EXOSTOSES OF THE EXTERNAL AUDITORY MEATUS

A TECHNIQUE FOR THEIR SURGICAL REMOVAL

BY

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Exostoses* of the auditory meatus are due either to partial hyperplasia during the stages of development and ossification or to chronic suppuration of the middle ear, which causes a periostitis, with subsequent new bone formation. Some rare cases are caused by syphilis, trauma, or the irritation of prolonged and frequent immersion in salt water. Exostoses are often bilateral and multiple, usually sessile, and of slow growth; they never become malignant, and are said to occur more often in men than in women. They are found anywhere in the bony meatus, and appear as rounded elevated masses with tense and somewhat blanched skin covering them. They are usually of ivory hardness and consistency.

An exostosis may actually press on the membrana tympani and then give rise to tinnitus and reflex cough; or it may gradually increase in size until it comes in contact with another exostosis or with the opposite wall, causing pain as a result of pressure. It might completely occlude the meatus. The lumen is then reduced to a minute slit-like opening, which may fill up with cerumen and debris or with exudation of an intermittent dermatitis; or it may fill up with muco-pus in a concomitant otitis media or with the secretion of the sweat glands on a hot day or with salt water in bathing. In either case complete intermittent deafness with autophony and tinnitus will result.

It is generally accepted that exostoses should not be interfered with unless they cause untoward symptoms. The following are the indications for their surgical removal: (1) deafness and tinnitus; (2) incarceration of wax which cannot be removed by syringing; (3) obstruction to the outflow of pus from concurrent middle-ear disease in order to establish free drainage and an opportunity for treatment of the middle-ear cavity; (4) dermatitis with secretion; and (5) pressure symptoms with neuralgic pain.

It is said by many otologists that the surgical removal of exostoses of the meatus is an operation which might present great difficulties and is not devoid of danger to the patient "because the very great hardness causes the chisel to drive on when the last fragment of them is divided, and it would be easy to damage the facial nerve or even the cochlea. Some of them are so hard that they turn the edge of all our instruments; they tend to split off and carry with them quite sizable pieces of bone" (Watkyn-Thomas and Yates, 1932). To avoid these complications I practise a different technique to deal with this contingency. While no claim is made for originality, I was unable on perusing the vast literature on the subject to find any mention of this technique anywhere.

The Operation

The chisel and mallet are discarded altogether, and instead a burr propelled by an electric dental drill is used. Owing to the rapidity of motion of this machine very little pressure is necessary, and the burr is therefore

not likely to slip and cause any injury to the surrounding structures. As the bony prominence is reduced very gradually there is no danger of splitting or fissuring the bone. Another advantage is that very little bleeding takes place as the heat produces a quick coagulation of the blood.

Illustrative Case

A man aged 52 had bilateral multiple exostoses, which produced complete intermittent air-conduction deafness on the left side. One large exostosis, which was attached to the anterior wall, was in contact with the postero-superior aspect of the meatus; there were also several smaller ones on the posterior wall and on the floor. Under general anaesthesia

Fig. 1. Fig. 2.

an incision was made similar to the one used for the cortical mastoid operation and the auricle was pulled forward. An attempt was made to lift the membrano-cartilaginous meatus out of the bony canal, but this was not entirely successful. I therefore opened the external meatus and removed the bone around the postero-superior aspect of the osseous meatus with nibbling forceps. This brought the exostosis into full view. The skin over the bony prominence was then incised with a fine-bladed knife and elevated. During this process it was torn and fringed. A cross-cut enamel burr with a pointed fissure (Fig. 1) was then applied with a firm hand to the anterior exostosis. This required no skill, but patience, since the bone was very hard and yielded to the pointed burr only slowly though steadily.

