SOCIETIES' PROCEEDINGS

ROYAL SOCIETY OF MEDICINE—SECTION OF OTOLOGY

President—Mr SYDNEY SCOTT, M.S.

December 8, 1923.

Three Cases of Injury to the Ear (to the Middle Ear in two, to the Auditory Nerve in one) caused by Alcohol Injection through the Face for Neuralgia—ARTHUR H. CHEATLE, F.R.C.S.—(1) Male, aged 71½. Severe deafness in, and slight discharge from, the left ear immediately following alcohol injection under an anæsthetic about one year previously; no pain, giddiness, or tinnitus; temporary paralysis of the facial nerve; no history of former ear disease. Right ear was normal. The neuralgia was cured and patient stated that the ear trouble was a small price to pay for the cure of the pain.

The membrana tensa was entirely gone exposing the pink lining membrane on the inner middle ear wall; ossicles intact; a small granulation with slight purulent discharge was present on the floor of the tympanic cavity. Conversational voice—2 in.; whisper—touch; tuning-fork on vertex to the left; bone conduction greater than air.

(2) Male, aged 72. Severe deafness, singing, and slight discharge on the left side following alcohol injection under an anæsthetic about two years previously; no pain, giddiness, or facial paralysis; no history of former ear disease. Right ear was normal. Neuralgia cured. The hearing, local conditions, and tuning-fork tests were as in the first case; there were no granulations.

In both cases we can only infer that spirit entered the Eustachian tube and reached the middle ear. Considering the close proximity of the tube to the oval foramen one can see how easily the accident can happen. The painlessness and the amount of the deafness are interesting features. Perhaps the accident might be avoided if the injection were made without a general anæsthetic, the patient then being able to give warning.

(3) Female, aged 22. Complete deafness on the left side following alcohol injection under an anæsthetic nine months previously; immediate deafness, giddiness, and paralysis of the sixth and seventh nerves; she was very ill and in bed for five months. Right ear was normal. There had been chronic suppurative trouble in the left middle ear for some years, but nothing new locally was observed as a result of the injection; neuralgia not cured; subsequent removal

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of the Gasserian ganglion, curing the pain but entailing the loss of the left eye.

The sixth and seventh nerves recovered and the giddiness ceased, but complete nerve deafness was found on examination. In this case the spirit had apparently reached the subarachnoid space and injured the sixth, seventh, and eighth nerves directly.

In each case the injections were made by experts.

Mr T. B. LAYTON said that, tragic as were the cases described by Mr Cheatle, they were slight in comparison with one he (the speaker) had recently seen—that of a middle-aged man whose left eye had gone, and who had corneal ulceration. He spoke in a high falsetto voice, and seemed quite deaf. The left side of his face was paralysed. The paralysis had occurred as a result of an injection through the mouth on the right side. He had had nine injections for neuralgia of the mandibular nerve, six in Hong-Kong and the seventh in Montreal. The last was the only one under local anæsthesia. Pain was absent for three months only after each injection. His present condition was the result of the tenth injection: the facial paralysis had been noticed by a nurse before he returned to the ward. He (Mr Layton) had seen the man several times, once with Dr Watkin Thomas, and had tested him with the "cold" test. The left ear as well as the right was syringed, but there was no response. There were a few slight twitches in the eye, but he (the speaker) did not think they amounted to nystagmus. At a later stage the patient was able to read print in large capitals with difficulty. He (Mr Layton) had not seen the patient during the last ten months.

Dr WATKIN THOMAS said that the patient in the case referred to could hear no notes below C^2. After prolonged syringing there was what might be regarded as a slight nystagmus.

