ABSCCESS OF THE CEREBELLUM, FOLLOWING CHRONIC OTITIS MEDIA: TREPHINING: DEATH.

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E. H., aged 14, had suffered for six years from suppurative catarrh of both tympanic cavities, following on an attack of scarlet fever. During the greater part of this period there had been intermittent discharge from both ears. He was very subject to catarrhal attacks, and at those times the discharge from the ear was always profuse, foetid, and attended with considerable pain. For the last eighteen months, however, the left ear had remained dry. On November 15th the patient presented himself at the Ear Institution, complaining of severe pain in the head. A week previously, the discharge from the right ear had suddenly stopped, and from that time severe pain had set in. On examination, the pain was found to be present all over the right side of the head, but was more especially located over the right coronal suture. Slight percussion at this point produced the greatest agony. The boy's face wore an expression of great anxiety. He had had very little sleep for a week, although there was a constant feeling of great drowsiness. The pulse was 80, feeble, and at times intermittent; the skin cold and clammy. There was complete anorexia and an intense feeling of nausea, but no actual vomiting. On making the patient stand with closed eyes, there was a slight tendency to fall forwards. Patellar tendon reflexes diminished. No facial paralysis; but paresis was present in the soft palate and uvula on the right side. The pupils were equal and reacted to light, although sluggishly. On the right side distinct optic neuritis was present; on the left a slight blurring of the disc.

After a consultation between us, the patient was at once admitted to the Ancoats Hospital for further observation, or, if need were, for operative interference; as we believed we had before us a case of intracranial suppuration.

After his admission to the hospital the patient gradually became worse; the pain, sleeplessness, and anorexia continued, and at intervals retching and vomiting occurred. In the intervals the patient took small quantities of milk and soda-water, peptonised gruel, and beef essence; but his strength diminished rapidly, and the torpor increased; such sleep as he obtained was disturbed and delirious. Sixty hours after his admission the patient was obviously much worse and in a condition of serious danger. The temperature was subnormal, and the pulse weak and markedly intermittent. At a consultation with Dr. H. R. Hutton, Honorary Physician to the Ancoats Hospital, it was concluded that the symptoms pointed to the existence of an abscess, and that something must be done for its relief.

In the absence of distinctly localising symptoms it was decided to trephine at a point whence both the temporo-sphenoidal lobe and the cerebellum may be reached. Accordingly, the patient having been anaesthetised, the skull was exposed on the right side and the trephine applied immediately above and posterior to the external auditory meatus. On exposure the dura appeared normal. It was incised low down near its reflexion on the floor of the skull, and the upper surface of the petrous bone and roof of the tympanum were carefully examined. They were perfectly smooth and normal. The temporo-sphenoidal lobe was then explored with a hollow needle, but no abscess was found. An exceedingly fine hollow needle was then thrust through the tentorium from above downwards into the right lobe of the cerebellum. On withdrawal, its contents were placed under the microscope, and revealed the presence of pus cells and *débris*. Owing to the circumscribed space at command and the immediate vicinity of the lateral sinus it was not deemed advisable to open and drain the abscess through the tentorium. Accordingly the wound was closed, after careful suture of the dura mater and the planting of spicules of bone on its outer surface. A catgut drain was introduced and the scalp sutured in position, and an antiseptic dressing applied. The trephine was now reapplied over the cerebellum, below the line of the lateral sinus. On exposure the dura appeared normal. It was incised, and the surface of the cerebellum came into view. Its appearance was normal, but it bulged into the

wound, and did not pulsate under the finger. The aspirating needle was pushed upwards and inwards through the substance of the right cerebellar lobe, and when it had traversed two inches of this tissue there was a sudden gush of intensely foetid pus through the needle. In all from two to three drachms of pus escaped. As the needle was removed a pair of Lister's sinus forceps was introduced closed, and by gently opening the blades a channel was made, through which a small drainage tube was inserted into the abscess cavity. The tube was secured externally to the scalp, and the scalp flap restored to position, leaving the aperture for the drainage tube free. The whole of the procedures were carried on under the spray, with full antiseptic precautions. On awaking from the anaesthesia the patient was found to be free from pain and much less torpid than before. There was no vomiting; he took small quantities of nourishment at frequent intervals, and slept at intervals quietly and naturally. For nineteen hours after the operation his condition remained satisfactory. Then it was noticed that a rapid change was occurring, chiefly affecting the breathing, which assumed an irregular character resembling Cheyne-Stokes respiration. The temperature, which had been normal since the operation, began to run up, and within three hours the patient died, death occurring ultimately very suddenly, being apparently due to interference with the respiratory centres.

