

A CASE OF  
CEREBRAL TUMOUR, GIVING RISE TO  
JACKSONIAN EPILEPSY AND, AT  
A LATER STAGE, COMA;  
OPERATION; REMOVAL OF TUMOUR; RECOVERY.

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THE patient in the following case was a man 27 years of age. He was admitted to a surgical ward in Glasgow Royal Infirmary on July 1st, 1906, having been transferred from the medical wards in charge of Dr. David C. McVail, where he had been under treatment since Dec. 28th, 1905. The history supplied from the medical side of the infirmary was to the effect that he had first come under notice in 1904, suffering from a large sore over the sternum, which yielded to antisyphilitic treatment. He remained well after this until March, 1905, when he began to suffer from headaches which soon became constant and severe, the pain being particularly located over the vertex. Then giddiness and vomiting began to accompany the pain and would sometimes occur two or three times daily. The first epileptic fit occurred on Dec. 12th, 1905, nearly seven months before his transference to the surgical ward. An aura, consisting of a tingling sensation in the right foot, occurred first, followed almost immediately by contraction of the muscles of the right lower limb. The convulsion then became general and the patient lost consciousness. The fit lasted three minutes and he was weak after it but not dazed. Five similar attacks occurred during the next two weeks and it was then noticed that he suffered from a paresis of the right leg which soon involved the whole right side, with the exception of the face. He was still, however, quite able to move about but dragged the right limb slightly in doing so. The eyesight and hearing were good at this time but it was noticed that his memory was becoming defective. He slept badly.

Early in January the patient had two or three fits, one of which was of an intermittent character and lasted in all some five hours. In at least one fit which he had about this time the aura and also the convulsive movements began in the right arm and not in the leg. From this time onward the fits became less frequent and the headache less severe, but latterly the sickness and vomiting became so frequent that it was deemed advisable to stop the specific treatment which, up to now, had been regularly carried out. Up to June 24th he was able to leave his bed and to look after himself fairly well, but from this date onward his condition became rapidly worse and he was accordingly transferred to the surgical wards under my charge, while acting for Dr. Peter Paterson.

On admission to the surgical wards the patient was found to be in a rather drowsy condition. His pulse was slow (52 per minute) and full and his temperature was subnormal (97° F.). He lay very quiet, never trying to turn or to sit up. When roused, and there was generally some difficulty in rousing him, he took some time before answering a question, and then answered slowly by a monosyllable. "Yes" and "No" were practically the only answers he gave, and sometimes he seemed to have great difficulty in saying "Yes," as, while the lips moved, no answer came. Frequently no answer whatever was given. He never asked for anything. He could move a limb when asked to do so but the right leg was moved with difficulty, chiefly by the trunk muscles, while the right arm was absolutely paralysed and there was right facial paresis. Swallowing was accomplished with difficulty and some degree of choking frequently occurred even with liquids. He could not protrude the tongue. Urine was passed in bed and, in spite of vigorous medicinal treatment, there was absolute constipation. With regard to the eyes, both pupils were sluggish but the left one was dilated and irresponsive save to very strong light. On examination with the ophthalmoscope optic neuritis was found to be very marked over both discs, the left being more markedly affected. Ptosis was marked on the left side. He had no fits for over six weeks prior to his transference to the surgical wards, nor had he any

during the few days that he was in the surgical ward prior to operation.

From the foregoing history and symptoms the presence of a tumour in the left motor area, involving principally the leg and arm centres, and giving rise to very considerable pressure, was diagnosed. Two points of difficulty, however, arose. The first was the slight discrepancy between the history of the onset of the fits and the present condition of the limbs. The history stated that, as a rule, the fits began in the leg, whereas the patient could move the leg slightly while he had an absolute paralysis of the arm. The second point was the rapid deterioration in his condition during the previous ten days, a symptom which, it was feared, might point to some more general involvement, possibly oedematous or inflammatory, and not merely to pressure from a well-localised tumour. During the four days prior to operation his condition became distinctly worse even than it was on admission. Thus on the morning of operation he was comatose, his pulse-rate was 48, and his temperature was 96.4°.

