Clinical and other Notes

themselves. Apoplexy in the first half of life is nearly always due to the rupture of a cerebral aneurysm.

(2) A Syndrome Resembling Meningitis.—When the aneurysm leaks slowly, a clinical picture indistinguishable from meningitis may be produced. Stiffness of the neck, head retraction, vomiting and pyrexia may all be present, and until a lumbar puncture is done, the case is diagnosed as meningitis. I have seen a case diagnosed clinically as ruptured cerebral aneurysm which turned out to be cerebrospinal meningitis.

(3) Another less common clinical picture is one of severe lumbago and sciatica, which may persist for some days, when meningeal symptoms supervene, and a lumbar picture clears up the diagnosis. The diagnostic point is the presence of blood in the cerebrospinal fluid.

It is possible that some of the unexplained deaths occurring in young men in India, and attributed to heat stroke, may be the result of a ruptured cerebral aneurysm. The condition is not necessarily fatal, and a man may have several attacks in his life time.

The treatment consists in complete rest, sedatives and repeated lumbar punctures to relieve intracranial pressure.

Quite recently surgical treatment has been tried by N. Dott in Edinburgh, with success. The aneurysm is exposed, and muscle grafts cut from the leg are packed round it.

This heroic measure would only be attempted in cases of repeated hæmorrhages endangering life.

A SCALP WOUND AND ITS SEQUELÆ.


The case of R. A., aged 8 years, son of Drummer A., Depot K.O.S.B.

On August 11, 1934, this child fell against a rusty iron paling and sustained a contused and lacerated wound about the centre of the forehead extending down to the bone. His parents were out at the time and he bathed the wound with a rag. Later two stitches were inserted. There was no sign of fracture on the exposed portion of the bone but the child had septic sores on his face and on his fingers and was in a poor state of health. The wound suppurated and the stitches were removed after thirty-six hours. The child was not confined to bed and he attended daily for dressings. The wound continued discharging and a small sequestrum formed.

On September 14, when his mother brought him to have the wound dressed, there was a very definite loss of power in the left arm and leg and he had some difficulty in walking. It was evident that there was some intracranial complication and it was decided to send him to the Royal Hospital for Sick Children in Edinburgh. In the course of the afternoon
he developed twitchings of the left arm and leg, which lasted for a few minutes and again recurred after a short quiet interval. Later similar involuntary movements developed in the neck and face on the left side.

The same evening after admission to hospital an operation was carried out by Mr. Robert Stirling, F.R.C.S.E. The wound was cleansed and explored with a probe. A bare area on the frontal bone about the size of a threepenny piece was felt in the mid-line. A small semicircular flap was cut around the wound and turned downwards so that the bare area on the bone was freely exposed. A sequestrum was encountered and was easily removed following which thin pus escaped freely from the interior of the skull. This was found to come from an extradural abscess cavity about an inch and a half in diameter and situated exactly in the mid-line in the mid-frontal region. The underlying dura was observed to pulsate freely after the pus was evacuated. The cavity was drained. The wound healed satisfactorily—but the left-sided hemiparesis did not improve. Signs of increasing intracranial pressure began to develop and the child was transferred to the Edinburgh Royal Infirmary under the care of Mr. Norman M. Dott, F.R.C.S.E., on October 20, 1934.

At this time there was very definite papilloedema and the degree of hemiparesis was increasing. There was considerable drowsiness and slowing of the pulse. There was no sensory impairment nor hemianopia. It was obvious that further abscess formation was present affecting the anterior part of the brain on the right side and further operation for this was undertaken.

On October 21, 1934, under gas-and-oxygen anaesthesia, the site of the former extradural abscess was explored with a needle. The cavity was found to have healed satisfactorily and no pus was obtained. A small incision was made just above and to the right of the former extradural abscess cavity. The bone was perforated with a burr and an exploratory puncture was made with a blunt exploring cannula. At a depth of two millimetres beneath the dura an abscess cavity was encountered and forty cubic centimetres of fairly thick greenish pus were evacuated. The abscess was situated relatively superficially in the right pre-frontal region; immediately beneath the upper part of the external surface of the adjacent brain. The exploring cannula was replaced by a soft rubber catheter, which was secured in place and drainage was thus established. The abscess so situated was apparently the sequel of a septic thrombosis of one of the superior cerebral veins.

General progress was satisfactory for some weeks. The catheter was maintained in place during this period, the abscess cavity gradually closed down around it and eventually became obliterated and the drain was removed. While there was marked general improvement there was little alteration in the hemiparesis and after about six weeks symptoms of increasing intracranial pressure began to reassert themselves. The child became irritable and noisy, was inclined to weep with insufficient provo-
cation and was generally difficult to deal with. There was bulging and tension at the two sites of previous drainage, and papilledema, which had never completely subsided, began to increase again. It was obvious that further abscess formation had occurred.

On December 10, 1934, a third cerebral abscess was aspirated and drained. In the first instance the sites of the two previous abscesses were explored with a needle and no residual cavity or pus was found in either situation. A small incision was then made over the situation of the upper end of the right Rolandic fissure. The skull was opened with a burr and on exploring the underlying brain through the dura a third abscess was located at a depth of two or three millimetres. About twenty-five cubic centimetres of thick greenish pus were evacuated. This abscess was also situated superficially in the brain substance and was again evidently due to spreading septic thrombosis in another of the superior cerebral veins. This operation was followed by a gradual improvement in the child's general condition though there was still only a slight improvement in the hemiparesis. He was allowed to return home on March 16, 1935.

