

months there suddenly occurred high fever with rigors and night sweats, pain in the whole of the left half of the head, but especially in the left mastoid region. There was no infiltration of the soft parts, and no tenderness behind the ear. On auscultation of the mastoid process the sound was heard more clearly and louder than on the unaffected side. Leeching and blistering were of no use, and trepanation was decided on.

Conditions found on operation : Throughout there was sclerosis of the mastoid process ; the bone scarcely yielded to the chisel, and after communication was made with the middle ear an antiseptic dressing was applied. The pains in the head and the mastoid process disappeared immediately after the operation, and the patient got well.

In view of the fact that my method is unknown to many of my *confrères* here present, I take this opportunity to describe it and to report the results which it has given. I have to ask indulgence for repeating here what I have already published in the Zeitschrift "Bparr, 1893-94," as also in the "Archiv für Ohrenheilkunde," Vol. XXXVIII. I investigate the cranial bone conduction of sound, especially through the mastoid process, in the following way : I take an ordinary otoscopic tube with the usual tip at one end, which I introduce into my ear. To the other end I fasten, instead of the ordinary tip, an aural speculum of vulcanite of the smallest possible diameter. I place the latter upon the part of the head concerned, and, in the present instance, upon the different portions of the mastoid process and around it. When I have thus effected junction between the patient and myself, I take a suitable tuning fork<sup>1</sup>, strike it upon a wooden object, and then place its stem upon the middle of the patient's skull, somewhat further forward, below the parietal eminence of the affected side. The investigation carried on in this way gives the following information : When the cranial bones are unchanged the tuning fork gives a clear sound ; when, on the other hand, a bone is diseased, the tone is duller over the seat of the pus or softened bone ; on the unaffected mastoid process the tone is as clear as on the neighbouring parts of the skull. On auscultation of a sclerosed mastoid the tone conducted through the skull is always clearer and more audible than on the unaffected sides ; hence the sclerosed bone is distinguished from the normal by its increased power of conducting tone.

*Dundas Grant (Trans.).*

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## CAVERNOUS ANGIOMA OF THE EAR.

By Dr. E. J. MOURE (Bordeaux).

*Read before the International Congress of Otolaryngology, Florence, 1895.*

"IF one examines histologically a large number of aural polypi," writes Prof. Politzer, "we meet with two principal forms—round cell-polypi "and fibromata." A little further on he adds : "Some polypi of the tympanic cavity are traversed by numerous blood vessels, and these acquire "the character of cavernous polypi, or angiomas. According to the

<sup>1</sup> I have always used a tuning fork of 256 vibrations, set vibrating by the introduction of a rod of steel between the two blades which converge towards their points, the steel rod being pulled out from between them. Deeper tuning forks than this give so powerful a tone that they are heard through the other ear by air conduction, and confusion results from the sound being heard in this double manner. Higher tuning forks are also unsatisfactory, as their short lasting tone comes too quickly to an end. It is important for every otologist to practise himself in this auscultation of the mastoid process.

“opinion of all writers, true myxomata are by far the rarest, and if one runs through the medical literature it is easy to convince oneself that true angiomas are not very common. I have, in fact, within the last ten years found only one instance, that communicated by Dr. Huntington Richards (New York) to the American Otological Society. In this case, which was very shortly reported, but with lithographic plates, the patient was a little girl of six years of age, in whom the operation, made in two sittings, occasioned, says the author, a more than ordinarily abundant hæmorrhage, but which was not sufficient to cause anxiety.” The author refers to it *en passant*, and gives no details with regard to the hæmostatic measures employed, because, apparently, the hæmorrhage ceased of itself, as is usual. Dr. Richards had chiefly in view in his communication to describe the histological composition of the tumour in which the excessive development of vessels was met with referred to by Professor Politzer in the few lines which we have quoted above. This angiomatous appearance, with more or less predominance of vascular spaces, is perhaps less rare than the small number of published facts would seem to indicate; but tumours such as we are about to describe are certainly exceptional, and it is on this account that I communicate the following case:—

Case: This was a lady residing in the neighbourhood of Bordeaux, sent to me by one of my old pupils on the 19th February last, with the following note:—

“Madame L. de B., aged forty-seven, came to consult me in December, 1889, for an affection of the right ear. The hereditary antecedents presented nothing in particular, and, as regards former disease, she was very subject to hemicrania about the age of twenty-five, and always suffered from cold feet. Menses were regular but scanty, and at the present time she suffers from frequent attacks of headache and cephalalgic congestion. During those attacks she experiences in the ear, and even in the whole of the right side of the face, a sensation of tension and pulsation, and she is unable to work with her head lowered without feeling a determination of blood to it. Some months ago she felt an itching in the right ear, and tried to allay it by scratching it with a pin. This was followed by a slight discharge of pus. Then, at the commencement of December, drops of blood began to issue from the ear. On three occasions she had a regular hæmorrhage from the ear, which frequently repeated itself up to the time of her coming to consult me, when her condition was as follows:—

“15th December, 1889: Bone conduction, good; tuning-fork on the vertex, heard better in the left ear; the watch on the right ear scarcely heard on contact; on the left ear, heard at seventy centimètres. By means of the speculum there could be seen a small tumour of the size of a big pea, rounded in shape, smooth, pink in colour, with a fairly wide peduncle, and apparently growing from the postero-inferior wall of the tympanum. There were no pulsations, and the left ear was healthy.

