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ON OSSEOUS TUMOURS GROWING FROM THE WALLS OF THE MEATUS EXTERNUS OF THE EAR, AND ON THE ENLARGEMENT OF THE WALLS THEMSELVES; WITH CASES.

By JOSEPH TOYNBEE, F.R.S.,

Fellow of the Royal College of Surgeons in England, and
one of the Surgeons to the St. George's and St. James's
General Dispensary, London.

However little it may have hitherto attracted the attention of the profession, there is reason to suppose that the growth of osseous tumours in the external meatus of the ear is a disease of no infrequent occurrence. Such tumours may be developed in any portion of the length of the tube, but the part from which they most commonly originate is about the middle third of the passage. In one case, however, noticed below, the tumour extended beyond the outer orifice of the osseous meatus, and could be felt by placing the little finger at the meatus. Occasionally the posterior wall affords the point of origin to the tumour, and then it not unfrequently resembles a simple bulging of the wall. In other cases a similar tumour is developed from the anterior part, and the two protuberances meet and lie in contact in the middle, leaving an inferior and superior triangular space in the place of the original opening of the tube. Sometimes the external surfaces of the tumours are in contact for nearly the entire length, and the only passage is a small orifice below. The tumour may also be developed from the upper surface of the tube, and by gradually increasing in size, almost or quite fill up the passage. Two or more tumours, again, are sometimes developed from various parts of the circumference of the meatus, and, converging towards the centre, fill up nearly the whole cavity.

As far as my opportunities of observation during life has permitted examination, these tumours appear to consist of extremely hard and dense bone. In one case, where a portion of the bone was denuded of membrane, it appeared shining, white, and polished like ivory. In another, where, under the misapprehension that the body was a polypus, caustic had been applied so as to expose the bone, the latter was found to be extremely hard, and devoid of sensibility. In a third instance, where I observed the membrane to be absent, there was a thin layer of cartilage on the surface, beneath which the bone was very hard.

The tumours are usually covered by the lining membrane of the meatus, which is frequently thick, spongy, and less sensitive than is natural. When, by irritation, chronic inflammation is set up, this membrane pours forth a discharge whose odour is most offensive.

The development of these tumours is frequently unattended with any symptoms calculated to attract the attention of the patient, and therefore it is only when by their increase of size they act as an impediment to the passage of sonorous vibrations to the membrana tympani, that the patient is inconvenienced by deafness, and applies for relief. Deafness may result in these cases first from a collection of cerumen or epithelium lodging in, and blocking up, the small passage of the tube left unoccupied by the tumours; secondly, a drop of water may have entered the ear during the ordinary ablutions, and produced the same effect; thirdly, the growth of the tumour may have proceeded unchecked till the entire cavity of the meatus is filled up. In some cases, however, the growth of the tumours produces a feeling of distension in the ear, and weight on that side of the head; while in others again, they appear symptomatic of, and consequent to, exostosis forming in the deeper regions of the ears; as for instance, in the tympanic or vestibular cavities—a condition which I have sometimes met with in the course of my dissections. In three of the cases subsequently cited there seemed great probability of this being the case, and the distressing noises and sense of giddiness may probably have depended upon the pressure exerted on the expansion of the auditory nerve by an exostosis in the vestibule.

The only diseased substances with which the tumours are likely to be confounded are polypi; with very slight attention, however, they may readily be discriminated. When inspected by means of the speculum, the polypus is seen to be darker in colour, and glistening, from being generally lubricated by discharge; the osseous tumour, on the other hand, is white, and though smooth, free from moisture. The base of the polypus also is generally narrow, while that of the osseous tumour is broad. Any doubt, however, is easily removed by the use of the probe, which being pressed against the bony protuberance, at once reveals its nature.

The disease under consideration may be divided into two classes, following the peculiar causes which seem to influence its development.

The first and most common class of cases is that in which the disease appears associated with congestion

of the mucous membrane of the ear, as a result of rather free living. Most of the patients who have consulted me on account of it, were in the habit of partaking freely of wine.

