SOCIETIES' PROCEEDINGS.

ROYAL SOCIETY OF MEDICINE.—OTOLOGICAL SECTION.

May 15, 1914.

MR. RICHARD LAKE, *President, in the Chair.*

Hyperostosis of Skull and Exostosis of the Right Auditory Meatus.—E. A. Peters.—Male, aged thirty-two, gardener; has a brother affected somewhat similarly. The supra-orbital and temporal ridges are prominently developed as in the case of the gorilla. The superior occipital ridge is also marked; there are hyperostoses of the nasal bones and also of the lower jaw anterior to the masseters. The right meatus is occupied by two exostoses growing from the anterior wall, while the left meatus is much contracted.

Dr. PETERS said it was a question whether it would be advisable to remove the exostosis on one side, or to open the meatus on the other side. The skin lining the meatus swelled from time to time, causing catarrh, thickening of the drum, and deafness.

Dr. URBAN PRITCHARD said it was an unusual case of exostosis; he had never seen one like it. Guessing at the pathology from other exostoses he had seen, he considered the exostoses were of cancellous bone, not ivory exostosis, and that therefore they were favourable for removal. He would remove them on one side and see what the result was. The inflamed skin added to the degree of blocking.

Dr. FITZGERALD POWELL said it was difficult to determine whether a similar condition existed in the middle ear. He did not regard it as a case for operation and counselled leaving it alone. In suppuration of the middle ear he did not think it justifiable to operate on these exostoses with a broad base. In the presence of suppuration it was far better to do a mastoid operation. These operations on broad-based exostoses were liable to set up suppuration where none previously existed, and it was very difficult to prevent occlusion of the external meatus after the operation. In the exostosis with pedicle it was, of course, quite different.

Mr. WHALE considered that the condition was a further stage of the state of affairs described by Alexis Thomson, in which there were exostosis on both sides of the skull following the distribution of the third division of the fifth nerve. In this case the bony growths occupied the areas supplied by all three divisions of the fifth nerve, and also the great and lesser occipital nerves.

Mr. C. E. WEST considered that the question of operation on these conditions of bony obstruction in the external auditory meatus was worth discussing further, as it was a pity to turn aside from the chance of benefitting a patient through fear that there might be bony growths in the tympanum which could not be seen or examined. In treating these cases, he preferred to work through the meatus whenever that route afforded reasonably good access. In the pedunculated forms it was easy to work through the meatus, and even ivory exostoses could be removed

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without damaging the ear. Where there were broad-based exostoses, he thought the lumen could be satisfactorily restored by reflecting the pinna forward, and treating the posterior wall of the meatus to within 2 or 3 mm. of the attachment of the membrane, as if one were doing a radical mastoid operation, finally doing a plastic operation on the cartilaginous part, and turning the flap into the new cavity, which was not communicating with the middle ear, but was a shallow excavation in the mastoid adjacent to it. His experience had been satisfactory, even with most unpromising cases. If there was discharge, one might be able to restore the patient to safety and cure without interference with the tympanum; and in cases in which there was no discharge one might get brilliant results in reference to restoration of hearing. He would like to know whether anyone would refuse to give a patient a chance of return of hearing power by dealing with an exostosis which completely blocked the meatus, so that there was no opportunity of testing whether the patient could hear well with the meatus open.

Mr. Hugh Jones said that in exostoses of the non-pedunculated type there was always a danger that the condition extended beyond the external auditory meatus. The hearing of these cases was sometimes very bad even after free removal of the growths. In a case of his own, a medical man with attached ear lobules and a strong family history of otosclerosis, he removed the exostoses freely from both ears. One ear was operated upon on account of suppuration, the other at the urgent request of the patient. In both ears the hearing has, if anything, got worse. In Dr. Peters's case there was also marked absence of lobules, and the general hyperostosis of the skull might be another stigma of degeneracy.