The patient having been prepared, save that the bowels could not be got to act, the operation was performed on July 5th. Taking into consideration that the fits were a little variable in their place of origin and that the history of the fits did not tally with the present condition as regards paralysis of the limbs, it was decided to investigate both arm and leg areas. He was accordingly anaesthetised, chloroform being used for the purpose. Only a small quantity was required, six drachms altogether, for an operation lasting some three hours, nearly all of it being used during the first hour. He showed a distinct tendency to stop breathing whenever he was put fully under its influence. An osteoplastic flap, of horseshoe shape and barely two inches in diameter, was raised from the left upper Rolandic area. The bone was first perforated in several places by a drill and the intervening portions were cut through by a Gigli saw; after which, periosteal elevators having been introduced as levers, the base of the bone flap was divided and the flap, consisting of bone, periosteum, and soft tissues of the scalp, was turned back, so that the dura mater was exposed. It was found, however, while this was being done that firm adhesions existed between the dura mater and the bone at the upper part of the flap. The dura mater thus exposed was found to be very tense, so much so that palpation of the underlying structures was practically impossible and pulsation of the brain was absent. It was more resistant toward the vertex, and this portion was covered with the small adhesions which had been divided on removal of the skull.

A crucial incision was next made very carefully over the most prominent portion of the dura mater and immediately the brain matter bulged into the wound. At the same time it was reported that the pulse-rate, which up to now had been about 50, had risen to 60. A little later it rose to 90, then to 110, and finally to 144, changing in character from being hard and full to being very soft and feeble. The brain matter was encouraged to bulge, in the hope that, cerebral pulsation having been now restored, the tumour might be extruded without further manipulation. This, however, did not occur. The brain substance which protruded was very oedematous and finally ruptured, a small quantity of disintegrated brain matter being extruded. Palpation of the actual brain substance confirmed the sensation of firmness toward the vertex and the dura mater was accordingly opened up toward the upper limit of the aperture in the bone.

While this portion of the dura mater was being incised it was observed to be closely adherent to the brain substance by large numbers of small soft adhesions. No evidence of actual tumour being found on the surface a pair of sinus forceps was very carefully inserted downwards through the cortex, slightly opened, and then withdrawn, but no tumour substance presented. The little finger was accordingly very carefully inserted along the track of the sinus forceps and at a depth of about an inch came in contact with a rather hard mass lying firmly imbedded in the brain substance. It was hoped that very slight manipulation would serve to dislodge this mass but such proved not to be the case. It was necessary to sweep the little finger carefully all round the tumour, freeing it from adhesions in all directions, before it could be dislodged. In so doing it was found to be adherent by a slight attachment to a second mass which lay more posteriorly. The attachment having been broken, the mass, which was spherical and about one inch in diameter, was gently removed. In like manner the second mass, which was larger and extended both superficially and

deeply, was freed from attachments and removed. During removal it was found to be very adherent to the dura mater, and particularly to the dura mater of the longitudinal sinus, its detachment from this portion requiring the exercise of much care and patience. This second mass was ovoid in shape and measured about one and a half inches by one inch. Both masses were firm and avascular, with here and there soft areas. They were of a yellow colour. The whole tumour weighed almost five drachms. Subsequent microscopical examination showed both masses to be granulomata, probably syphilitic.

A careful examination of the surrounding parts by palpation failed to reveal any further tumour mass, and as there was practically no bleeding from the brain substance the dural incision was carefully stitched, after which the osteoplastic flap was replaced and the skin was also stitched. An aseptic absorbent dressing was then applied externally and the patient was returned to bed. After the operation he looked very pale; the pulse was fast and weak and the breathing was regular. A few hours later the bowels moved repeatedly and about the same time it was noticed that the pupils had become equal and were also responsive to light. On the same evening he began to give signs of returning sensibility, being able to answer "Yes" and "No," and that more sharply than he had done before the operation. He could also swallow with ease, could move the right leg, and, for the first time, made some attempts to move the right arm.

During the two days following the operation the patient's temperature ranged between 99° and 100°, while his pulse-rate was between 88 and 104, and the respirations numbered from 18 to 20 per minute. He now gave distinct evidence of spontaneous and even purposive movements of the right leg and, occasionally, of the right arm. While, however, he could flex the right arm he could not extend it. Slight right facial paresis still persisted and he was unable to protrude the tongue. The optic neuritis was still as intense as formerly. On July 8th (three days after the operation) it was observed that he now gave signs of attending to his comfort. He frequently arranged the blankets with his left arm and lay on his left side instead of, as formerly, on his back. He was still unable to protrude the tongue. The pulse quality had markedly improved and the bowels moved regularly. During the period from July 9th to 12th he called "Nurse" when he wished anything, as he had been told to do. He also called "Food" when he felt hungry. On the other hand, he very often misnamed articles presented to him and could not remember the names of many others, although he clearly recognised them. When, for example, he was shown a clock he said it was "six" but could not remember the word clock. When asked if it was a watch he said "No," and smiled and said "Yes, clock," when the correct word was mentioned. When asked a couple of questions in succession he frequently gave an answer to the first when he was asked the second, and sometimes he gave wrong answers to questions and wrong names to articles presented to him. He, however, looked disgusted when he gave such answers and sometimes said "No, I don't mean that." He could give his name, age, &c., correctly, if not previously plied with questions.

