

TUMOR OF THE FRONTAL LOBES WITH SYMPTOMS SIMULATING PARESIS.¹

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D. P., white, age 50, clergyman; unmarried, first presented himself for examination on September 14, 1905.

The family history was unimportant. The father died at 82; mother at 69 of some affection of the heart. There are two brothers and three sisters, all of whom are in good health.

Personal History.—The personal history is as follows: The patient was healthy in early life and had never had an illness of moment save that nine years ago he had congestion of the lungs from which he made a good recovery.

Three months ago he became aware of an impairment of vision in his right eye. No ophthalmoscopic examination was made at the time, the patient merely buying a pair of glasses which he himself selected. Some time subsequently he began to suffer from headaches, more marked upon the right side. The headaches were not continuous and were never accompanied by vomiting or nausea.

The patient denies that he has suffered from any seizures or attacks of any kind. The brother, however, who is present during the examination, states that he thinks the patient has had spells in which "he could not do what he wanted to do." His friends have also noted the following changes in his demeanor and manner. He appears to be easily pleased and his friends express it by saying that he is "of an easy disposition." He was at one time exceedingly active and interested in his clerical duties but now is indifferent to his duties. He never worries about anything. He used to be very conscientious but now is apt to take everything "as a joke." He is never serious. Formerly he was very punctilious, but now he is careless in regard to keeping his appointments and indifferent as to beginning his services at the

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right time. At one time he assigned as a reason for not beginning his services at the proper time by saying that the congregation was not present, which was not correct. He has also done various erratic things, such as visiting his friends and forgetting altogether the proprieties as regards the length of his stay. Instead of remaining for a short time as was his wont, he would remain seated an entire evening, indeed until far into the night. At another time he visited some friends and instead of remaining for a day or two, remained to their surprise for a number of weeks. This conduct contrasted strongly with his former habits. His housekeeper stated to his brother that he appeared to be dizzy at times and that at such times his face became purple. He had had considerable worry because of his clerical duties; the duties had been arduous and he had been under considerable strain. Of late it was also noted that he was somewhat somnolent.

The physical examination reveals his station and gait to be normal. At times he appears to stand less readily upon the right leg alone than upon the left; but this symptom is not definite in character. He holds his head a little to the left but his friends who accompany him say that this is a habit, that he has always done so. His grip is good and equal upon both sides and there is no intention tremor. There is, however, a distinct tremor of the tongue. The lips are held steadily, though some tremor also is noted. The angles of the mouth are retracted equally well. The palpebral fissures are equal in size and normal. The knee jerks are both equal and perhaps a little plus. There is no ankle clonus and both plantar reflexes are normal. There are no sensory anomalies. The visceral examination also is negative.

The patient's expression is that of indifference. His answers are not always responsive to the questions asked, and his enunciation is somewhat indistinct though whether this is due to indifference or to actual difficulty of articulation, does not appear.

When asked to remove his clothing, it was noted to our surprise that he had not a single undergarment upon his person. He had neither stockings, drawers, undervest nor shirt. He had simply put on his shoes, trousers, vest and coat. When asked as to why he had dressed himself this way, he did not seem to realize that he had done anything unusual. His manner was very much like that of a paretic. He had no realization of the fact that he was ill, indeed his attitude was that of denial of illness,

declaring repeatedly that he felt good, that there was nothing the matter with him save that he had some trouble with his eyes. His answers were only elicited by repeated questioning and then were usually unsatisfactory.

An eye examination, made by Dr. Charles S. Turnbull, revealed optic atrophy apparently secondary to a neuritis. It was most marked in the right eye. The pupils were equal and reacted feebly to light. The fields could not be satisfactorily studied because of the inability of the patient to give the necessary attention and because of his disposition to jest.

Hearing appeared to be normal. Taste also appeared to be preserved. The sense of smell, however, was lost; at least his answers were unsatisfactory and confusing. The diagnosis of coarse encranial lesion, probably a tumor, the location of which was pre-frontal, was made. Because of the condition of the optic nerves, a decompressive operation was discussed, but not seriously considered by the patient's friends. It was decided to place him in the St. Agnes Hospital where he remained, under observation, a number of weeks. Although no specific history was elicited, a trial was made of both iodides and mercurials with a negative result.

He now passed from under observation. His brother, who is a physician, informs me that subsequently the diagnosis of paresis was made. The patient had deteriorated morally and had gone so far as to behave improperly with a servant. Some weeks before his death, he began to have seizures with loss of consciousness. The seizures would be very brief and would not cause him to fall to the ground. They rather resembled petit mal. He was brighter, said his brother, toward the last and was full of anecdotes of his past life. At times he would be a little tottering in his gait. At other times again he would seem very strong. Two days before his death it appears he had an epileptic attack. He was missed, was found in the bath-room and had the appearance of having had a fit; he had also vomited. Later in the evening of the same day, his brother found him quite alert and without signs of any paralysis. There was, however, some incontinence of urine. His pulse was 106, respirations 24. He was restless but responded well to sedatives and the next morning seemed to be in about his usual condition. That evening, however, he suddenly passed into a state of collapse. His respirations increased

to 36 or 38 and his pulse to 124. He was unconscious and could not be roused and there was present some edema of the right lung. The next morning he rallied. He seemed quite rational and knew everyone. His respirations now became quite rapid, 50 to the minute and his pulse 140. He gradually became weaker, became unconscious and died the morning following. During the night his temperature rose to 102. For some time previous to his death his eye-sight had deteriorated so much that he could hardly more than distinguish night from day.