Mr G. J. JENKINS suggested that these notes should be brought before the Section of Neurology, so that a correct estimate of the value of the procedure might be obtained. It might be worth while to take even such risks as those described in order to secure as many recoveries as possible from this distressing complaint. It was a question as to which was the more serious operation: the injection, or removal of the Gasserian ganglion. He (the speaker) had known two cases in which damage had been done by injection. One, a female, aged 28, who had had a severe tic on the left side of the face, was now in hospital, having had the labyrinth on the injected side completely destroyed. She had had violent vertigo, vomiting, and deafness immediately after the injection had been made, and a burning pain on the left side of the throat, which had persisted for forty-eight hours. It seems that the alcohol had gone through the Eustachian tube to the middle ear. There had been some damage to the tympanic membrane, and a few days afterwards a thin watery discharge from the ear had occurred, and a radical mastoid operation had been performed. The patient had come to him (the speaker) because of the persistent discharge from the ear and the attacks of giddiness. When operating, he had found a little granulation on the anterior part of the semicircular canal, and this he had left alone. In time the cavity had

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healed and become dry. A year ago the patient had returned, with severe giddiness, and he (Mr Jenkins) had found ulceration on the anterior aspect of the semicircular canal, which he had treated until three months ago, and again the cavity had become dry, but the giddiness had persisted. The lateral semicircular canal had become functionless; the superior and posterior canals reacted normally. He had decided to destroy the labyrinth, and this had been done two weeks ago.

He knew another case, in which the patient had died in a short time from injection into the meninges.

Mr SYDNEY SCOTT (President) said he had heard of, but had not seen, cases like those described by Messrs Cheatle, Jenkins, and Layton. In the first of his cases, in which alcohol had been used to render the labyrinth defunct, there had been marked facial paralysis, and recovery had been very slow. With regard to the question as to whether alcoholic injections were of use to allay pain in malignant disease, he (the President) had applied alcohol to the third division of the fifth nerve. Complete anæsthesia had been produced over the region supplied by the nerve, but pain had persisted in the occipital region. The injection of alcohol called for very careful technique to guard against the dangers which had been mentioned.

Sir WILLIAM MILLIGAN said he thought that this communication ought to be submitted to the Section of Ophthalmology also, as the Members of that Section could probably relate some experiences of bad results due to these injections. He (the speaker) had not had much personal experience of the procedure, but he knew of cases in which irreparable damage had been done by it. He regarded it as a serious procedure for two reasons. First, because he did not agree with the President that it was easy to hit off the sensory nerves, even when following the ordinary landmarks; and, secondly, because the effect was only temporary, and in some cases no relief had occurred. He (Sir William) had done the operation in a few cases; in some of these there had been relief for a period of from nine to eighteen months, in others there had been no relief at all. There was also danger to the eye itself from the injections.

In one of his cases the immediate effect had been fairly satisfactory, but within two months an acute inflammation had developed in the anterior chamber of the eye. This had gone on to suppuration, and the eye had to be removed. Within a few weeks of the injection facial paralysis had developed, but that disappeared. The pain was now practically as bad as it had been before, and in addition the patient had lost one eye. It was essential to take all the dangers into consideration before recommending the procedure.

Case of Diabetes in which a Mastoid Operation was performed under Local Anæsthesia—T. B. LAYTON, D.S.O., M.S.—A male, of middle age, had a fluctuating swelling which extended down the neck parallel with the sternomastoid. The skin was tense and there was œdema above and behind the pinna. Anæsthesia was produced by blocking the nerves which turn round the posterior margin of the sternomastoid muscle and by making injections behind

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and in front of the pinna. The skin incision was painful, but after this there was no pain. The bone work was done slowly, with a pause between the removal of each piece. It did not cause him any particular discomfort. There was extensive suppuration in the bone behind the ear, and the whole of the mastoid process was removed and the lateral sinus exposed over a considerable area. The region of the middle ear and external auditory meatus was not touched and it was very doubtful whether anæsthesia of this area had been obtained: the case, therefore, affords no evidence as to the possibility of performing an operation on the mastoid where it would be necessary to interfere with these parts. Before the operation the specific gravity of the urine was 1038 with 3 per cent. of sugar. By means of dieting, while in hospital, all the sugar disappeared from the urine.