As soon as a path had been made the pointed cross-cut burr was exchanged for one with a flat fissure, using the cross-cut surface (Fig. 2). With a to-and-fro movement, applying gentle but continuous pressure, this burr did the work very quickly, shaving off the exostosis with great ease. There was very little bleeding. As soon as feasible a half-inch plugging was pushed past the exostosis to protect the drum. The process of reducing the bony prominence with the dental burr was continued until the whole tympanic membrane was clearly visible; the latter appeared to be congested but otherwise normal. The external wound was then completely closed and the meatus was plugged with a vaselined strip of gauze, which was left *in situ* for four days. Six weeks afterwards the wound was completely covered by epithelium and the hearing had returned to normal.

In addition to this case two patients with unilateral multiple exostoses with concomitant middle-ear disease of many years' standing were operated upon similarly. The exostoses in both cases were presumably due to a periostitis set up by the suppurative otitis media. Although they did not completely occlude the meatus the drums could not be seen, and there was an obvious impediment to the free outflow of the discharge; the term "hour-glass exostosis" applied to this type is very descriptive of the condition. Enough of the bony prominences was removed with the aid of a dental burr to ensure a free passage and to get a clear view of the drum. In one case (a man aged 47) a polypus was found behind the exostosis, emanating from the middle ear. This was removed, and with appropriate subsequent treatment the ear dried up within five weeks. The other patient, a man aged 26, had extensive attic granulations, which were cauterized. Later, an ionic treatment was given; the discharge ceased in about seven weeks.

* This term is used to include osteoma and hyperostosis.

I intend in future to tackle the exostoses through the external auditory meatus provided they are not too near the drum. The use of the electric dental burr is in my opinion absolutely safe if the handle is held firmly and a little dexterity is acquired in its manipulation, as, for instance, on a piece of ivory. After all, only partial removal of the exostosis is necessary to relieve deafness and as a preliminary to efficient treatment in a concomitant suppurative otitis media, and there is no reason why this should not be done by way of the external meatus.

REFERENCE

Watkyn-Thomas, F. W., and Yates, A. L. (1932). *Principles and Practice of Otolaryngology*, p. 172.

PSYCHOLOGICAL FACTORS IN RHEUMATISM

A PRELIMINARY STUDY

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PART II

The principles governing an understanding of psychological factors in rheumatism may be illustrated not only by taking as examples individual patients but by studying patients in series. The accompanying table shows the analysis of twenty-one insured persons (referred by their societies for examination and seen during one year) who, in the absence of organic disease and of any "inferiority," complained of "rheumatism" in the neck, shoulders, or arms. Before the onset of the rheumatism each of these patients had encountered one or more disturbing psychological factors to which the response had been an emotional reaction which merged into a psychoneurotic anxiety state. The complaint of "rheumatism" developed as one symptom among many during the course of the illness and, when it appeared, it rendered the patient sooner or later incapable of work.

Serial Investigation of Rheumatism of the Neck, Shoulders, and Arms

The table is divided into five sections, indicating the topographical distribution of the "rheumatism"—namely, Section A—the neck—four patients; Section B—the neck, left shoulder, and arm—six patients; Section C—the neck and various sites—five patients; Section D—left shoulder and arm—five patients; Section E—right shoulder and arm—one patient. The findings of the table may be summarized as follows.

Age, Sex, Marital States, and Occupation.—The total number of patients was small—namely, twenty-one (eight males and thirteen females). Both sexes and all age groups were involved. The largest number (seven patients) occurred in the age group 25 to 35. As regards marital status, patients belonged respectively to all the groups—namely, single, married, and widowed (or separated)—and this applied to both sexes. The largest number occurred in unmarried females (eight patients). The occupations were various, that of domestic service providing five patients and that of shop assistant four patients.

Type and Appearance of Patient.—The notes under this heading are, owing to the short time available for each examination, necessarily inadequate. As regards physical habitus eight patients were spare, twelve were well covered, and one was obese. The patients' manner and bearing were described under the three headings of (1) anxious (showing objective signs of the anxiety state, such as restlessness, tremors, tachycardia, and taches; (2) depressed; and (3) detached. The detached patients were placid, cheerful, or smiling, and their behaviour suggested hysteria rather than an anxiety state. Of the spare persons seven were anxious

and one detached. Of the thirteen who were well covered or obese six were anxious, four depressed, and three detached. Two of the patients, notably No. 9, and to a less extent No. 5, were obviously unstable personalities; two—namely, Nos. 3 and 6—were poor types, who had a degree of mental deficiency. The remaining patients, however, were conscientious, superior people with a fair degree of intelligence. It may be concluded that no single type of bodily habitus is associated with "rheumatism" of the neck and arms. There is also a suggestion that this manifestation of psychoneurosis tends to occur more frequently in self-respecting, independent persons.