The second class of cases, (including the three last of those appended,) showed symptoms indicative of disease in the cavities containing the expansion of the auditory nerve.

I will now proceed to give some indications of the course of treatment to be pursued. In those cases where the tumours occupy a considerable space in the tube, deafness depending upon the occlusion of the canal by the accumulation of cerumen or epithelium, it is important at once to remove past, and prevent future, accumulations. Where water penetrates into the orifice of the meatus, and fills up the only remaining pervious portion of the tube, wool should be placed in the orifice of the meatus when the patient is washing. Should the membrane covering the tumour, as is not infrequent, be very thick, a certain degree of relief may be afforded by the application of remedies which shall reduce its substance. In one case of this kind I was enabled to increase the size of the tube, and much improve the power of hearing, by applying a solution of nitrate of silver.

In order to diminish the size of the tumour itself, the best remedy is that usually employed by surgeons in osseous growths, viz., iodine. This medicine I have prescribed internally, and have applied it behind the ear, and also to the surface of the tumours, with great advantage. In one case a large tumour was so much reduced as to allow of the passage of sonorous vibrations, and the patient regained in a measure that power of hearing of which he had been for many months deprived.

If further experience should establish the fact that these tumours can be arrested in their progress, especially at that early period when the area of the tube is but slightly diminished, much good may be accomplished, and much suffering relieved. And while there are many weighty objections to attempting the removal of these tumours by operation or by escharotics, there are none to the use of iodine and the other absorbent medicines, from which there is every prospect, by persevering use, of successful results.

In consulting authorities on this interesting subject, the only observations I have found in Kramer are the following:—

"They (Polypi) are even of cartilaginous and bony hardness."

"A stalactite-shaped growth, hung from the superior surface of the meatus, very near the membrana tympani, and was of so remarkable a bony hardness and density, that it was impossible to pierce it even with the sharpest knife."*

Itard, although he states that the principal causes of the diminution of the external auditory meatus are the enlargement of the osseous, cartilaginous, and membranous structures, forming the meatus, says:—"I have never had an opportunity of observing the

enlargement (*gonflement*) of the osseous part of the external meatus, and the extreme hardness which it possesses would tend to make this kind of alteration very rare."†

CASES.

CASE I.—*Tumours in each ear attended by deafness: tumours diminished in size: deafness cured.*

June 1848.—D. N., aged 65, for the last few weeks has been feeling somewhat deaf, especially in the left ear. This deafness is increased by an attack of cold, to which the patient is subject.

Right ear.—Meatus partially filled with long growths; (Figure 1) one rising from the anterior, the other from the posterior part of the meatus. Membrana tympani dull. Hearing distance less than that of a healthy ear.

Fig. 1.

Left ear.—Meatus blocked up, except a small orifice the size of a crow-quill, by long tumours, which project from the walls of the meatus. (Figure 2.) The space left between these bony growths was occupied by a collection of cerumen, which being removed, the power of hearing was to a certain extent improved, though it was still deficient.

Fig. 2.

Considering that every attack of cold increased the deafness, and that the membrana tympani was dull, a thickened state of the mucous membrane seemed also indicated. I therefore resorted to the following course of treatment:—Alterative doses of blue pill were administered, and the surface of the meatus was washed with a solution of Argenti Nitras, one drachm to the ounce, every fourth or fifth, and afterwards every

* On the Nature and Treatment of Diseases of the Ear. Longman, 1847, p, 117.

† Traite des Maladies de l'Oreille et de l'Audition, 1831. Tome I., p. 328.

seventh day. This course of treatment was continued for three or four weeks, and the power of hearing was largely extended. The plan was resumed the following year, and the ultimate result was a perceptible diminution of the tumour, arising, as I believe, from a decrease in the thickness of the investing membrane; and the power of hearing was completely restored.

CASE II.—Tumours in both ears: deafness produced by the presence of a drop of water in the meatus.

July 1846.—E. F., aged 60, has been so deaf in the right ear for some years, as to derive little use from it. Has several times lately become suddenly so deaf in the left ear, as scarcely to be able to hear a conversation. These attacks have usually come on in a morning after washing, and frequently lasted for some hours.