Mr LAYTON had been glad to have the opportunity of operating under local anæsthesia, as there were occasions when that might have to be done. He had used 1 per cent. novocain, with one drop of adrenalin to the drachm. He did not get much help from Smith's block anæsthesia, because of the swelling and induration of the skin. He had inserted the needle at the posterior margin of the sterno-mastoid muscle. It had been difficult to know what to do with the external auditory meatus; he had felt afraid because of the temporo-mandibular joint. It did not seem to be much use blocking the auriculo-temporal nerve at that point, as the tympanic branch had already come off deep to the joint; therefore he had tried to hit it off behind the neck of the lower jaw. The patient had cried out when the long incision was made. The whole mastoid had been a shell filled with pus, and was of the Bezold type. He did not wish it to be thought that he was advocating local instead of general anæsthesia in mastoid operations.

Mr MUSGRAVE WOODMAN did not think it was possible to cut off sensation from the ear by block anæsthesia, as many of the sensory nerves came from a depth beyond the reach of block anæsthesia. He thought Mr Layton would have obtained equally good results by local infiltration.

Recently he (the speaker) had had a case of extensive suppuration of the neck in a patient who had diabetes, and was an "alcoholic," and who therefore would probably not have stood an anæsthetic. He (Mr Woodman) had injected novocain into the layers of the skin, making a wide wheal, anæsthetising the skin in several places, and the patient had had no discomfort. During operation under local anæsthesia, the patient complained of the jarring of the mallet during chiselling, and consequently he (Mr Woodman) advocated placing a single layer of lint over the mallet head; this did not interfere with the efficacy of the hammering, but it reduced the shock.

Mr JAMES ADAM said that some months ago he had performed a similar operation under local anæsthesia on an old gentleman who was a bad "life." The patient had had recurrent suppuration, pain, and infiltration over the mastoid lasting some weeks. A general anæsthetic was refused, so he

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(the speaker) had used eucaine, which he had employed for twenty-five years. The operation had been fairly satisfactory, but he had waited for twenty minutes, according to the French advice, and he ought to have started at once. When there was much infiltration of skin and subcutaneous tissue, as in this case, it was best not to wait. The patient did not complain much; he was out of bed in two days, and had left the nursing home in a week. He (Mr Adam) asked what was the experience with scopolamine and morphia as an aid.

Dr P. WATSON-WILLIAMS said that when the tissues were inflamed, there was a marked tendency to inhibit the effect of local anæsthetics. The combination of surface with infiltration anæsthesia was nearest to the ideal for these cases. In a recent case in which a post-aural flap was bound down by spreading epithelium, it was difficult to be entirely successful with infiltration anæsthesia or novocain, and he (the speaker) had had to assist the effect by applying cocaine solution. In mastoid operations under local anæsthesia, it was well to do away with the mallet; he did not now carry one for these cases; his gouges, shaped in a particular way, were adequate, and rendered hammers superfluous. Even when the patient was under a general anæsthetic it was an advantage to avoid the jarring inevitable with hammering, however gentle.

He asked how long the diabetes had existed in this case. He (the speaker) had known marked but transient glycosuria in connection with—and, he thought, arising from—sinus suppurations in the nose, and he thought this might be an instance of that.

Mr TWEEDIE said he had seen the mastoid operation performed under a local anæsthetic. The essential part of the method was the sub-periosteal injection of a local anæsthetic in the posterior wall of the bony meatus, by means of which both the middle ear and sub-periosteal space behind the auricle were anæsthetised. The anæsthetic, however, had not appeared to be completely satisfactory, and the procedure had met with some resentment from the patient.

Mastoiditis — Peri-sinus Abscess — Meningitis — Pneumococcal Infection—Recovery—T. B. JOBSON, M.D.—Male, aged 31, had a history of discharging ears since childhood. Ten days previous to admission he complained of pain in right ear and giddiness. Temperature normal, pulse 80.

22nd May 1923.—Face sallow and drawn, tongue foul and dry, breath fœtid, mentality dull; temperature 102° F. Foul discharge from right ear—tenderness behind ear, and œdema; occipital headache marked; eye reflexes normal, ? slight nystagmus to left; neck muscles stiff; no Kernig; knee-jerks equal and normal; grips equal and strong; hand co-ordination good; no history of vomiting.