At this time he walked with a typical hemiplegic gait and the left arm was in flexion contracture, and there was a conspicuous left facial weakness. Papilledema had not quite subsided. He was still bad-tempered, apt to cry, and behaved in an ill-humoured way. Whilst at home he continued to be aggressive and quarrelsome and difficult to deal with. On April 6, 1935, he vomited and complained of headache and exhibited left facial twitchings. On April 8, he was readmitted to the Royal Infirmary, Edinburgh, and the following points were noted:

"The boy seems now fairly comfortable, quite bright and alert. There is a large number of prominent and dilated veins radiating from the mid-frontal region where there is a small opening in the bone through which the original extradural abscess was drained. The dura which can be felt through the opening is quite definitely tenser than normal. There is no change in the hemiparesis.

"A feature of the hemiparesis is that in the upper extremity there is well marked increase of postural tone, but little or no increase in tendon reflexes, whereas in the lower extremity there is no increase in postural tone, the paresis being rather flaccid in character, but the tendon reflexes are grossly exaggerated. Voluntary movements in the hand, although slow on account of the increased postural tone, are well preserved, whereas in the lower extremity voluntary movement below the knee is practically absent and there is a conspicuous tendency to drop foot. The lesion of the upper extremity has more the character of an extrapyramidal motor lesion, whereas that in the lower extremity is a typical cerebral paresis of the pyramidal type."

It was judged that the child probably had a further abscess situated in the central part of the right hemisphere. It was considered advisable to make a ventriculographic examination in order to confirm this opinion.
X-rays did confirm the presence of a large swelling in the central part of the right hemisphere.

On April 15, 1985, resection of a chronic abscess situated deeply beneath the cortex in the right hemisphere was carried out by Mr. N. M. Dott.

A centrally placed osteoplastic bone flap was cut on the right side of the head, exposing widely the central region of the brain and extending well up to the mid-line in the neighbourhood of the vertex. This flap included the two sites of previous abscess drainage. The dura was widely opened and turned upwards as a flap. The brain surface generally was a little pale and oedematous looking. The brain bulged moderately into the exposed field. The cortex was adherent to the dura mater over a very limited area at the two sites of previous abscess drainage. In these areas nothing abnormal could be felt beyond the adhesions. Apparently the previous brain abscesses had healed quite satisfactorily.

By means of multiple exploratory punctures of the brain a large solid body could be outlined lying directly beneath the Rolandic cortex and approaching close to the surface at the upper border of the hemisphere, extending downwards into the hemisphere for some 6 or 7 centimetres, and lying parallel to the median surface of the hemisphere, so that except near the upper margin it was at a considerable depth from the outer surface of the brain. An approach to this mass through the longitudinal fissure of the brain would in many ways have been preferable, but this was precluded by the necessity of demobilizing the upper border of the brain, which would have involved the ligation of several important veins entering the longitudinal sinus and the demobilization of the previous adhesions. For these reasons it was decided to approach the mass through the brain substance from its outer surface. Accordingly a vertical incision was made beneath the posterior central gyrus. The surface of the mass was readily exposed near the upper end of the incision. Further dissection was made, stripping the surface of the mass from the surrounding brain substance. At one point there was some difficulty with an artery of considerable size, but ultimately it was controlled and divided. The mass, which proved to be a chronic encapsulated abscess, was gently tilted out of the wound and was removed intact. Bleeding from the cavity was not very troublesome. It was treated by light packing with moist cotton-wool for about half an hour. The pack was then gently removed and no further oozing occurred. In view of the oedematous state of the brain the dura was not closed. A drain was inserted into the cavity from which the abscess had been removed. The bone flap was gently replaced over the still moderately bulging brain and was not fixed down in place. The scalp was closed without difficulty in two layers of interrupted silk stitching. Recovery proceeded slowly and after a period at a convalescent institution he was discharged home on June 6, 1935.

During this period of convalescence the most striking change in the patient was in his mental state. There was a complete change in his
character, behaviour and intelligence. Previously unstable and restless, apt to cry and become peevish on the slightest provocation, he had now become quite bright, cheerful and contented and his intelligence had markedly improved.

Neurologically his hemiparetic condition had shown only slight improvement. The left lower facial weakness was still very obvious. There was still a marked degree of spastic paresis of the left upper extremity though a little more power of voluntary control had returned to the shoulder and elbow. In the lower extremity voluntary movements of the hip and knee remained satisfactory, but there was no improvement in the rather flaccid paresis of the limb below the knee. In spite of this he was able to walk about with slight support. Splints were applied to prevent contractures of the left hand and left foot and he is to be readmitted to Hospital with a view to deciding whether an operation for stabilizing the left foot would be advisable to permit satisfactory walking, or whether there is a sufficient improvement in muscular control to warrant postponing this step. It is anticipated that with or without stabilization of the foot, he should in future be able to walk very reasonably well. It is doubtful whether a completely useful left upper extremity will be obtained. Otherwise the outlook now appears excellent.

From the pathological point of view the principal point of interest in this case is the mode of extension of the infective process from the compound fracture of the skull to a centrally situated frontal extradural abscess through the underlying dura by certain of the superior cerebral veins, septic thrombosis of these veins extending into the brain substance with the formation of two abscesses immediately beneath the convex surface of the brain and a third abscess immediately beneath its median surface. From the surgical point of view it is of interest to note the success of the correct mode of treatment at the various stages of abscess development, viz., prolonged drainage in the earlier stages when the abscess wall is thin and the cavity can close down and become spontaneously obliterated, and the excision in the later stages when the abscess wall has become thick.

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