“On the 23rd December an attempt was made to remove it by means of Wilde’s snare. As I thought it was a simple polypus I was somewhat surprised to find a flattened tumour, presenting a sort of cavity, which made me suppose that I had only shaved it off, but it was impossible to examine more accurately at the time on account of the abundant hæmorrhage which ensued. This, however, was arrested by means of hot water. Three days later there was only visible the peduncle, which projected somewhat, but which under the action of alcohol installations diminished gradually, and, finally, was scarcely visible. The

watch was perfectly well heard on contact. The state of the patient was very satisfactory up till the month of July, 1894, at which time, on examining the ear, I found that the tumour had recurred. It was not, however, till January, 1895, that a fresh spontaneous hæmorrhage took place. At this period the tumour was of the size of a large elongated cherry stone. I have sent the patient to Dr. Moure, and she left for Bordeaux on the 19th February."

At the first examination I found presenting at the orifice of the meatus a dark red tumour, having the form of a grain of corn, placed on top of another smooth tumour of pinkish-grey aspect, globular in form, to which it was united, this other tumour burying itself in the meatus, and appearing to be inserted near the postero-superior wall of the tympanic cavity. From round the tumour there issued a little yellowish pus, somewhat liquid, and of a faint smell, but without actual fœtor. I proposed to extirpate the polypus, which I did the following day. After having cleaned the ear in the usual way, I passed the snare in the direction of the presumed seat of insertion of the growth, and avulsed it according to the usual plan. Scarcely had I withdrawn my instrument and the severed tumour, when a large quantity of blackish blood poured out of the meatus and ran over the patient and on to the floor. I pressed the pulp of my left thumb over the orifice, while with my right hand I prepared several plédgets of boric wool, which I introduced with some difficulty into the deepest part of the meatus, so abundant was the hæmorrhage. I then kept up pressure with my thumb, waiting for some minutes in the hope that this hæmorrhage would either stop or at least diminish to such an extent as to allow me to see the point of insertion of the new growth. Meantime, in case the hæmorrhage should return, I prepared to plug with iodoform gauze, intending to leave it for several days undisturbed. Having made these preparations I removed my pledgets of wool, but scarcely had reached the two last ones when the hæmorrhage discharge returned with as much intensity and rapidity as ever, filling the meatus and running out in a full stream, so that I at first had the idea that I had opened into a large vessel, possibly an aneurism of the jugular vein. At once I carried out a fresh iodoform tamponment, and kept it in the meatus by means of liquid collodion, thus producing a complete and certain obturation of the auditory meatus. In the evening the patient was quite well and free from fever. Next day there was a little pain in the ear, and a slight doughiness in the temporal fossa.

On the second day the swelling increased a little, and extended more in the direction of the cheek, the ear being painful to the touch.

On the third day the cheek, and especially the temporal fossa, acquired a slightly violet tint, as if there had been a little effusion of blood into the tissues. The ear had not run; the plug had kept its place, although there was a slight tendency for it to escape from the meatus.

On the fourth day the pains were much more violent, and I determined to remove a portion of the tampon, being ready to replace it if the hæmorrhage returned. I was able to remove at least half of it without the occurrence of anything beyond a very slight hæmorrhagic oozing, of no importance.

She had a better night. The swelling of the cheek had not increased, and on the fifth day I was able to remove the whole of the tampon without any discharge of blood. On examining the ear, I found that the tumour was inserted near the postero-superior part of the tympanum, the lower region appearing free and healthy, which gave me some doubt as to a possible lesion of the jugular vein. Nevertheless, the tumor which I had removed consisted, in the entire, simply of a shell with a cavity of the calibre of a large vessel. I sent the specimen to the laboratory of pathological anatomy of the faculty at Bordeaux, where the histological examination was made by Dr. Brindel, from whom I received the following details :—

#### ANGIOMATOUS POLYPUS OF THE MIDDLE EAR.

*Histological examination.*—The fragment sent to us had the shape of a half shell, into which there could have been introduced without difficulty a small nut. After fixing in absolute alcohol it was stained *en masse* with borated carmine. It was then cut in such a way that the section was surrounded on all sides by the enveloping membrane, containing in its interior a closed cavity which was limited by the external shell. The cavity was ovular, and seen by transmitted light had a thickening of the walls at the two extremities, corresponding to the poles of the oval; one of them was the point of attachment of the shell, the other represented the very extremity—a sort of little granulation which projected from the surface of the shell.