Operation (1): radical mastoid; bone very dense; extradural abscess found above and behind antrum—fœtid pus; cholesteatoma and polypi in antrum; lumbar puncture: fluid turbid, tension about normal.

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Pathologist's report: "Slight turbidity; cell count 3400 per c.mm. type of cell — polymorphonuclears; culture — pneumococcus (pure growth)."

24th May 1923.—Patient looks unexpectedly well; mentality clear; no pain or headache—feels better. Spontaneous nystagmus to left, slight but definite; head retraction still present, but less; fundi normal; vision good.

Patient did well on pneumococcal serum and autogenous vaccine until 4th June, when he had a rigor, vomiting, frontal headache, temperature 103° F.

Operation (2): wound opened up; left sinus exposed—small abscess found in the groove—sinus clot incised, but not turned out as it looked healthy.

Patient made a good recovery and was quite well within a month. Nystagmus to left lasted for about a week.

This case of acute purulent diffuse otitic meningitis recovered in spite of the C.S.F. showing a very large pleocytosis and pneumococcal infection. The operations done were for the removal of the primary focus. No attempt was made to drain the meninges. The case supports the dictum of Mygind that "if one does not stop the development of a meningitis by elimination of the primary focus, nothing can stop it."

Mr E. D. D. DAVIS said that he thought this was a localised meningitis, arising from sinus infection. Twenty-seven per cent. of cases of otogenic meningitis were said to arise from that source, and 30 per cent. through the internal ear. The reports showed that in the majority of the successful cases the meningitis was due to sinus infection, and those were cases in which one would not drain the meninges if the patient was doing well; at least, drainage should be delayed for twenty-four hours and careful observations of the cerebro-spinal fluid should be made. If the dura mater were opened, it should be done in front and behind the lateral sinus. These cases were more favourable. It was a very different matter when the infection of the meninges arose through the labyrinth and internal auditory meatus, for then there was fulminating leptomeningitis, and if prompt action was not taken, the patient would be lost. It was difficult to know when to open the dura mater, and when not to do so, and he asked the opinions of others. To leave a clot in the lateral sinus was dangerous, as one could not tell by inspection whether it was infected or not.

Mr G. J. JENKINS said that such a case appeared to indicate that the individual was capable of dealing with the organism in the sub-arachnoid space, *i.e.*, if the virulence of the organism was low, and the patient's resistance was high. It must not, however, be concluded from this that all cases should be left alone. If there were no resistance at all, it would be of no use to do anything for a patient with meningitis. Spontaneous recovery after lumbar puncture indicated that operators should go further in meningitis cases.

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Dr KERR LOVE asked whether, assuming this to have been a general meningitis, drainage of the sub-arachnoid space had been considered. One or two successful cases had been recorded in which that space had been drained, an opening being made over the frontal region, and counter-openings behind the base of the skull and in the lumbar region. An obstacle to this procedure was the number of skilled assistants it required, and the danger of removing too much cerebro-spinal fluid. The operation had been done by Dr Eagleton, of New Jersey, and he (the speaker) wondered whether any members of the Section had done it.

Mr E. D. D. DAVIS said that he meant that meningitis arising through the labyrinth and internal auditory meatus was a very dangerous infection. In cases of sinus infection the meningitis was more localised, as contrasted with a general meningitis in the other case.

Mr TWEEDIE said that Dr Jobson had no doubt dealt with the case correctly, as events had proved, but he (the speaker) would be glad to know what particular appearance of the clot had determined Dr Jobson to leave it untouched.

Dr JOBSON (in reply) said that the wound was opened up within twenty-four hours of the secondary rise of temperature, and the dura mater was firm and hard; it was not necrotic. There was no evidence of breaking down of the clot.

The pneumococcus organism was recovered from the cerebro-spinal fluid, therefore the infection had travelled down; this fact was against the existence of a localised infection.