Right ear.—Two long tumours were observed in the meatus occupying about one half of its calibre. Membrana tympani dull.

Left ear.—Meatus. (Figure 3.) Extending from the upper part of the meatus is a long bony tumour, which occupies two-thirds of its calibre. This tumour is covered by a thick soft membrane, excepting at one point, measuring about half a line in length and a quarter of a line in breadth. From the anterior and posterior parts of the lower half of the tube projected two small elevations of bone about three-quarters of a line in thickness, in the direction of the larger tumours, so as to leave but a very small triangular space between them. The latter was the only opening by which the sonorous undulations could pass to the membrana tympani, and it was found that during the operation of washing, this space was liable to be filled up by water, and temporary deafness produced. I had not an opportunity of carrying out a course of treatment for the diminution of the tumours; but by adopting means to prevent the entrance of water into the meatus, the attacks of deafness were entirely prevented.

Fig. 3.

Fig. 4.

CASE III.—Tumour in the meatus of the right ear: orifice in membrana tympani of left ear.

Nov. 13, 1845.—P. H., aged 56. Eleven years since, when in Russia, fell asleep in a garden. The next day felt severe pain in the left ear. The pain lasted during fourteen days, when matter was discharged. Has had

several attacks of pain in the left ear since that period, which have been accompanied by beating and singing.

About six months ago, being then in the West Indies, had an attack of pain in the right ear, which was followed by a diminution in the power of hearing; but there was no discharge. Two months since returned to England, when he recovered the use of the right ear entirely; the left ear being also improved. Within the last four days pain came on in the left ear and rapidly increased, followed by pain in the right ear, and so great an extent of deafness in both ears, as to require him to be shouted to.

Right ear.—Meatus externus. The middle two-thirds of the lower wall are occupied with a bony tumour which fills half the calibre of the tube. (Figure 4.)

Left ear.—Meatus externus red and covered by discharge. Membrana tympani white, soft, and thick, with a small orifice, through which air passes.

CASE IV.—Osseous tumours in each ear; feeling of confusion in the head.

Nov. 4th, 1848.—T. T., aged 38. Last year deafness gradually came on in the left ear, with occasional attacks of deafness in the right. The deafness has of late considerably increased, and been attended also with a feeling of confusion and a sense of oppression in the head.

Right ear.—Projecting from the whole of the anterior and posterior surfaces of the external meatus are two osseous growths, which meet in contact in the centre of the tube. (Figure 5.) Hearing distance one foot.*

Left ear.—Two similar tumours exist also in the meatus of this ear, but at the superior part they have so increased as to be in contact throughout, save a small orifice at the lower part. (Figure 6.) The deafness in this ear has been greatly increased by the presence of a small quantity of cerumen which had filled up the small orifice just described. The deafness was temporarily relieved by the removal of the cerumen, but it was evident that the tumours would go on increasing until the entire passage of the meatus was blocked, unless remedial measures were at once adopted. No opportunity was, however, afforded me of attempting to carry them out.

Fig. 5.

Fig. 6.

Fig. 7.

CASE V.—Large tumour in left ear, causing deafness, diminished by the use of iodine.

February, 1849.—S. P., aged 17. States that deafness commenced in the left ear about two years and a half ago, and has been gradually progressing, till at length he cannot hear at all with that ear. Sometimes

* The natural hearing distance, with the watch used, is three feet.

there is a violent itching, followed by discharge, and the tube of the ear is so sensitive that the least touch produces exquisite pain. There is also a continuously unpleasant sensation, as if the ear were being distended. He complains of dulness of hearing in the right ear. Has been to various surgeons and public institutions, but without obtaining any relief.

Right ear healthy.

Left ear.—A large osseous tumour occupies the whole of the meatus, and is attached to its upper part. (Figure 7.) It is covered by the mucous lining of the meatus, which is about a third of a line thick.