Dr. Peters, in reply, said he believed the patient's brother had a similar condition. General hyperostosis of the skull was different from the condition in the cases described by Alexis Thomson. In operating on meatal exostoses, except for middle-ear suppuration, it was essential to be certain that the patient could hear fairly well, and so exclude deeper trouble from exostoses. And it was wise to allow for the possibility of trouble due to thickening of the lining membrane, which varied a great deal.

Method of dealing with Auditory Meatus to secure Easy Application of Drainage-tube and Inspection of the Cavity.—E. A. Peters.—F. L——, aged six. April, 1913: Subacute otitis media of left with post-auricular œdema; pertussis. Wild's incision relieved symptoms, but discharge from the meatus still continued.

March 24, 1914: Mastoidectomy and primary grafting. Instead of the formation of a flap, one blade of a pressure forceps was inserted from behind into the meatus sleeve as far as the crus helicis, and the forceps closed so as not to include the post-auricular skin between the blades. The tissue gripped by the forceps was dissected out, and each margin of the groove so formed was attached by a catgut ligature to the periosteum. The packing was removed in three days, and a large drainage-tube inserted. By this method the part of the external meatus left falls into a natural position, and the mass of thickened tissue at the base of the crus helicis, which often fills up a small excavation, is removed.

Dr. H. J. Davis said he considered that the result was admirable, but he did not understand precisely what Dr. Peters did.

Dr. Peters replied that the pinna was drawn forward by a bivalve retractor, and that exposed the sleeve of fibro-cartilaginous meatus, and

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through that sleeve one blade of the angular forceps was passed so far as the crus helicis, then the blades were closed, and the portion nipped between them dissected out. The corners should be packed out or sutured to the periosteum. The tissue then cicatrised to either side of the groove, and there was no contraction of the aperture after the operation. The posterior part of the cavity was, by this method, very easily observed and dressed. The drainage-tube, instead of projecting vertically, was horizontal, and was caught by the tragus.

Primary Tuberculosis of the Ear.—W. Jobson Horne.—The diagnosis of the disease was definitely established by tubercle bacilli being found in the tissues over the necrosed portion of the temporal bone which is exhibited. On admission to hospital it was stated that the patient, a child, aged thirteen months, had been wasting for seven months, had had measles two months previously, and a cough of three months' duration. A discharge had been noticed from the right ear for about four months, and the left ear had also been affected. No mention was made of hæmorrhage from the ear. Fifteen days before death facial paralysis developed, and the child died with signs of cerebral disease. The *post-mortem* examination of the temporal bone showed that the membrana tympani had been destroyed by disease, the ossicles had perished, and the middle ear was disorganised. In the recent state the antrum as well as the middle ear was filled with *débris* and caseous matter. The cancellous portion of the mastoid was involved. The soft parts covering the outer surface of the temporal bone had been deflected. Immediately above and behind the external auditory meatus there was a sub-periosteal abscess. At the site of the abscess there is to be seen a sharply defined area of necrosed bone of about the size of a sixpence, and corresponding to the outer wall of the antrum. The external evidence of implication of this portion of the bone was insignificant of the degree of necrosis. Upon reflecting the dura mater from the cranial surface of bone an extradural abscess was found, together with some tuberculous deposits. Tubercle bacilli were found in sections cut from the soft parts covering the area of necrosis. The *post-mortem* examination further revealed extensive disease of the lymphatic glands, general miliary tuberculosis, tuberculous meningitis, together with tuberculous nodules in the brain. The lymphatic glands enlarged on the right side were the pre-auricular, the sub-maxillary, the supra-clavicular, and the deep cervical; and on the left side, those under the angle of the jaw to a less degree. The tracheal and bronchial glands were very large and infiltrated, and some of these were liquid in the centre; the mesenteric and the glands in the hilum of the liver were also tuberculous. The brain contained three tuberculous masses of the size of small marbles, which were situated (1) in the lateral ventricle on the left side in the posterior and internal part of the optic thalamus; (2) in the posterior lateral parts of the right lateral lobe of the cerebellum; (3) in the posterior lateral part of the left lateral lobe of the cerebellum. There was little thickening of the pia and arachnoid membranes at the base, but well-defined tubercles could be seen along the Sylvian fissures, and on the lateral aspect of the convolutions above the corpus callosum. The thoracic and abdominal viscera show general miliary tuberculosis. The case and specimen illustrated points raised by the exhibitor in the discussion on some cases shown at the previous meeting.[1] Primary tuberculosis of the ear, in the