Environmental Encounters.—The inventory of environmental encounters which provoked psychoneurotic illness in respect of each patient is far from exhaustive. The items noted, however, represent happenings which were very definite and could be dated. There is no easy method of classifying these, but the following indicates the relative incidence of those recorded in the table. (1) Domestic—(a) death, seventeen times (namely, marital partner four, child four, parent six, brother or sister three); (b) illness in family, six times; (c) misbehaviour in family, one; (d) separation or jilting, four times. (2) thwarted occupation, eight times. (3) Severe financial stress, three times. The predominance of bereavement is noteworthy. Good examples of "getting it in the neck"—in the sense of multiple deprivations encountered within a short period of time—are seen in Nos. 1, 5, 7, and 14.

Emotional Recreation.—The symptoms recorded are only a selection of those which the patients volunteered. They include such mental symptoms as grief, worry, resentment, anger, depression, and self-reproach, and such bodily symptoms as tiredness, weakness, palpitation, sleeplessness, cessation of milk, choking sensations, and soreness all over. It is of interest in connexion with the symbolism of the neck to note that personal pride was a prominent finding in Nos. 2, 15, and 17, and that resentment was very evident in 3, 4, 5, 8, 11, 13, 19, and 21.

Chief Rheumatic Symptoms.—The chief complaint was pain or stiffness. Sometimes there also occurred numbness, prickling sensations, and in one or two instances sudden attacks of loss of power. (An interesting example of loss of power was No. 16, a widower, whose illness had developed after the death of his wife. He lived alone and when he was making his bed in the morning his left arm, which he raised to hold up the sheets, "fell dead by his side." When this happened the pain in his left arm used to radiate into the back, where it "stopped at the last rib"—? Adam's rib.) Another symptom which sometimes emerged was swelling of the joints. This was found in patients No. 5 (left wrist), No. 12 (right knee), and No. 19 (fingers). In this connexion it may be noted that not infrequently rheumatoid arthritis may arise in the course of a psychoneurotic anxiety state; of six patients with rheumatoid arthritis seen by me during the year of this inquiry three were examples of this.

Time Incidence of Rheumatic Symptoms.—The time interval which elapsed between the environmental encounter and the onset of "rheumatism" in the course of the illness was very variable. In four instances it occurred within a week; in seven within three months; in six within six months; and in two instances the psychoneurotic symptoms had been chronic for two years before rheumatism emerged. Patient No. 10 gave a story which indicated that severe pain, localized to the back of the neck, may emerge during the acute stage of an intense emotional reaction. This woman at the age of 33, while carrying her sister's baby through a field, was chased by a stallion. She had to run and dodge before she was able to drop the baby over the fence. "I didn't think of myself; I kept saying, 'It'll not get the baby; I'll be trampled to death before I let the baby get killed.'" Within a few hours she had a reaction accompanied by terrific pains at the back of the neck, for which she had to receive morphine. These pains lasted about a week and did not recur for nearly twenty years, when they came back following the death of her father. It is clear that "rheumatism" as an episode in an emotional reaction may be early or late. This variation in its time incidence is a feature common to other bodily disturbances of psychoneurotic illness. Thus in one patient palpitation may be the first bodily symptom, but later it may be replaced by headache or gastric disturbance; whereas in another patient headache or gastric disturbance may be prominent in the earlier stages, to be replaced at a later date by palpitation.

Diagnosis, Treatment, and Duration of Incapacity.—With regard to diagnosis, eleven patients were labelled "rheum-