TREPHINING IN A CASE OF ACTINOMYCOSIS OF THE BRAIN.

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DURING three years' clinical work at the German Hospital I had the opportunity of diagnosing and observing two cases of actinomycosis hominis. The first case was of a comparatively simple nature.

C. H., aged 45, a German teacher of music, suffered from a periosteal abscess on the left side of the lower jaw. I opened the abscess. The incision soon closed, but swelling and hard infiltration remained and simulated malignant tumour. A fortnight afterwards I again let out some pus, and in it discovered the characteristic yellowish grains of actinomycetes, which, under the microscope, showed both mycelium and clubs. A drainage tube was inserted into the wound, which, after two months, completely healed. I saw the man again one year afterwards. He was then in perfect health, no recurrence of the disease had taken place, and a hardly visible scar was all that was left of the former affection.

The second case, which more especially forms the subject of this communication, was of a more complicated and serious character, and is, as far as I am aware, the first and only case up to this date in which actinomycosis of the brain was recognised as such during life, and also the first case in which trephining was resorted to for such an affection.

E. H., a married woman, aged 40, suffered from pleurisy in the autumn of 1885. At the commencement of the following year an abscess appeared over the cartilage of the sixth rib; another large abscess appeared over the eleventh rib on the left side. Both abscesses were opened, drained, and the thick hard walls were thoroughly scraped; they did not communicate with the pleural cavity, nor were the ribs found bare of periosteum. I had in the meantime seen the case above related, and at once suspected that these peculiar abscesses might be of actinomycotic origin. This was confirmed by the microscope, which revealed the typical club-shaped fungi attached to plots of thick mycelium.

The abscesses healed, only a small fistula remaining, and the patient was not heard of for over two years. In February, 1888, she was again admitted, complaining of gradually increasing weakness of the left arm. I expressed the opinion that we had to do with an actinomycotic lesion of the motor regions of the brain, and suggested the advisability of an early operation. Dr. Port, under whose care and medical treatment the patient remained during the whole of her stay in the hospital, carefully examined her and fully confirmed my views. I am greatly indebted to him as well as to Dr. Burger for having most kindly allowed me to report the case.

The patient and her relations at first would not hear of any operation. Convulsions of the left arm soon set in, several times taking the typical course of cortical epilepsy. Gradually the paresis extended from the left arm to the left lower extremity and left side of the face. Headache, vomiting, and complete loss of consciousness followed. At last she fell into a deep coma, and was apparently moribund when the operation was consented to.

Dr. Burger, surgeon to the hospital, performed the operation of trephining. No anæsthetic was necessary. He removed a portion of the skull over the middle of the right ascending parietal convolution, incised the dura mater and the discoloured brain substance, and removed two ounces of thin, green pus, which contained great quantities of actinomycetes grains. When the abscess was opened the patient (still on the operation table) awoke from the deep coma and called out for water. On the next day she had regained her consciousness; eight days afterwards the facial paralysis had disappeared, and she was able to move her leg. Six weeks after the operation she began to get up and walk about. The paralytic lesions materially improved during the next few months, but there still remained a weakness of the left arm, and slight contraction of the fingers.

The wound healed in two months, and the patient felt very well. Towards the end of the year grave symptoms of increasing paralysis, convulsions, and vomiting returned. Dr. Burger reopened the brain and removed a considerable quantity of pus; the patient's condition, however, was not materially improved after

this second operation, and she died a few days afterwards (January 4th, 1889).

On *post-mortem* examination the heart was found normal. The left lung was adherent to the diaphragm. A small blind fistula led into the supradiaphragmatic tissue. The left lobe of the liver was adherent to the abdominal wall near the fistula. The middle third of the right frontal and parietal convolutions was occupied by a large mass of newly formed tissue protruding over the surface of the brain (*hernia cerebri*) reaching down into the brain substance to the depth of about one inch. Underneath it, deeply buried in the white substance, an unopened encapsuled abscess of the size of a nutmeg was discovered.

Actinomycosis of the brain is a very rare disease, only two cases being on record. In one reported from Munich a large actinomycotic abscess was, on *post-mortem* examination, discovered near the base of the brain. Another case¹ with several cortical abscesses was shown at the Pathological Society.

With regard to treatment, we ought not to shrink from trephining as long as the symptoms clearly point to one particular region of the brain. In the case of E. H. the thoracic affection was practically arrested. Life was prolonged by the operation for eight months, and even on *post-mortem* examination the disease proved to be pretty well localised. If anything we ought to proceed more radically in future, removing if possible the abscess wall by scraping, with a view to eliminate all germs. In the present case some fungi had probably remained, and caused the formation of a new abscess, from which the patient ultimately died.