The interior periphery, except at the part corresponding to the seat of implantation, was covered with a stratified pavement epithelium, of which the outermost cells compressed against each other were non-nucleated and lengthened parallel to the surface, forming a little irregular cord more highly stained than the subjacent cells, and in course of desquamation. In this respect they resembled the hypodermic scales of the skin. The subjacent layers were formed by cells which became little by little polygonal, and contained large round nuclei; being few in number on the walls of the oval they multiplied towards the pole which represented the free extremity, and at this spot presented a papillary formation. The most internal layer was made up of elongated cells pressed one against the other, and placed perpendicularly to the surface. Immediately below the epithelium there was a layer of connective tissue, which in some places was very thin and scarcely visible, but in others dipped into the interior of the wall, forming genuine fibrous islets.

The tissue which separates the covering epithelium from the central cavity is constituted by two different substances :

1. Irregular *elongated islets* of dense fibrous tissue taking a pink stain, and showing on its surface here and there only a few nuclei, which were much lengthened and highly stained. These islets were situated in the neighbourhood of the epithelium, particularly towards the external pole, and here and there constituted large plots in which there was a tissue differing in no respect from what we are about to describe. They did not form a homogeneous layer, because they only existed in separate points and were not always directed longitudinally.

2. A tissue which refused the stain, *connective tissue infiltrated on its surface with small red nuclei in considerable quantity, and hollowed into a number of cavities* which were neither more nor less than blood-vessels. These vessels, varying in calibre and form, had no other wall than that which was formed by the pale tissue in the middle of which they lay. It was to be noted, however, that the interior surface of the wall was neatly covered with endothelium. These

vessels were so numerous that under a high magnifying power the unstained tissue appeared to be constituted simply of their walls. In a number of places, here and there, the wall limiting the larger vessels was somewhat reddened, and oval nuclei projected in a way, the margin of the cavity being all the time on the surface of the wall. The cavity of the vessels was perfectly empty; there were no traces of blood.

We sought in vain for a wall limiting the large central cavity. The tissue appeared to be notched at the periphery of this cavity, and differed in no respect from that of the rest of the shell. At the extremity where the tumour was implanted, and which formed one of the poles of the oval, the tissue became denser, and was constituted simply of a fibrous tissue, of which the layers had a longitudinal direction parallel to the long axis of the fragment, and analogous in staining to the islets disseminated through the rest of the shell.

The growth was, *en résumé*, an angiomatous polypus, with fibrous portions.

The histological examination was therefore very conclusive, and enabled us to lay aside the idea of a wound of the jugular, as one might have thought at first, on account of the abundance of the hæmorrhage produced by the surgical intervention. We know, at the same time, that though there may not be cases of aneurism of this vessel of such a size as to project from the orifice of the external meatus, there are some sufficiently large to fill the tympanum, and to give rise to accidents at the moment when the membrane is perforated. Everybody knows, in fact, the cases of Ludwig,<sup>1</sup> and of Hildebrandt,<sup>2</sup> without referring to the more recent ones narrated and discussed at the meeting of the Austrian Society of Otology a few months ago. Be this as it may, the case I now narrate is sufficiently different from those that we observe in ordinary practice to deserve being communicated to you, if it were only to lead to the publication of analogous cases, if any of you have met with such in the exercise of our speciality.

*Dundas Grant (Trans.).*

## THE SENSITIVENESS OF DEAF MUTES AND THEIR LEGAL STATUS.

Prof. S. OTTOLENGHI (Siena).

*Read before the Fifth International Congress of Otology, Florence, 1895.*

I HAVE examined the reactions for general and painful sensations in forty-four deaf mutes with the Faradimeter of Edelmann, and I have examined the retinal sensitiveness (field of vision) with the instrument of Landolt, to see if in either case there were any marks of degeneration. My conclusions are as follows:—The reactions to general sensitiveness and to pain, in the deaf mute, are very little inferior to the normal. In early life, indeed, there is no difference worthy of note. So also with regard in general to the field of vision; it is normal both in extent and form, except for a readiness to fatigue, which by itself is anything but a serious

<sup>1</sup> "Archiv für Ohrenheilk," Vol. XXIX., Part 3, 1890.

<sup>2</sup> "Archiv für Ohrenheilk," Vol. XXX., Part 3, 1890.