Post-mortem Examination Fifteen Hours after Death.—The membranes and surface of the brain were found to be healthy. No caries of the petrous bone was present. There was no evidence of sinus phlebitis. Cerebral lobes firm and healthy. Sections of the cerebrum showed a natural appearance throughout, and in the right temporo-sphenoidal lobe, which was examined with special care, no trace of the exploratory needle could be discovered. On making sections of the cerebellum, the abscess cavity was found empty and collapsed, with the end of the drainage tube lying in it. The cavity was about the size of a small walnut, and was situated towards the middle of the right lobe, in its anterior and upper part. It was lined by a distinct limiting membrane, suggesting that the abscess was of old standing. The pons and medulla, with the remainder of the cerebellum, were apparently perfectly healthy. The *post-mortem* examination was limited to the head.

REMARKS.—It has been said that if the tympanic cavity be the original seat of the disease, and a secondary abscess be suspected, the latter will be found in the cerebrum; if the mastoid cells, then in the cerebellum; and if the internal ear, then in the pons. This statement is not, however, borne out by the facts of recorded cases. At present the localisation of an intracranial abscess following aural disease cannot be effected with any degree of certainty. If the roots of particular cranial nerves be implicated, the diagnosis may pass from supposition to more of a probability; but it must be borne in mind that mere pressure from an abscess or the extension of meningeal irritation may cause the same nervous symptoms, pointing to localisation, though the abscess itself may be at a distant part of the brain. It is often, as in the present case, exceedingly difficult to state with any degree of certainty whether the abscess be cerebral or cerebellar. We are inclined to believe from recent experiences that the usually accepted preponderance in the frequency of cerebral abscesses (6 to 1) will be found to exaggerate the true relative frequency of abscess above and below the tentorium respectively. The question of the path taken by the infective process is a matter of great interest. In many cases where the tympanic cavity is the seat of the disease the abscess is found in the temporo-sphenoidal lobe, no doubt from the direct continuity of tissue. In other cases caries of the petrous bone with thrombosis of the lateral sinus is found, producing a distinct path of infection from the primary source to the secondary seat of the process. In other cases pus has been found to travel along the sheath of the seventh nerve. In still others no obvious path of infection can be found. In the present case this was so, and one has to fall back for an explanation upon the supposition that the small venous and lymphatic channels between the middle ear, the subarachnoid fluid, and the perivascular lymphatic spaces of the cortex are the paths by which the infective process travels. The frequency with which cerebral and cerebellar abscesses follow aural disease points to the great importance of checking the primary disease, and, by various remedies, of attempting to render the tympanic mucous membrane healthy. In all cases—with the exception of two or three acute cases—the abscess follows very chronic affections of the ear. In many such little or no treatment has been attempted, but in others the most persistent and regular treat-

ment fails in attaining its object. In such cases we would strongly urge that the mastoid cells should be trephined, and all caseous matter (which will probably be found) cleared out, and a thorough drainage of the tympanum established. By this method the presence of matter likely to form a focus of secondary infection would be avoided, a return to the local condition of health made possible, and the chances of subsequent intracranial supuration considerably reduced.

CLINICAL REMARKS ON A CASE OF MALIGNANT OR PERNICIOUS ANÆMIA IN WHICH A CONDITION OF CHRONIC GENERAL OSTEOMYELITIS WAS FOUND AFTER DEATH.

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[Communicated by the DIRECTOR-GENERAL OF THE MEDICAL
DEPARTMENT, ROYAL NAVY.]

H. W. C., aged 24, able seaman, of fair general physique, came on the sick list February 16th, complaining of slight and ill-defined pains about his chest, epigastrium, and loins. He said he had been in failing health for three or four weeks; he had lost flesh, and was easily fatigued. On referring to his medical history sheet I find he had pleurisy in 1881, remittent fever in the East Indies in 1884, and an attack of purpura with dyspepsia in 1886.

After careful examination by myself and my colleague, Surgeon A. W. May, we could find nothing wrong. He had a clean tongue, fair appetite, and normal temperature, and all the bodily functions appeared to be regularly performed; his urine was acid and slightly phosphatic. As he looked anxious and ill, he was placed in bed for observation on a restricted diet.

There was, on the following day, considerable tenderness in the epigastric and hepatic regions; the liver was not enlarged, and no tumour could be detected; the respiratory murmur was weak on the right side; the sternal half of the right clavicle was much thickened; this he attributed to a fall from a horse three years previously; heart sounds normal.

Three days after admission he began to lose appetite, and vomit after food; he complained of much lumbar pain, and when he coughed or drew a deep inspiration, the pains in his chest and back were much increased. The epigastric and hepatic regions, if anything, became more tender; there was no sign of jaundice.

Four days later he began to vomit almost incessantly; the vomited matters consisted of liquid, having a bitter taste, and of the colour of yolk of egg. After three days the bilious vomit became of a green colour. He was rapidly losing flesh; bowels became obstinately confined; tongue thickly coated and whitish; no rise in temperature, and no localised tenderness in any of the bones.

