NEUROSURGICAL CLASSIC—I

ROBERT H. WILKINS, M.D.*
National Cancer Institute, Bethesda, Maryland

The present republication of the “Case of Cerebral Tumour” by A. H. Bennett and R. J. Godlee initiates a new series referred to in the Editorial Comment in this issue of the Journal of Neurosurgery. The classical works, selected for republication from time to time, usually will be accompanied by pertinent comments based on various authoritative works in the field of neurosurgical history.

CASE OF CEREBRAL TUMOUR†
BY
A. HUGHES BENNETT, M.D., F.R.C.P.,
PHYSICIAN TO THE HOSPITAL FOR EPILEPSY AND PARALYSIS, AND ASSISTANT PHYSICIAN TO THE WESTMINSTER HOSPITAL.

THE SURGICAL TREATMENT
BY
RICKMAN J. GODLEE, M.S., F.R.C.S.,
SURGEON TO UNIVERSITY COLLEGE HOSPITAL.

Received January 13th—Read May 12th, 1885.

The chief features of interest in the case, to which the attention of the Society is directed, are, that during life the existence of a tumour was diagnosed in the brain, and its situation localised, entirely by the signs and symptoms exhibited, without any external manifestations on the surface of the skull. This growth was removed without any immediate injurious effects on the intelligence and general condition of the patient. Although he died four weeks after the operation, the fatal termination was due, not to any special effects on the nervous centres, but to a secondary surgical complication. The case, moreover, teaches some important physiological, pathological, and clinical lessons, and suggests practical reflections which may prove useful to future medicine and surgery.

* With the assistance of the Division of Neurosurgery, Duke Medical Center, Durham, North Carolina.


History.—The patient was a farmer, aged 59, who applied for advice to the Hospital for Epilepsy and Paralysis, Regent’s Park on November 3rd, 1884. His chief complaint was paralysis of the left hand and arm, which incapacitated him from work. He stated that his family history was unimportant, that he had always been temperate and in robust health, and that he never had suffered from syphilis or a day’s illness of any kind in his life. About four years ago, while in Canada, a piece of timber fell from a house, struck him on the left side of the head and knocked him down. He thinks he lost consciousness for a few moments, after which he so far recovered as to be able to resume his work. On the following day he was quite well. With the exception of occasional slight headaches he afterwards remained in good health for a year, at the end of which time he first began to experience a feeling of twitching in the left side of his mouth and tongue. This soon developed into attacks of a paroxysmal character, which gradually became more pronounced and frequent, and continued to occur at irregular intervals. Some months afterwards he had a “fit” which began with a peculiar feeling in the left side of the face and tongue, and turning of the head to the left side. The sensation ran down the left side of the neck to the arm and leg, and culminated in loss of consciousness and general convulsions. For a few days subsequent to this the patient suffered from headache, and felt generally unwell, but ultimately regained his former condition. For two and a half years, although maintaining his robust health, he was subject to daily recurrences of the paroxysmal twichings of the left side of the face without loss of consciousness, and also to the more severe general convulsive seizures with loss of consciousness, which occurred on an average about once a month. Six months before admission spasmodic twichings of the left hand and arm, without loss of consciousness, were observed and these have continued daily, alternating with the already mentioned twichings of the face, the two, however, rarely occurring at the same time. Shortly afterwards weakness of the left fingers, hand and forearm was experienced, which gradually increased to complete paralysis. Since the upper extremity began to be affected, there had been no recurrence of the general convulsive attacks with loss of consciousness. The patient was able to continue at work till August, 1884, when the weakness of the arm prevented him using his tools. Since then twitching of a paroxysmal nature has taken place in the left leg, which usually supervenes upon, and is accompanied by, similar attacks in the arm on the same side. Quite recently the left lower extremity has been weak and the patient has walked a little lame.

Present condition.—On examination the patient was found in robust general health. His intelligence was unimpaired. All his organs and functions were normal except those about to be described. He suffered from frequent violent paroxysmal attacks of lancinating pain in the head, not localised but diffused over the vertex. There was nothing abnormal to be detected on the scalp
or skull, and there was no special tenderness. On deep and hard pressure there was an area, not strictly defined, which seemed to be more sensitive than the neighbourhood. This was situated in the parietal region, close to the right of the sagittal suture, on a level with a line drawn vertically from the anterior portion of the external meatus of the ear. The movements of the eyeballs and pupils were normal; vision was normal, the patient being able to read No. 3 of Jaeger's types at twelve inches with the left, and No. 5 with the right eye.