Tincture of iodine was applied to the surface of the tumour, as also behind the ear, and four grains of iodide of potassium were given thrice daily for between two and three months. Great relief was the result; the size of the tumour diminished (Figure 8) the power of hearing greatly increased, the tube of the ear lost its unnatural sensibility, and the unpleasant feeling of distension completely vanished.

Fig. 8.

Fig. 9.

Fig. 10.

Fig. 11.

CASE VI.—*A tumour in the right ear, filling nearly the entire tube; slight protuberances in the left ear.*

Nov. 25th, 1848.—J. S., aged 65. States that ten years ago he had a gathering in the right ear, accompanied by great pain and much discharge. Continued however to hear pretty well from that period till within about a month previous to applying to me, during which he has grown so very deaf that he cannot hear unless the speaker approaches his mouth close to the ear.

Right ear.—The external meatus contained a collection of epithelium, which, having been removed, disclosed an osseous tumour, filling nearly the whole of the tube. The tumour projected from the upper and lateral surfaces, and nearly touched the lower wall of the tube. (Figure 9.) Watch not heard in contact with the ear.

Left ear.—The lower wall of the meatus presents two slight elevations, which are quite hard. (Figure 10.)

In this case alterative doses of blue pill were prescribed, and tincture of iodine was directed to be applied behind the ears. The result of the treatment, however, has not been communicated to me.

CASE VII.—*Tumour in the right ear, following the extraction of a polypus.*

June, 1847.—Rev. J. D., aged 47, consulted me for a continued discharge from the right ear. He stated that twenty years previously, after the forcible removal of a collection of wax from the right ear, he experienced great pain, which was followed by an offensive discharge, that had lasted to the present time. Upon examination, a large, red, and firm polypus was perceived to occupy the whole of the meatus, nearly as far as the orifice. It was attached to the wall of

the meatus near to the membrana tympani, and on its removal the membrana tympani was found to be very thick and vascular, with a small orifice at its lower part. The discharge wholly disappeared.

In the month of July of the present year the patient again consulted me on account of a slight return of the discharge, accompanied by some degree of pain in the right side of the head, and an unpleasant sensation of fulness and pressure in the ear. Upon inspection the meatus was found diminished to one half its natural size, by the growth of osseous matter from its walls, especially anteriorly and posteriorly (Figure 11) thus leaving merely a triangular opening, through which only the central part of the membrana tympani was visible, and that was white and thick.

I recommended the use of a strong solution of Liquor Plumbi to stop the discharge from the tube, and the application of the tincture of iodine behind the ear.

In this case there had been long-standing disease of the tympanic cavity, membrana tympani, and meatus, consequent on local injury. The disease was attended with so great an amount of deafness, that it appeared as if the cavities containing the expansion of the auditory nerve might also be implicated.

CASE VIII.—*A protuberance of the lower wall of the meatus in the left ear.*

December, 1848.—L. E. H., aged 25. Ten years previously experienced a ringing in the left ear, which, during a cold became much worse, and was attended with a feeling of numbness. Has lately suffered from a cold which has aggravated all the symptoms in the left ear, and called forth a noise, like a bell, in the right ear.

Right ear.—Membrana tympani dull. Hearing distance two feet.

Left ear.—Meatus contained a large quantity of cerumen, upon the removal of which the passage was observed to be red. At the lower wall near the membrana tympani, there is a considerable bulging of the osseous wall. (Figure 12.) Hearing distance half an inch.

In this case the diminished degree of hearing in the left ear did not depend upon the enlargement of the external meatus, for there was no doubt of a thickening of the mucous membrane lining the tympanic cavity.

Fig. 12.

CASE IX.—Tumours developed after disease in the ear from scarlet fever.

July, 1849.—Miss B., aged 35, of a nervous temperament, consulted me, stating that at two years of age she had scarlet fever in a very violent degree, which was accompanied and succeeded by a violent discharge from both ears, which lasted nearly twenty years. So great a degree of deafness resulted from the fever, that she has ever since required to be spoken to very close to the ear. The left ear is much the worst, and the deafness increases from year to year. During a cold it is so bad that the patient can hear nothing.