At the end of ten days he was sent to the General Hospital at Auckland, as we were about to proceed to sea. In hospital he steadily lost ground, and became very weak and thin. There was much tenderness about the chest walls, and for two or three days some slight swelling was noticed over the sternum, but this disappeared entirely. He then had several attacks of epistaxis, and when I saw him, three weeks after admission to hospital, he looked like a man dying of pernicious anæmia. The bowels were very much constipated; he could take little or no food, as everything he tried to take caused disgust and nausea. His temperature one night was 100° F., otherwise it had been normal or sub-normal throughout. He died of exhaustion on the forty-fourth day.

Necropsy Eighteen Hours after Death.—Body extremely emaciated, skin of a white waxy colour. Abdomen: organs extremely pale and bloodless; all the fat had been absorbed; intestines contained small scybalous feces throughout; liver small, structure healthy; kidneys and adrenals extremely pale but normal in structure. Stomach: a hard thickened patch was felt near the pylorus; the glands in the lesser curvature were of quite cartilaginous hardness, varying from a pea to a horse-bean in size; pancreas and spleen healthy. On opening the stomach, the hard spot near the pylorus was found to be the cicatrix of an old ulcer, the size of a crown piece; the base was quite hard, resembling

the glands at the lesser curvature. The blood vessels were healthy, but contained only pink serum. Chest: when the soft parts were turned back the periosteum and cartilages looked normal, but on dividing the ribs many of them were quite soft; the cancellous tissue had broken down, and was replaced by a pink creamy matter. The sternum was in the same condition, as were also the clavicles and femora, the periosteum being in all healthy. Lungs bloodless, structure healthy, old pleuritic adhesions about right apex. Heart and large vessels normal, but contained only serum.

This was a most puzzling case. During life he had been examined by all the medical staff, none of whom could form a satisfactory diagnosis. The extensive bone disease was not suspected, and might have been easily overlooked had not one of the ribs been unintentionally divided at a bony part whilst dividing the costal cartilages to remove the sternum; this led to the discovery of the general osteomyelitis, of which there was no indication until the bones were divided. My own idea of the case is that the chronic osteomyelitis was the initial disease, and that the anæmia was a direct result of the bone disease. If this view be the correct one, it would strengthen the theory that the red corpuscles of the blood are formed originally, or are in some way matured, in the marrow and cancellous tissue of bones.

CASE OF POPLITEAL ANEURYSM: LIGATURE OF FEMORAL ARTERY.

By FLEET-SURGEON J. N. STONE, R.N.

[Communicated by the DIRECTOR-GENERAL OF THE MEDICAL
DEPARTMENT, ROYAL NAVY.]

W. L., aged 33, A.D. of H.M.S. *Téméraire*, Mediterranean Station, while at sail drill aloft, on August 20th last, slipped in the rigging and immediately felt something give way behind the left knee. He reported himself to the medical officer on the following day, when a pulsating tumour was discovered in the popliteal space. Patient was sent to England for treatment, bed, bandages, and elevation of the limb being employed provisionally.

On arrival at Plymouth Hospital on September 18th he was found to have a pulsating tumour three inches long filling up the left popliteal space; a distinct *bruit* was present. Digital pressure over femoral by a succession of volunteers was employed for twenty-four hours continuously, Signoroni's tourniquet being then substituted for a couple of hours, when digital pressure was again resorted to for a further period of twenty hours. This was well borne, but considerable œdema of leg and thigh resulted with but little diminution of pulsation. All pressure was for the present discarded. On the subsidence of œdema the tourniquet was again employed for several days with negative result.

Having regard to the size of the tumour and the presence of a loud rough *bruit*, treatment by Esmarch's bandage was not considered advisable, and it was accordingly decided to ligature the femoral. This was done antiseptically on October 8th, the vessel being deligated at Scarpa's angle. Kangaroo tendon was used, a small drainage tube entered, and the incision closed by three carbolised gut sutures, the whole dressed antiseptically. The limb was wrapped in cotton wadding and warmth applied to the foot.

October 9th. Temperature 98.4°; pulse 80. Very slight pain in shin; temperature of foot normal. 8 P.M., temperature 99.8°.

October 10th. Temperature 98.4°; pulse 76. Very little uneasiness in leg.

October 11th. Temperature 98.4°; pulse normal. Quite comfortable; no pulsation in tumour since operation; no œdema of leg or foot; sensation unimpaired.

October 18th. Removed dressing for first time, ten days having elapsed; wound appears to have absolutely healed by first intention, ligature and sutures being absorbed, and drainage tube, which was thrown out, found dry in dressings. Tumour in popliteal space quite solidified and about half original size.

November 6th. Has continued without an untoward sign or symptom. Amount of daily exercise gradually increased. Tumour quite solidified and reduced to about one-sixth of original size. Use of limb seems perfect. Discharged to duty.

The main interest connected with this case appears to turn on the fact that the somewhat protracted course of pressure, digital and instrumental, prior to ligature, so far from exercising any untoward effect on the subsequent operation, appears to have had a