Mastoiditis and Bilateral Peri-sinus Abscess with Left Cerebellar Abscess. Abscess Cavity sterilised by Zinc Ionisation—T. B. JOBSON, M.D.—Boy, aged 13, had had acute otitis in *right* ear with mastoiditis without operation. The ear discharged for two years; intermittent headache and earache. Acute mastoiditis again supervened and a peri-sinus abscess was opened and internal jugular vein ligated: recovery.

Readmitted two months later with pain in *left* ear and headache, and with no history of discharge. Left meatus contained cholesteatomatous pus; slight spontaneous nystagmus to right; no vomiting or giddiness; fistula symptom as a slow, single horizontal excursion to right: radical operation; no fistula found, but an extradural abscess posterior to antrum, of same size and in same situation as that found on right side.

Headache severe; nystagmus increased to third degree; vomiting; no dysdiadokokinesia, no past-pointing, no inco-ordination. *27th August*—Bone removed from Trautmann's triangle, dura mater incised, and 3 to 4 drachms of foul pus evacuated: rubber tube drain. During the following four weeks the condition varied, now better, now worse. On *26th September* fistula test applied to cerebellum; with rubber tube in cerebellar track, pneumatic pressure

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was exerted. No alteration in existing nystagmus produced. Crossed deviation of limbs—to left with left arm, to right with left leg.

Finally, on 27th October, as the cerebellar abscess track did not heal, it was ionised with zinc solution, 4 milliampères for fifteen minutes; no nausea or vomiting produced; rapid healing.

The interesting points were:—

(1) The symmetrical condition of mastoiditis with extradural abscess.

(2) The extensive disease of the left temporal bone without any history of otorrhœa.

(3) The presence of the fistula symptom without labyrinthitis.

(4) The diagnosis of cerebellar abscess was made from the increasing violent nystagmus, the boring, agonising, occipital headache and the vomiting.

(5) The muscular signs, deviation, dysdiadokokinesis, ataxia, etc., did not appear for several days after the abscess was evacuated.

(6) Direct pneumatic pressure to the abscess cavity caused no alteration in the nystagmus. I thought that possibly the original fistula symptom might be explained by pressure being transmitted through the antrum and extradural abscess to the cerebellar abscess, but I do not think now that this theory is feasible.

(7) Sterilisation of the cerebellar sinus by zinc ionisation yielded a surprisingly happy result. The boy's condition had been ebbing and flowing for two months previously, whereas after the ionising he got rapidly well, and has had no recurrence. This is, as far as I am aware, the first time that sterilisation of a brain abscess cavity by zinc ionisation has been tried.

Cerebellar Infection without Clinical Manifestation. Lateral Sinus Thrombosis. Removal of Sinus Dura Mater—G. J. JENKINS, F.R.C.S.—Male, aged 26. Admitted with left earache of one week's duration; had had earache in childhood and again two years ago, and deafness in left ear since infancy; in boyhood left ear discharged, also for past three days. Headache was frontal and left occipital; no vertigo; rigors for two days.

Examination revealed no clinical signs of a cerebellar lesion; left mastoid tender with periosteal thickening; pus in meatus with posterior sagging; veins of both fundi engorged with marginal blurring of discs.

Mastoid operation; lumbar puncture; C.S. fluid: Cells per c.mm., 2750; lymphocytes, 31 per cent.; polymorphs, 69 per cent.; total protein, 0.3 per cent.; globulin reaction, positive; glucose, normal; chlorides, 0.72 per cent.; culture of pneumococci. General infection of a cellular mastoid, and extradural abscess in middle and posterior fossæ; thrombosis of lateral sinus almost to middle line; pus in lower

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vertical part of sinus ; free bleeding obtained from both ends; internal jugular vein ligated and divided. The sinus wall and dura mater of posterior fossa below, behind, and slightly above sinus being necrosed, occipital bone was extensively removed to expose healthy membrane; necrosed areas of dural membrane and sinus walls also removed because of findings in the C.S. Fluid.