[1] See Journ. of Laryngol., Rhinol., and Otol., vol. xxix, p. 584.

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opinion of the exhibitor, presents such definite clinical and pathological features that it can be easily distinguished from the secondary form of the disease. These features were well brought out in the present case. Primary tuberculosis of the ear is essentially a disease of childhood, if not of infant life. Primary tuberculosis of the ear in the adult, in the experience of the exhibitor, is an unknown disease. When the cases in which the diagnosis has been definitely established are considered alone it will be found that the frequency of the disease both in early and adult life has been considerably overstated. The specimen further illustrated the exhibitor's contention that in the primary form the stress of the disease in the first instance is upon the mastoid bone.

Mr. C. E. WEST, discussing the use of the word "primary" by Dr. Horne in this case, said he thought it should only be applied to the first macroscopic development of tubercle in the body in any particular case. Bone tubercle was very rarely primary in that sense; it was generally preceded by some focus, generally already caseating in lymphatic glands. All would agree that this class of case was not met with in adults; when tuberculosis of the ear was encountered in adults it was nearly always a complication of phthisis, probably conveyed, not as in this case, by the blood stream, but along the lymphatics in the submucosa from the pharynx. With regard to the operative results in cases of tubercle of the temporal bone in children, he would like to hear of any collected results. His own experience had not been large, but he agreed with the exhibitor that provable tubercle of the temporal bone in children was rarer than one would expect from the statements made. He believed that only a small proportion of the cases suspected as being tubercular could be demonstrated to be tubercular, either by staining methods or by injecting into guinea-pigs. He asked also whether anyone could say in what proportion the tubercle bacillus was the bovine form and in what number it was the human form. In his experience, the immediate results of operation in these cases had been mostly good—*i. e.*. in about 75 per cent., but in three or four years, after the ear had apparently been sound again, 50 per cent. of the recovered cases died of tuberculous meningitis or generalised tuberculosis.

Mr. MOLE said he had a case which looked as if it would end in the same way as the present one of Dr. Horne's. The patient was only a few months old, and the symptom was a mastoid abscess; clinically there was no sign of tuberculosis. He cleared it out, doing a fairly complete mastoid operation. Five weeks later definite facial paralysis developed, but examination of the chest suggested tuberculosis of the lungs, so no further operation was done. One of the infant's parents had died of tuberculosis and the other was dying from the same affection.

Dr. DAN MCKENZIE asked whether any member had experience of the action of tuberculin in tuberculosis of the temporal bone. He was aware of the difficulty in saying that a disease of the temporal bone, in the living patient, was tuberculosis, as the diagnosis could only be definitely settled by animal experiment or by the *post-mortem* examination. He had had experience of one or two cases of suspected tuberculosis of the middle ear in children (he agreed that such cases were rare), and in those two cases, he found considerable benefit from the action of tuberculin. But as he could not claim that they were genuine cases of the disease, he expressed that opinion with the utmost reserve.

Mr. WHALE asked whether Dr. Horne did an operation in this case. If not, he did not know how Dr. Horne supported his contention that in the primary form the stress of the disease, in the first instance, was upon

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the mastoid bone. In the second paragraph the statement was made that the membrana tympani, the ossicles and the middle ear was destroyed. The primary stress might have been in the middle ear unless an operation had given evidence of the previous condition during life.