Examination of the fundi showed all the usual appearances of optic neuritis on both sides, most marked on the right. In the retina of which a number of small haemorrhages were discernible. There was slight comparative immobility of the left side of the face, chiefly elicited by attempts at forced movements. The tongue when protruded pointed slightly to the left. Articulation was normal. The hearing was asserted by the patient to be normal, but was less acute in the right ear. A watch which on the left side was heard at three feet, was only detected on the right at eight inches. The common sensibility of the head, and the other special senses were normal. There was complete paralysis of the left fingers, thumb and hand. The movements of the elbow-joint were very limited, and those of the shoulder impaired. There was no attempt at supination or pronation of the forearm. There was no trace of rigidity or wasting of the muscles. The irritability to mechanical stimulus of those of the forearm was markedly increased, and the temperature of the skin was lower on the left as compared with the right side. The left lower extremity was stated to be weaker than the right, but, when the patient lay in bed, its movements seemed much the same as those of the other, but were performed with more hesitation and less alacrity. When walking there was slight lameness, the toes were not completely cleared from the ground, so as to necessitate slight swinging of the leg in progression. The limbs were of equal size and the muscles of normal appearance. Their mechanical irritability and the knee-jerk phenomenon were greater on the left side, though somewhat excessive in both. The temperature of both legs was equal. The sensibility of the skin was everywhere normal, and the appearance of both sides of the body was the same.

Progress of the case.—While under observation in the hospital the condition described continued. The patient suffered frequently from paroxysmal attacks of lancinating pains in the head. These lasted sometimes for twelve or more hours at a time, and they were so violent that the patient was occasionally delirious and kept the whole ward disturbed with his cries. There were intervals during which he was entirely free from pain. He also suffered from seizures of very severe sickness not specially associated with the headaches. During these he vomited all food, and when the stomach was empty continued to retch with great violence. This would sometimes last for several days, causing great distress, and much reducing the strength of the patient. During residence in the hospital the attacks of paroxysmal twitchings of the muscles were frequently observed. These occurred many times every day. The most common form was a rhythmic tremor which began in the first, second, and third fingers of the left hand, which afterwards spread to the thumb and wrist as far as the elbow. This continued for perhaps a minute, and then ceased, generally by the limb being held or rubbed.

Another form began in the left angle of the mouth and side of the face, and a feeling as if the tongue was being contracted. These parts also continued to twitch for a minute or two. These two kinds of attacks rarely occurred at the same time, but took place independently of one another. Sometimes, but not commonly, the movements began in the face or arm, extended from the one to the other, and from thence down the side of the neck and body to the leg, so that the whole left side was convulsed without any loss of consciousness. The leg was never observed to be affected by itself.

Diagnosis.—The sequence of events described, with all the circumstances of the case, led to the diagnosis that there was an encephalic growth, probably of limited size, involving the cortex of the brain, and situated at the middle part of the fissure of Rolando.

Treatment.—The patient was ordered the bromide and iodide of potassium, twenty grains of each, thrice daily, which he took for a month. Ice to the head gave no relief, and the vomiting was unrelied by any treatment. The severe pain was ameliorated by hypodermic injections of morphia. The terrible sufferings of the patient rendered life intolerable to him. All remedial measures having failed, and as it was obvious that his symptoms were extending, and that a fatal termination was not far distant, it was determined that an attempt be made to remove the morbid lesion. It was hoped that even if such a proceeding was not permanently successful it might alleviate some of the more pressing symptoms. The novelty and risks of the proposed treatment having been fully placed before the patient and his friends, they readily consented to the adoption of any measures which offered any prospects of mitigating the urgent distress or of averting a certain death.

Operation.—In order to expose the cortex of the brain at the middle third of the fissure of Rolando the following procedures were adopted. A longitudinal line was drawn between the frontal and occipital protuberances, down the middle line of the scalp (Fig. 1, 1). A second line was drawn at right angles to this at the level of the anterior border of the external meatus of the ear (Fig. 1, 2). Parallel to this a third line was drawn at the level of the posterior border of the mastoid process, which reached the longitudinal line about two inches behind the second (Fig. 1, 3). From the junction of the first and third lines, a fourth was drawn diagonally downwards, reaching the second at a point two inches above the external meatus (Fig. 1, 4). This diagonal line was believed to represent the direction of the fissure of Rolando. The spot where theoretically the centre of the trephine should have been placed was about half an inch behind the diagonal, and about one and a half inches from the longitudinal line (Fig. 1, +). As there was a tender point on the scalp about two inches anterior and to the inside of this (Fig. 1, *), it was determined to make the first opening in the skull between the two. (The order and position of the trephine openings are seen in Fig. 1, a b c.)

On November 25th, a trephine one inch in diameter was applied to this region (Fig. 1, a) and a circle of bone removed. The centre of the aperture was one and a quarter inches from the middle line and half an inch behind a line drawn vertically from the meatus of the ear. The dura mater was found normal in appearance. In this a crucial incision was made, through which the brain substance bulged, as was thought, abnormally. The sur-