ABSCESS OF THE CEREBELLUM: TREPHINING: DEATH.

By R. J. BRYDEN, M.R.C.S.ENG.,
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HAVING seen a case of abscess of the cerebellum, following on chronic otitis media, reported by Messrs. W. Milligan and A. W. Hare, in the JOURNAL for February 1st last, I thought it very similar to one that occurred in my practice some time since, only that the abscess was placed in the left lobe of that structure instead of the right side. Unfortunately, I did not take many notes of the case at the time, consequently my remarks are somewhat rough and short in detail.

A. M., aged 23, an electrical engineer, well-built, healthy and strong in appearance, came to consult me on November 7th ult. He complained of pain in his left ear, and said there had been a discharge from the same ear for the past two weeks. He had been living in London, busily engaged in his occupation of electric engineering, when the pain and discharge appeared, but he took very little notice of it until the pain became so severe that he began to lose his appetite and his strength failed him. He came down to Gravesend, where his parents resided, and put himself under my care. On examination there was a purulent but not very offensive discharge from the left ear; there was no appreciable deafness, and after washing out the external meatus with some warm water, I could observe with a speculum that the tympanic membrane was looking dull, and contained a small perforation at its posterior part. There was no tenderness whatever on pressure over the mastoid process nor anywhere in the neighbourhood of the auditory meatus. The right ear was quite normal. The tongue was furred. The temperature was 100.6°. Patient looked rather worn out with pain and want of sleep. I ordered his ear to be syringed out every four hours with some warm boracic lotion, and then to be plugged with iodoform wool, warm fomentations at the same time to be constantly applied to the side of head, and I gave him an aperient mixture to take internally. His past history showed that he had had a good deal of trouble with this ear for the past seven years, as evidenced by discharge off and on, noises in the head, and at times considerable deafness. He had never suffered much aural pain previously. With this exception his health had been generally good since birth, but when a small boy he suffered from tonsillitis, and the left tonsil was removed when he was ten years of age. About five years ago he had been under the care of Mr. Laidlaw Purves, when he was treated for catarrh of the drum of the ear with much benefit. The patient attributed his ear affection to cold. His family history was good, there being no consumption, rheumatism, gout, or nervous disease amongst his relatives. The day after I saw the

¹ JOURNAL, May 25th, 1889, p. 1172.

patient I was asked to call at the house, and found him in great agony, complaining of pain all over the left side of his head, although there was no tenderness anywhere on palpation. There was complete anorexia and want of sleep, but there was no vomiting. He was ordered to bed, and a morphine draught given him. The local treatment of the affected ear was carried out every four hours until the discharge entirely ceased within a week's time. The ear was then syringed out night and morning.

On the third day of attendance severe rigors and shivering set in, followed by profuse perspirations, and these lasted for nearly a week off and on. Evidently meningitis had manifested itself, and for six weeks the temperature varied from 102° to 104° every day. There was general and intense headache, great throbbing in the blood vessels, much photophobia, restlessness, occasional sickness, and foul tongue; the pupils were normal. There was one particular symptom to be observed, and that was a constant twitching, although very slight, of the muscles on the left side of the face, and especially about the left nasal group, which evidently betokened some deep-seated irritation of the facial nerve. The patient was sensible, but got no sleep, except upon a strong hypodermic injection of morphine, which at first I gave night and morning; ice was applied to the head, and an occasional dose of calomel was taken. His symptoms began to improve, so that by November 22nd his temperature became normal; the skin was rather dry, the pulse rather tense and slow, but his tongue was still furred though more moist. The temperature remained normal night and morning, and he expressed himself as feeling very much better as regards the pain and throbbing in the head. I was in hopes that he might recover, and allowed him to leave his bed; but on the evening of November 26th he did not seem nearly so well, although his temperature was only 99°. He complained of violent pain at the back and left side of the head, also of giddiness. He wandered rather in his speech, and amongst other things he asked me "to send a message for him to the Queen." The morphine injection had been discontinued for three days, and I did not feel myself justified in administering any just then.

I called to see him early in the morning, and found him perfectly unconscious and breathing stertorously, which state had commenced and continued ever since 2 A.M. Thinking that probably the formation of a cerebral abscess was the cause of this sudden coma, I asked Mr. Richmond to see him in consultation with me, and we both agreed that although there were no distinct symptoms present which could point to the exact site of an abscess, yet still an exploration by means of trephining was the only remedy left, and was perfectly justifiable.