Right ear.—Meatus presents, both on the anterior and posterior surface, a bony protuberance, which blocks up a large portion of the cavity of the tube, as in *Figure 11*. Membrana tympani flat, fallen inwards, and lying for the greater part in contact with the promontory, with which it appears to be adherent. Watch only heard when pressed against the ear.

Left ear.—The meatus at the middle portion of its anterior surface has a considerable osseous projection, (*Fig. 13*.) The membrana tympani in the same state as that of the right ear. The watch is not to be heard, even in contact with the ear.

In this case there can be no doubt that the effect of the scarlet fever was to produce ulceration in the tympanic cavity, followed by adhesion of its contents to the membrana tympani, and great thickening of its lining membrane, which disease apparently gives origin to the bony tumours.

Fig. 13.

Fig. 14.

CASE X.—Tumour at the lower part of left ear.

June 29th, 1847.—M. L., aged 67. Has been slowly becoming deaf for several years past, and within the last twelve months the deafness, especially in the left ear, has much increased.

July, 1849.—The patient again consulted me, not having in the meanwhile persevered in any plan of treatment. Examination showed the right ear to be much worse, and the left to be so diseased as to be useless.

Right ear.—Meatus dry; membrana tympani dull; watch heard only when in contact with the ear.

Left ear.—(*Figure 14*.) The lower third of the external meatus is occupied by an osseous tumour, which presents two slight eminences projecting towards the cavity. The membrana tympani is dull; the watch is not heard when pressed against the ear.

In this case there was every indication of thickening of the mucous membrane of the tympanum, which had produced pressure on the stapes and membrane of the fenestra rotunda.

CASE XI.—Tumour in the left ear; attended with deafness and giddiness.

Mrs. T., aged 63, consulted me in June, 1844, on account of deafness attended with distressing noises

in the head. When a child, the drum of the right ear was supposed to have been destroyed by the repeated formation of abscesses; the left ear, however, remained in so healthy a state that the diminished power of hearing in the right caused but slight inconvenience. During a cold there was a feeling of deadness in the left ear, with diminished sensibility to sound, and as the cold disappeared, a cracking sound was experienced in the ear; after which the power of hearing seemed quite restored. About twenty years ago, had violent pain deep in the ear, which left the hearing much impaired, and it has only partially returned two or three times since during an attack of ear-ache. About a twelve-month since, a violent noise occurred in and about the left ear, followed by a considerable decrease of the power of hearing.

This state of the head and ear was greatly relieved by the administration of alterative doses of blue pill, and by the use of counter-irritants continued for two or three months, at the end of which time this lady returned into the country and remained well for several months; after which the noises returned as bad as before. In June of the present year I was again consulted on account of a great increase in the noises, which commenced four months previously, and which now prevailed, with scarcely an hour's intermission. There was also great increase of the *musce volitantes* to which she had long been subject.

Upon examination, I found the power of hearing so much diminished that she required to be addressed close to the ear.

Right ear.—Membrana tympani gone. Mucous membrane of tympanum white and thick.

Left ear.—A bony tumour projects from the anterior surface of the meatus and fills up nearly half the tube, in a similar manner to *Figure 13*. Membrana tympani white.

Counter irritation was directed to be kept up behind the ears by means of a blistering ointment, and the patient has considerably improved.

CASE XII.—Tumour in right external meatus.

D. B., aged 29, consulted me July 6th, 1849. He states that since six or seven years ago the power of hearing has gradually decreased in the left ear, behind which he has been repeatedly blistered. The affection came on after travelling outside a coach, and was attended with singing noises, and at times sounds like thunder. Thinks that the right ear is healthy, as he always makes use of the stethoscope with it.

Upon inspection, the membrana tympani of both ears was found to be quite healthy; the hearing distance, however, with the left ear, considered to be the worst, was five inches; while the right ear was incapable of distinguishing sounds unless the watch was in contact with its outer orifice. At the lower wall of the right external meatus two small tumours were developed, one of which projected from the anterior, and the other from the posterior wall.