Mr. Hugh Jones said he had experience of tuberculin in the case of twins who were proved, by bacteriological examination and by inoculation of guinea-pigs, to have primary tuberculosis of the ear or mastoid. Bacilli were found in the milk, and the source of the milk was traced to a tuberculous cow. The children were three months old when the disease began—suppurative otitis and accompanying mastoid trouble. Tuberculin was given under the direction of Dr. Nathan Raw, after radical mastoid operations had been performed, but in the opinion of the medical man attending the cases, and himself, had no effect and was very soon discontinued. Both babies made excellent recoveries, though one of them had to be operated on three times for cervical glands. There was no family history of tuberculosis.

Mr. Marriage said he would like to hear more about the experience of other aurists concerning the use of tuberculin in these cases. Five years ago he had two patients, aged respectively four and seven months. In both cases there were polypi in the tympanum, which showed active tuberculosis. He performed a radical mastoid operation and used tuberculin in each case, but did not feel at all sure that the tuberculin had had any effect; at any rate, it did not prevent caseating glands on both sides of the neck. The glands were subsequently removed and both children were now quite healthy and their ears perfectly healed. He had at present under his care another child, aged two, who had had polypi in the tympanum in which active tuberculosis was found, and he was hesitating whether to use tuberculin in addition to an operation.

Dr. Jobson Horne replied that the question raised as to the definition of primary and secondary tuberculosis was a larger subject than the Section could discuss at that time. With regard to operating on these cases one had to be guided by the condition of the child. In this particular case the child was moribund when admitted to hospital. In doubtful cases of tuberculosis of the mastoid bone, he favoured an exploratory operation to ascertain the condition of the mastoid, and if evidence of bone disease were found, to proceed accordingly. As to the stress of the disease being upon the mastoid bone, if one examined the specimens of primary tuberculosis of the ear, it would be found that the amount of the bone disease and the necrosis of the mastoid was out of proportion to and in advance of the disease in the middle ear itself.

Stenosis of External Auditory Meatus; (?) Result of Middle-ear Suppuration.—Dan McKenzie.—The patient is a woman, aged thirty-two, who came to hospital complaining of deafness. There is a history of old suppuration in both ears, and the right still shows traces of that disease. The external auditory meatus on the left side is completely stenosed, the canal ending in a *cul-de-sac* lined with epidermis. On catheterizing the left Eustachian tube air can be heard to enter the tube and perhaps also the middle ear. It is supposed that the stenosis is the consequence of an attack of middle-ear suppuration which the patient experienced in childhood. X-ray plates showed the difference in the bony meatus of the left side compared with the right; but according to the exhibitor's interpretation of the left image the meatus and middle ear are not entirely occupied by bone. He therefore proposes to reflect

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forward the auricle and to reconstitute the external meatus. Opinions regarding the advisability of such an operation are welcomed.

Dr. H. J. Davis said he thought it was a congenital occlusion of the meatus, and the case seemed similar to the one (a boy) he had shown.[1]

Mr. Mollison said that two days ago he saw a precisely similar case, in a small child. The mother was quite certain there had been discharge from both ears for two years; but that from the left had stopped. The left meatus ended blindly, and on feeling with the probe the obstruction seemed to be a bony blockage, not membranous. He suggested that the present case was bony occlusion of the meatus, and that the pathology was similar to those cases of occlusion of the cavity after the radical mastoid operation.

Dr. Fitzgerald Powell said there were no notes as to the hearing, and the woman positively said she had had suppuration. If this was so, it was a case for operation, but if not it was of no use to operate, as probably there was no middle ear.

Mr. Cyril Horsford said he did not think the treatment ought to be much influenced by whether the condition was congenital or not. At the present time a child under his care had got an imperforate meatus on both sides. On one side there was a sinus or fistula, which was perforated below the tragus; it did not burst through at the original meatus. Because there was suppuration and fairly good hearing, he operated (radical mastoid), and the hearing was now good. The meatus was found to be fairly normal. He suggested operation in this case, because he thought the meatus would be found to be free behind, especially as Dr. McKenzie said he could hear air passing when catheterising.