The parents consenting, and as their house was close by the local hospital, the patient was removed on a stretcher direct to the operating room, and trephining was performed at 2 P.M. by Mr. Richmond, surgeon to the Gravesend Hospital. The skull being exposed on the left side, the trephine was applied posterior to and a little above the external auditory meatus. The piece of bone being removed, the dura mater, which was normal but a little tense, was incised, and a hypodermic syringe was directed immediately downwards, when the point struck the petrous portion of the temporal bone, but without any result. The needle was then inserted directly inwards, when a small quantity of cerebral fluid escaped from the ventricle. An exploration being next made inwards, downwards, and a little backwards, a negative result ensued, and as the patient seemed in a very low state, operative measures were suspended. Dressings having been applied, he was removed to a ward, but died in the evening at 10 P.M., having never regained consciousness.

Next day a *post-mortem* examination was made at 2 P.M., the head only being examined. There were a few adhesions on removing the skull cap, and several nodules of fresh lymph were to be seen scattered along the superior longitudinal sinus, and especially about the torcular Herophili. There was no evidence of phlebitis.

On removing the brain, it was observed that there was no caries of the petrous bone present. Sections of the cerebral lobes showed them to be quite healthy. On making a section through the left hemisphere of the cerebellum, a small abscess cavity, containing about half an ounce of foetid pus, was discovered at its anterior and outer part. There was no very distinct lining to the cavity. The rest of the cerebellum was perfectly healthy.

REMARKS.—This case affords another example of an intracranial abscess, where it was difficult to diagnose its exact site, and even as to whether it was a cerebral or a cerebellar one. There was no paralysis, and the only prominent feature present

was the constant twitching of the left facial muscles. In Dr. M. Foster's *Physiology* it is stated by Nothnagel that mechanical stimulation of even the surface of the cerebellum gives rise, without signs of pain being felt, to movements chiefly of the trunk and extremities of those muscles which are governed by the facial, hypoglossal, and fifth nerves. It might therefore be that the slight vibratory movements of the muscles in this patient's face were brought about by the formation of a small abscess in the left hemisphere of the cerebellum, and so causing irritation of that organ. What seemed to me curious in the symptoms was the decline of temperature during the last few days, as, with the presence of a presumable foul abscess, one might have expected high fever, but, nevertheless, the "dirty" tongue and high tension pulse pointed to some active mischief proceeding somewhere. I gather, in this particular case, that the ear trouble led to septic meningitis, and the latter tended to the formation of abscess; and it again shows the oft-repeated and frequently neglected necessity of treating all local discharges from the ear.

A CONTRIBUTION TO THE STUDY OF SULPHONAL.

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THE discussion which was opened by Professor Leech, of Manchester, at the annual meeting of the British Medical Association at Leeds in August, 1889, "On Recently Introduced Hypnotics and Analgesics," showed that sulphonal—one of the group—was on its trial. As might be expected, the results of the observations were conflicting, some having obtained good results, while others had been unable to obtain any marked benefit. It was elicited that in some cases a series of cerebral symptoms, such as giddiness, loss of co-ordination of the upper and lower extremities, states of expression and movement like those produced by alcoholic intoxication, sometimes followed the administration of the drug. Having recently undertaken a series of observations on the action of paraldehyde and urethane, which were published in this JOURNAL, I have made a like series of observations on the pharmacology of sulphonal.

Owing to the extreme insolubility of the drug in any neutral medium, considerable difficulty was experienced in some of the observations, and in the series of experiments on its action on muscle and nerve the solutions employed were saturated.

Sulphonal occurs in colourless crystals or as a white crystalline powder almost without taste or smell. It is comparatively insoluble in cold water, more soluble in boiling water, easily soluble in alcohol or ether, and it is not affected by acids or alkalis. Its solubility is slightly increased in the presence of sodium chloride; it can readily be given in hot tea or coffee, on thin bread and butter, or suspended by mucilage; but as it is nearly tasteless little or no aversion is offered to its exhibition. It is an oxidation product of the union of ethyl-mercaptan with acetone, its chemical nomenclature being diethyl-sulphon-dimethyl-methane, and its graphic formulæ may be represented thus:

It is thus a derivative of the alcoholic series from which other hypnotic agents, such as paraldehyde, methylal, etc., have been obtained. It was admirably demonstrated by Dr. Lauder Brunton, in his fascinating and suggestive Croonian Lectures, that the possibilities of new therapeutic agents from this group by the process of substitution are infinite, and that it may be confidently expected that the series will yield a potent substance free from the disadvantages of those already discovered. Some of the objections to sulphonal are its insolubility, on which may depend its deferred hypnotic action, the time that elapses before the hypnotic action takes effect, the prolongation of the hypnotic action into the succeeding day, the giddiness, the loss of co-ordination of upper and lower extremities, depression of spirits, and cutaneous eruptions.

Action on Reflex Functions of the Spinal Cord.—A series of experiments were performed on frogs, to ascertain the action of the drug on the reflex functions of the spinal cord. The method em-