surgeon who adopted the modest approach which I advocate. But consider the other side of the balance sheet. How many patients have been condemned to prolonged post-operative treatment, wearisome and futile, culminating in revision procedures to achieve in the end what could so easily have been achieved at the very beginning? I am reminded of the American *cri de coeur* which once stigmatized Wullstein tympanoplasty as a three-stage procedure for the conversion of a chronic ear into a radical mastoidectomy, and this lamentable state of affairs shows no sign of ending.

Let me be frank. Fashions come and go in otology as in everything else and the train of events follows a familar pattern. A new idea is passionately advocated in all honesty by its inventor. His disciples take it up enthusiastically before its long-term results have been properly evaluated. The new technique becomes fashionable and no surgeon dares swim against the tide. Then come the years of disillusionment during which no-one relishes the ordeal of publicly admitting that his results are disastrous. And so, quietly, furtively, and all too belatedly, the operation falls into disuse until it is supplanted by the next heaven-sent inspiration. This, I believe, is what is happening to the Jansen procedure and I hope that this meeting will declare that fact for all to hear.

Let me now leave this sordid aspect and return to my thesis. We in this Section may justly be proud of the fact that the understanding of the pathogenesis and treatment of disease of the post-superior quadrant is almost entirely due to the unremitting labours of three of our senior members. I refer to Professor Friedmann who established unequivocally the epidermal origin of cholesteatoma. Next to Frank McGuckin who by his integrity and authority was instrumental in overthrowing the idols of tympanoplasty and replacing them with the humble but deeply rewarding therapy of attic suction, and finally to Alex Tumarkin. I would like now to spend a few minutes describing the evolution of his thinking during the years I was privileged to serve as his first assistant. Our abiding interest had always been the children and the diffuse infections of their upper respiratory tract.

In his formidable monograph dealing with the evolution, the morphology and the physics of the accessory air spaces, Tumarkin (1957), finally demolished the Diamant thesis and established permanently the close relationship between the upper respiratory infections of childhood and the degree of mastoid pneumatization. Then, as the years passed, we, like everyone else, became increasingly concerned with the syndrome of exudative otitis media, more especially after the benefits of the intratympanic grommet had become apparent. It seemed obvious to us that this condition,

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being clearly a manifestation of upper respiratory tract infection, must be related to hypocellularity, and so I undertook a long-term survey of a large number of children suffering with that syndrome. The results were communicated to this Section in 1963 and showed conclusively that the familiar collapse of the post-superior quadrant was a direct sequel of exudate. The physics and physiology of this process were analysed (Tumarkin, 1962), and with this final piece of evidence we completed a chain of reasoning that established cholesteatoma unequivocally as a late manifestation of the upper respiratory tract infections of childhood. This, of course, had been indirectly postulated by Bezold in the nineteenth century and was implicit in Tumarkin's theories, whose drawings in his paper on attic disease (Tumarkin, 1958), confirm that fact. All very well. Clinical research of this nature is indeed deeply gratifying to the *amour propre* of the investigator but it is of little value unless it can be turned to the benefit of the patient and to that problem we next turned our attention. Here I cannot do better than quote the words of my chief: 'Atticotomy is disappointing, so too is tympanoplasty, and the author is now considering the possibility of prophylaxis. This would call for the elimination of the upper respiratory diseases of childhood, a vast problem with no true solution in sight. But much could be achieved by a more intensive treatment of exudative otitis media. Epidermosis might be controllable if systematic otoscopy of all children was carried out with a view to compiling a register of pre-epidermosis. Children exhibiting that menacing stigma should be inspected at regular intervals'. Such a scheme has been inaugurated in Liverpool. I may add that characteristically, at the height of his career, Tumarkin insisted on undertaking that humble but deeply rewarding task, himself.

To sum up. Reconstructive surgery of the infected post-superior quadrant is an exercise in futility based on a counsel of despair. It is time to remember that we are not merely surgical technicians, we are also doctors, and our primary function is to prevent disease. Some day we shall learn to control the exudative otitis media of childhood. When that happens pre-epidermosis will disappear, just as acute mastoiditis has, to all intents and purposes, disappeared under the impact of the antibiotics. Epidermosis too, will disappear. When that time comes surgery of the post-superior quadrant will take its proper place alongside blood letting, purgeing and all the other relics of a barbarous era, futile and unnecessary. Until that day dawns rational treatment must take place in the schoolroom in the hands of the dedicated ear physician, and not in the operating theatre in the hands of some knife-happy surgeon.

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