A note made on July 16th (11 days after the operation) stated that a marked change in the condition of the patient's intellect was now observed. He could speak sensibly and his memory had markedly improved. He remembered his time of service in South Africa, the name of his regiment, &c., and other events up to the time of his coming into the infirmary. This incident, however, and all succeeding ones he appeared to have forgotten. Being anxious for solid food, and having been told that he must get the "Chief's" permission first, he made a vigorous effort to make his wishes understood at the morning visit. He, however, objected to be questioned, telling the nurses that he knew quite well what he wanted but that he was unable to get the proper words for the answer. He asked for a book to read and was able to recognise some words after spelling them slowly over but was unable to understand the context. On the 18th he was still unable to protrude the tongue when asked to do so, although he believed that he did protrude it. He was therefore asked to put his hand up and feel whether the tongue was out or not. Having satisfied himself that the tongue was not out he immediately protruded it properly and has been able to do so since. He was now found to be able to extend the right arm as well as to flex it. When asked to whistle, he whistled a bugle call, and he recognised a

flower when shown one. From this date improvement was steady. He became gradually brighter, answered questions at once, and asked others. He frequently volunteered information regarding his condition. His chief difficulty seemed to be in giving the name of some person or thing when asked for it. The wound was dressed for the first time 24 days after the operation and was found to be perfectly healed.

The patient was allowed to get up some seven weeks after the operation. He was now very well and bright and intelligent, although he sometimes found difficulty in expressing himself, particularly when excited. The right arm and leg being still deficient in power, as was to be expected, a course of massage was ordered. He had no fits after the operation.

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## THE PREVENTION OF CANCER REGARDED AS A PRACTICAL QUESTION RIPE FOR SOLUTION.

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IN THE LANCET of August 18th, p. 419, Professor A. W. Mayo Robson justly calls attention to the desirability of the early recognition of what might be termed suspicious appearances suggestive of cancer of the stomach in order that an exploratory operation, and possibly a radical cure, may be made in good time. Incidentally he quotes Professor William Osler's opinion that 10 per cent. of gastric cancer cases are fatal within three months and the observations of many authorities on the frequent "grafting of cancer upon long-standing ulcer" of the stomach. I think we must all agree with Professor Robson, but I would invite your readers to go a little further. Is there much hope of the rapid cases which kill in three months being often diagnosed in time to be saved by surgery? Is there no prophylaxis of both gastric ulcer and gastric carcinoma? You allowed me to argue this question at some length in THE LANCET of August 31st, 1901, p. 584, and I dealt further with it in the *Medical Press and Circular* for 1905, vol. ii., p. 1. I would also refer to the article in which Sir James Paget advanced strong reasons for the view that cancer is a parasitic disease, pointing out some of its many important resemblances to syphilis and tubercle.<sup>1</sup> Professor Metchnikoff, in the Harben lecture for 1906, referred to somewhat similar views to mine, saying they are held by Czerny and not denying that they may be right. I hold that the time is now as ripe and as promising for the organisation of a system for the prevention of cancer as in 1870 it was ripe for the introduction by Lister of a system for the prevention of the deadly complications of wounds. The micro-organisms which cause wound infections were not demonstrated until after the introduction of Listerism. What might be termed the bacteriological basis of that system was the knowledge then possessed of putrefaction; and the most deadly complications of wounds which antiseptic treatment has banished from them—e.g., tetanus and some of the worst forms of peritonitis and meningitis—are not caused by putrefaction. All depends on whether or not the *materies morbi* of cancer is or is not some living principle introduced into the stricken animal from without. If bacteriology has proved anything it has demonstrated that such principles or causes of disease cannot live long in the presence of degrees of heat which are lower fortunately than temperatures which render foods worthless.

I think the grounds for attributing cancer to some living organism to be exceedingly strong. I will not trespass on your space to repeat arguments already set forth in articles to which the references have just been given. I cannot see that histologists have effectively controverted the hypothesis of a causative micro-organism in cancer by advancing theories of the mode of multiplication of cancer cells, whether their observations and hypotheses be right or wrong. They differ so much among themselves that they cannot be entirely right. Nor does the fact that cancerous

<sup>1</sup> THE LANCET, Nov. 19th, 1887, p. 999.