Dr. Dundas Grant said he thought the term "atresia" was more applicable to this case than "stenosis." He had a case which resembled this, a complete diaphragm having been formed external to the tympanic membrane as the result of the entrance of the caustic drops into the ear. The patient was extremely deaf, but under the use of the Eustachian catheter the hearing improved so much that he thought it best to do nothing further in the way of removal of the diaphragm. He thought the result in Dr. McKenzie's case was due to suppuration, and he did not regard such cases as promising ones for operation.

Dr. Dan McKenzie replied that he agreed that the history of the case suggested suppuration, rather than congenital closure. He thought the woman should be given the chance of an operation, though one would probably find the ear spaces filled up with bone. It was true he could hear air when using the Eustachian catheter, but it seemed a long way off. If he operated, his intention was to make for the antrum and to get into the middle ear from there, unless there already was a lumen on the other side of the diaphragm, which he doubted.

Congenital Deformity of Left Tragus and Corresponding Half of the Face.—Dan McKenzie.—A girl, aged sixteen. The tragus is represented by an auricular cartilaginous mass. The facial deformity is quite obvious. It affects the bony skeleton, including the hard palate, the superior maxilla and the malar bone. The left palpebral fissure is distinctly small and the left globe appears to be on a higher level than the right. The recent onset of some orbital œdema and the girl's story that the malar bone and zygoma were becoming more prominent, aroused

[1] See Journ. of Laryngol., Rhinol., and Otol., vol. xxxi, p. 315.

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suspicions of the existence of a neoplasm. But the X-ray plates (exhibited) show no signs of new growth, and the girl's former photographs (also exhibited) clearly show that the deformity has been in existence for many years. He proposed to remove the pre-auricular cartilaginous mass.

Double Multiple Exostoses.—H. J. Davis.—The patient is a male, aged forty-seven, who for some months before my seeing him last January had noticed that his hearing was less acute than it used to be. He was unable to hear witnesses' answers in court, and as he was slowly getting worse he saw his medical adviser, who sent him to me. It will be noticed that there are ring-shaped pedunculated exostoses in both ears, and the appearance on the right side is peculiar. All the high forks are well heard, but not the low (C_{32}, C_{64}), and the question arises as to whether operation would improve his hearing or not. I am inclined to believe that it would make very little difference, as in all probability the same condition obtains inside the tympanum as outside. The patient has periodical vaso-motor rhinitis, and he is "gouty," a condition often noted in these cases. Tuning-fork tests: Weber central, Rinne + and not −, as one would expect. The only treatment he has had (and hearing has undoubtedly improved) is phosphorus $\frac{1}{100}$ gr. *ter die*, and this he has been taking regularly up to date. There is periodical tinnitus on left side and no improvement on inflation.

The PRESIDENT did not see any reason why an operation should not be done on the right side. The little exostoses were growing from the squamous portion of the temporal bone, where the tympanic ring was incomplete.

Mr. MARK HOVELL said his feeling about the case was that the exostoses should not be touched, but the treatment should be confined to the middle ear.

Dr. H. J. DAVIS replied that he did not think any operative treatment would make much difference to the patient's hearing powers. The patient had got it well into his mind that there was an obstruction in the canal of the ear, and that this, if removed, would naturally benefit the hearing.

Bilateral Temporo-sphenoidal Abscess in a girl, aged sixteen; Operations; Recovery.—H. J. Davis.—At the meeting of the Section in May, 1913, this patient, a girl, aged sixteen, was exhibited after recovery from an operation for temporo-sphenoidal abscess on the right side following mastoid disease and aural polypus.[1] In February, 1914, she again presented herself with similar symptoms referable to the *left* side: Earache, vomiting, and vertigo—an aural polypus was protruding from the meatus. An operation had to be performed on February 10, before I saw the case; the mastoid had been explored, but the antrum was unopened. On February 14, as the patient had developed facial paralysis and looked extremely ill, I made a wider incision and opened and drained an extra-dural abscess. The bone was dense and showed no trace of cells and the mastoid antrum was found to be a mere linear slit as, I remembered, had been the case on the opposite side. The bridge was removed and the posterior auricular wound left open and lightly packed. The temperature was 103° F. before operation and it dropped to 100° F. The brain over the exposed area pulsated freely, and I therefore did not explore the lobe. Three days later my colleague was asked to see the patient as she had become restless, aphasic, and rapidly unconscious. I found her rolling and flinging herself about the bed with rotatory nystagmus to