An area (about the size of a two-shilling piece) of the cerebellum was obviously infected, and a small bead of pus, about the size of a pin's head, appeared. This region was found to be in a semi-fluid state, and a mass about the size of a small walnut was removed. (Before the removal the margins of the opening of the dura were protected by a sterile iodoform bismuth mixture.) The whole wound was then wiped over with a bismuth-iodoform mixture and packed lightly with gauze. A large drainage tube was left in the cavity in the cerebellum.

The cavity closed in rapidly, and at the end of five weeks a plastic operation was performed and the wound closed. The patient returned to work three months after the operation.

The noteworthy features of the case are:—

(1) The extensive disease of the lateral sinus.

(2) The extensive sloughing of dura mater in association with extradural abscess.

(3) The extensive lesion of the cerebellum without any clinical manifestation, indicating the importance of removing dura when such a condition as that described is found. Was the cerebellar condition due to infection or to venous obstruction, in the first place?

Mr G. J. JENKINS said that in Dr Jobson's case there was the fistula sign without labyrinthitis. If there had been severe labyrinthitis the fistula sign would disappear. Another important point was that a patient might have the fistula sign well marked for three or four weeks, and then it would spontaneously disappear without apparent reason. He (Mr Jenkins) had a case of the kind very recently. The important point to decide was, whether pressure on the cerebellum would necessarily cause a cerebellar ataxia. It was not uncommon to find very large tumours of the posterior fossa, or there might be extensive suppuration in relation to the cerebellum, without ataxia.

Mr TWEEDIE said he did not think that responses to any tests could be regarded as referable to the cerebellum alone. Some time ago Bárány had published an account, by which he had attempted the mapping out of the cortex of the cerebellar hemispheres, with application of cold, by which he had endeavoured to establish "centres" for the pointing reaction. On reconsideration, however, this attempt had been shown to be of questionable value. More recent research seemed to indicate that if any such "centres" for co-ordination did exist in the cerebellum, they were situated in the middle lobe and not in the hemispheres. He (the speaker) questioned

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the applicability of any "fistula" test for the cerebellum as described, but would be grateful to Dr Jobson for further information on this point.

Mr E. D. D. DAVIS asked how Mr Jenkins removed the lateral sinus, and whether there was trouble with hæmorrhage. Eagleton's book led one to think that excision of the lateral sinus was difficult.

Mr SYDNEY SCOTT (President) said it was interesting to contrast Dr Jobson's second case with his first and with the case shown by Mr Jenkins. Surgeons who had had experience would say it was safe to do what Dr Jobson did. Evidently in Dr Jobson's case the trouble was attacked early. Personally, he (the President) would not like to claim that the use of electricity in an abscess cavity "sterilised" the abscess cavity. He would be interested in the views of other members.

Dr KERR LOVE said that eighteen months ago, in connection with the Glasgow Education Authority, treatment of middle-ear cases by ionisation was begun systematically, at first under his care. After eighteen months of it, the following excerpt from the Education Authority's report was of interest: treatment by ionisation had been extended and another set of apparatus had been provided. Since the inauguration of this form of treatment, 216 children had been treated, on 901 occasions, with proved benefit on many occasions. For the year covered by this report, the figures were 152 children on 793 occasions. When he was in charge of the work the cases were selected by him according to the directions now given by Dr Friel; *i.e.*, they were cases with large perforations, and, as far as possible, those in which mastoid involvement was not present. The strength of current used was from 1 to 2 ma., continued for from eight to ten minutes, and the usual coagulation effect was seen in the middle ear. He (Dr Kerr Love) did not deliberately exclude other cases, such as of mastoid disease following scarlet fever and measles. They were dealing with chronic otorrhœa of mixed origin, which had resisted the ordinary cleansing methods. In only a few of the cases the mastoid operation was done, and in those in which it had already been done the treatment was not successful. Between March 1922 and the present time, 216 cases had been treated, with 901 treatments. Before the treatment the most careful cleansing of the ear had been carried out, including drying. The number of cures recorded was less than 10 per cent., and this was not a brilliant result. The general impression he (Dr Kerr Love) had formed was that if one excluded, as one must, the cases which presumably had mastoid involvement, *i.e.*, those arising from scarlet fever, measles, etc., and in the remaining cases performed operations on tonsils and adenoids, and disinfected the ear, there would be no material left requiring ionisation; the patients would have been cured by the other methods.