The autopsy was made June 6, 1907, by Dr. A. H. P. Leuf, to whom I am indebted for the following notes:

Short, stout man. Face discolored by small hemorrhagic extravasations into the skin, especially marked over lower half of right cheek, and more or less over other parts of face. These were not post-mortem lividities. The latter were present as commonly in dependent parts of the body. Hair scant on top of head and mostly gray.

Scalp was very thick and stiff. Veins fully distended. Skull cap thick, rather hard and diploic layer very thin or absent. Dura very adherent to calvarium and pachionian bodies thick and wart-like, more on left than right side and on both sides indenting the skull one sixteenth of an inch with abrupt (sharp) edges.

All the veins of the pia and the sinuses were full of blood.

The right side of the brain, parietal and frontal lobes, felt unusually firm and tense and the left frontal lobe correspondingly soft and yielding. There were many adhesions between both anterior lobes and the roofs of the orbits and crista galli. There was also an inch-long firmly adherent band just above the posterior margin of the lesser sphenoid wing on the right side, beginning at the clinoid process. In the middle and posterior fossæ the brain was not adherent.

The pia slipped away from the brain without effort on the right side and the sulci opened wide on slight manipulation.

A little rough handling of the anterior lobes was unavoidable, because of the adhesions and for the further reason that the skull cap was taken off wedge-shaped, leaving rather a small space for extraction of the brain.

The general autopsy revealed little of interest save a congestion and edema of the lungs.

When the brain is turned base upward, an enormous tumor

is revealed involving both frontal lobes. It is dense and firm and has widely separated the frontal lobes. It appears to have involved both lobes to about an equal extent. It is but feebly adherent to the surrounding brain tissue.

The specimen having been hardened in formalin, it is found that the growth can be readily lifted out of its base, leaving an enormous cavity. The tumor has the shape of an irregularly flattened ball with numerous nodular masses of varying size upon its surface. In its longest or antero-posterior diameter it measures $2\frac{3}{4}$ inches, in its transverse diameter $2\frac{3}{8}$ inches and in thickness $1\frac{3}{4}$ inches. The frontal lobes have suffered extensively from compression and loss of the white substance, while the convolutions, especially the anterior and orbital portions of the first and second frontals upon either side have been much compressed and thinned. The most mesial portions of the orbital surfaces have been destroyed and with these the olfactory lobes; the latter, if present, can no longer be distinguished in the specimen. The mesial and orbital surfaces of the frontal lobes have suffered most, the white matter next, and the lateral surfaces (or convexity) of the lobes least of all. Indeed, the latter could only have been interfered with indirectly by the pressure. Further, it was clearly the orbital portions of both lobes that had suffered most.

The tumor upon microscopic examination proves to be a sarcoma. Though firm to the touch, it cuts readily upon section. The cut surface is whitish in appearance and solid looking. A small wedge-shaped piece was taken for microscopic study and prepared according to the usual methods.

Upon microscopic examination (made by Dr. Radasch) the capsule is seen to consist of loosely arranged fibrous tissue, in which can be seen quite a number of blood-vessels of various sizes; these seem to be normal in structure and appearance. Quite a few round and spindle cells are to be seen in the capsular tissue but the fibrils are of the adult form.

The mass of the tumor consists of spindle-shaped cells almost in its entirety; these form a very dense meshwork and run in various directions. Near the middle of the sections are scattered round and oval cells. Here and there in the sections are seen pearl-like formations that are probably peritheliomas and might represent obliterated blood-vessels. They measure about fifty to

sixty microns in diameter, and consist of cells that are flattened and arranged more or less concentrically. The nuclei stain deeply but the protoplasm does not respond well to the stain. These structures are more numerous near the capsule than centrally.

Stroma is practically absent; that which is noted is homogeneous and contains no fibrils. The vessels do not seem normal in the deeper portions of the tumor.

The pituitary body at first sight seemed to be enlarged, but this did not prove to be the case upon subsequent examination. Its histological structure also failed to reveal anything abnormal.

The above case is doubtless to be grouped among the inoperable tumors because of its enormous size and location. Perhaps if greater weight had been given to the symptom of anosmia a local exploratory operation would have been justified, and yet the size and location would probably have led to a fatal result had removal been attempted.

The mental symptoms, which in a way suggested paresis, were extremely interesting. Particularly was this true of the undoubted sense of well-being that manifested itself in the refusal of the patient to regard himself as ill. It was also true in the change in his habits and conduct. The tendency to joke and to take everything humorously was, of course, suggestive of a frontal growth.