[1] JOURN. OF LARYNGOL., RHINOL., AND OTOL., vol. xxviii, p. 539.

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the right and with signs of meningitis. A large temporo-sphenoidal abscess was opened and drained. The brain on exposure was motionless, and on incision pus and a quantity of sanious fluid streamed from the lobe, which immediately commenced to pulsate. Continuous salines were administered and a lumbar puncture performed. The pathological report next day was to the effect that "pus was present in the cerebro-spinal fluid," and the prognosis was therefore looked upon as hopeless. My colleagues, Dr. Bernstein and Dr. Elworthy, who also saw the case, recommended intra-spinal injections of anti-streptococcus serum, 10 c.c., and this was given twice with twenty-four hours' interval. She also had three vaccine injections in the flank and was kept alive on champagne, pituitrin, and other stimulants, and she slowly made an uninterrupted recovery. She is now bright and alert, and the aphasia has disappeared. She hears no fork except on contact. There are several points about the case which have induced me to exhibit her again before the Section:—(1) The remarkable symmetry of the disease on each side: Mastoiditis with no swelling, aural polypus, extremely dense mastoids with antra so small as to be almost unobservable, facial paresis, great pain, vertigo and rotatory nystagmus to the opposite sides. (2) The fact that a patient has had an abscess on each side of the brain within twelve months and recovered. (3) The fact that there was purulent spinal meningitis, as evidenced by pus and streptococci in the cerebro-spinal fluid, and yet the patient recovered. In my opinion this was due to the intra-spinal injections of antistreptococcus serum, and clinically, this is most important. (4) The fact that women seem to be more tolerant to cranial interference than men. I do not think that a man could possibly have gone through all that this girl experienced and recovered. In my experience, in intra-cranial complications following mastoid disease, men appear to be much more vulnerable than women. Perhaps this is due to a higher cerebral organisation, although it may not do to say so. (5) Drainage: After the first forty-eight hours the cerebral abscess cavities were drained with cyanide gauze alone, and the tubes removed; the advantages of gauze drainage were first pointed out to me by my colleague, Mr. Donald Armour, and I have been much indebted to him for this hint. (6) The patient was aphasic for a fortnight (on the second occasion); she could speak, but called objects by the wrong names; a small celluloid duck she was shown she said was "an elephant," a pencil she called "a stool," and so on.

Notes by Dr. Elworthy.—The investigations conducted on material from this case were as follows: (1) An examination of cerebro-spinal fluid (the inquiry being for the absence or the presence of pus). Pus was present in an amount sufficient to form a very obvious deposit after standing a short time, the supernatant fluid remaining opalescent. The cells present were, with few exceptions, polymorphonuclears, the organism a short-chained streptococcus (not a pneumococcus). Unfortunately the reaction of the fluid was not taken. (2) An examination of cerebro-spinal fluid on February 21, 1914. The findings were as follows: Reaction alkaline; albumen abundant, but a small amount of blood was present. The nucleated cells amounted to 45 per cent.; of these 90 per cent. were lymphocytes and 10 per cent. were polymorphonuclears. Streptococci were neither seen in the films nor grown in culture. (3) March 3, 1914: An endeavour was made to recover the streptococcus from pus obtained from the wound for the purpose of vaccine preparation, but *Staphylococcus aureus* and *Staphylococcus albus*, diptheroid and coliform bacilli alone were found.

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