Dr A. R. FRIEL said he agreed largely with the theoretical part of Dr Kerr Love's statement. In these cases it was essential to diagnose the condition which was keeping up the suppuration. Cases in which there was sepsis in the tympanic antrum and attic were not suitable for treatment by ionisation alone. One patient whom he (Dr Friel) had shown to-day had had infection of the mastoid with cholesteatoma visible at the aditus, and it had been found necessary to destroy part of the outer wall of the attic by electrolysis. The object of this was to convert the "mastoid case"

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into one of sepsis in an accessible situation. He (the speaker) had diagnosed mastoid infection by aspirating pus from the aditus with Siegle's speculum. Dr Kerr Love had said that the tonsil, adenoid, and nose cases would get well with ordinary treatment if the nose were properly attended to, but he (Dr Friel) had seen at the ionisation clinics many children who had had their tonsils and adenoids removed, yet the otorrhœa still persisted, but was readily cured by zinc ionisation; he had also seen a fair number of children with enlarged tonsils and, presumably, adenoids, in whom the otorrhœa had been readily cured by ionisation alone and did not return. There were, on the other hand, a few patients with inflamed tonsils in whose case no permanent result could be expected unless the tonsils were removed. This was true also of cases in which there was rhinitis. He thought the importance of operating on tonsils and adenoids for otorrhœa had been exaggerated.

The results he had obtained at the ionisation clinics were considerably better than those in Glasgow recorded by Dr Kerr Love. He (Dr Friel) believed that 50 per cent. of the cases of chronic otorrhœa in a school were readily curable, and that a further 25 per cent. were made curable by the removal of an accessory factor such as a polypus, a deflection of the septum nasi, or inflamed tonsils, before ionisation. The remaining 25 per cent. probably needed some form of mastoid operation.

Mr G. J. JENKINS congratulated Dr Jobson on his case, but said that he (Mr Jenkins) thought the treatment by ionisation of an abscess cavity in the cerebellum was not without risk, and he would not adopt it, even with a current of very low strength. He thought some of the centres of the medulla would be involved. Many cases were cured without ionisation, and if they were not, there were other means available, without running this risk.

Dr JOBSON (in reply) said that he had no intimate knowledge of the results of applying pressure to the cerebellum; it had occurred to him to try the experiment, and the pressure had not caused any alteration in the nystagmus.

He thought it was agreed that zinc ionisation was capable of sterilising a cavity when the fluid was in immediate contact with all the organisms. Accessibility was of the first importance. It was not quite correct to say that the abscess cavity was sterilised; he ought to have said that the *cerebellar track* was sterilised; by that time the abscess had narrowed down to the dimensions of a small tube $2\frac{1}{2}$ in. deep. The patient had been having symptoms for two months, and after ionisation was done he got well; therefore he (Dr Jobson) felt that some credit was due to the ionisation. Since then he had ionised a temporo-sphenoidal abscess the size of a hen's egg in a case of *B. coli* infection. The first attempt had not proved very satisfactory, therefore he had used a current stronger than that used in the present case; there had been no bad symptoms at all and the patient had gone on very well afterwards. A week ago he (Dr Jobson) had again ionised the cavity, and there had been a great diminution of the pus. There was still some pus, and he intended ionising again. If suppuration in such cases could be cut short in this way the procedure was well worth carrying out. In ionisation of ear cases, much depended on the

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technique. He had seen cases in various hospitals in which the ionisation had been done by nurses, and in those circumstances unsatisfactory results were not surprising ; often the ears had not been cleaned out properly, and there had been pus and debris left behind, so that the cavity was not accessible to the ionising process. To get sterilisation of the tympanic cavity it was necessary to have an open tympanum ; everything possible must be sucked out with a Siegle's speculum ; the cavity must be washed out with an intratympanic cannula ; cocaine and adrenalin must be put in to shrink up the œdematous tissue, and then the cavity should be washed out again with the zinc solution. During the year 1922, at the Central London Throat Hospital, he had ionised fifty patients who had been under the treatment of surgeons for months—some of them for years—and the good results had been almost astounding. In about 80 per cent. of the cases dry ears had resulted ; some of these ears had been suppurating for ten years, some for longer time, and one application sufficed to dry them up. He (the speaker) was a convinced believer in ionisation in certain cases of middle-ear sepsis, if carried out under proper conditions and by a competent aurist.

Model illustrating the Movements of the Otoliths—A. R. TWEEDIE, F.R.C.S.—The model shown was based on the results of investigations of Professor Magnus and Dr de Kleyn, of Utrecht.

Complete Sequestrum of the Petrous Bone—Mr. F. F. MUECKE, C.B.E., F.R.C.S.—In 1917, unilateral ear discharge had followed the bursting of a shell. Facial paralysis developed one month ago. At the radical mastoid operation a complete sequestrum of the petrous temporal was removed with difficulty: it was $\frac{3}{4}$ in. in thickness. The internal carotid artery was exposed.

SCOTTISH SOCIETY OF OTOLOGY AND LARYNGOLOGY

EIGHTEENTH MEETING, ROYAL INFIRMARY, GLASGOW

December 15, 1923.

President—Dr R. P. MATHERS.

A Case of Acute, Bilateral Otitis Media with large Abscess of the Right Frontal Lobe—Dr J. W. LEITCH.—(*Journal of Laryngology and Otology*, p. 209).

DISCUSSION.

Mr DONALD WATSON said that he had seen a case practically similar to this, in which a child, after scarlet fever, had left the Fever Hospital with the history of a running right ear while in the hospital. About six weeks later she was sent to him, after consultation with a medical consultant, as a case of temporo-sphenoidal abscess. He (the speaker) examined

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the patient at hospital ; both her ears were practically normal. The hearing in both was exactly similar. After discussion with the consultant and on his suggestion, he (Mr Watson) trephined the temporo-sphenoidal lobe, but nothing was found. The brain was probed in several places. A *post-mortem* examination revealed a huge abscess in the frontal lobe. He had not been able to satisfy himself that the condition had any connection at all with the ear, so he examined the anterior fossa of the skull, and found that the posterior wall of the frontal sinus was eroded and the dura mater inflamed and adherent. The path of infection was perfectly obvious, namely, direct infection from the frontal sinus in a child eight years of age.

Dr LOGAN TURNER said that he thought it was unfortunate that there was no statement as to the *post-mortem* condition of the nasal sinuses in this case. A frontal lobe abscess might occur in connection with ear disease, but he thought that in this case, more significance should be attached to the fact that the patient had had a fall on his forehead early in June. Might not that have been the actual cause of the brain infection, irrespective of sinus suppuration? The boy had been unconscious after the accident.

Dr CECIL ROBERTSON stated that with regard to the bacteriology in Dr Leitch's case, he had made an examination of the pus and had found a pneumococcus. The deductions he had drawn from the bacteriological experiments, including experiments on animals, were that in this case the pneumococcus had been of low virulence and belonged to the Type IV. class in its agglutinative reactions. He considered that the abscess had lasted for a considerable time and he correlated it with the fall. He was not present at the *post-mortem* examination.

Dr LEITCH (in reply) said there seemed to be no reason to suspect frontal sinus disease or injury. The dura mater (though adherent to the cerebral cortex) stripped quite easily off the frontal bones and the orbital roofs on both sides, and there was no indication of any lesion on direct inspection of the inner table. Of course there might have been some infection through the lymphatics, but there had been no nasal obstruction or nasal discharge during life, and frequent examination had shown no abnormality in the nares or nasopharynx. The tonsils were very small, and there had been no history of snoring or of "sore throats." The boy was right-handed and if there had been aphasia a lesion would have been suspected on the left side. Though there was no reason to suspect a frontal lobe abscess, a large, right, temporo-sphenoidal abscess appeared to be more than probable.

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