

A CASE OF BRAIN ABSCESS

DUE TO LATENT TYPHOID INFECTION; OPERATION; DEATH
FROM CARDIAC COMPLICATION.*

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MEDICAL HISTORY AND DIAGNOSIS BY DR. McCASKEY.

The following case was referred by Dr. G. M. LaSalle of Wabash, Ind., Sept. 20, 1902:

A. T., laborer, aged 44. His health had always been good up to the time of his present illness, excepting that three years ago he had his nose broken on the left side by a vicious sheep which butted him with its horns. He was not entirely unconscious, but was severely stunned and the nasal bones badly broken, but he apparently recovered from the injury without incident. He said that his present trouble began three months ago, but close questioning elicited the fact that there had been a variable amount of head pain for about five months, which was mostly in the right eye and over the right side of the head. This head pain, undoubtedly, was the initial symptom of the brain lesion which will be described, and gradually increased in severity, so that he had at different times to stop work for a few days because of it.

Three months ago his attention was first attracted to a tingling sensation in the left hand, which was quite persistent, and about the same time noticed that the fingers of the left hand were very weak and evidently somewhat contracted, as he said they were partially closed all the time and that he could not completely open them. This had undoubtedly been preceded by slight paretic weakness, as at that time he would frequently drop things that he was holding in the left hand if of any weight.

He continued at his work, that of straightening sheet iron with a heavy sledge, for about two weeks, when he became disabled and remained so up to the time of my examination. The left hand had grown progressively weaker, until one week prior to my examination, when the weakness increased very rapidly. At that time he had considerable use of this extremity and could raise the hand up over the head, but the paralysis had increased so rapidly during that week that the hand was entirely immobile, the patient being scarcely able to move the fingers. The left leg had also become decidedly weak, and at the date of examination was unable to sustain the weight of the body. Critical examination of the face showed that the motor power of the left side was distinctly less than that of the right, although it was not easily discernible, and was, in fact, very slight.

Four weeks before coming under observation he had a sudden discharge of what, from the description given, was apparently pus from the naso-pharynx. The quantity was quite large and was estimated at from four to five ounces, although the exact quantity was, of course, quite uncertain. This was followed by marked relief of pain, and several times since then there had been slight discharge of a similar material followed by some amelioration of head pain.

The left forearm was persistently flexed on the arm, but by gentle continuous pressure could be completely extended. There was very slight deviation of the tongue to the left; or more correctly speaking, he was unable to push it as far to the right as he could to the left. There was exaggerated knee-jerk and elbow jerk on the left side. The pupils were symmetrical, perhaps a little small, but responded promptly to both light and accommodation.

His hearing was not acute, the hearing distance for a watch being fifteen inches for the right and sixteen for the left, and there had also been double sided tinnitus for a year or more, but the impairment of hearing and "ringing in the ears" were both

attributed by the patient, and perhaps correctly, to the deafening noise of his occupation.

The visual fields were perfectly normal in outline and the senses of smell and taste were unimpaired.

There was no optic neuritis, but a distinct increase in the vascularity in the retina on the left side as compared with right. This condition, falling short of optic neuritis, I have several times found, and in examination of some of these cases by oculists but little importance has been attached to it, but I believe that it is a phenomenon entitled to careful consideration. In this case there was every reason to believe that it was the result of the intracranial lesion.

An incident in the case worth noting was typical alopecia areata of about five years' duration.

The analysis of urine revealed nothing of importance. Blood examination showed 6,000 red cells with 90 per cent. of hemoglobin and 13,500 white cells. The increase in leucocytes was made up principally of neutrophils.

Co-ordination of the eye muscles was perfectly normal, the muscles of mastication were equally strong on the left side as far as could be determined. The patient read ordinary type with either eye without difficulty.

The diagnosis of brain abscess was made, and operation advised and accepted. The patient was operated on September 27 by Dr. M. F. Porter, who, at my request, uncovered the brain cortex at the level of the arm center from just in front of the Rolandic fissure forward, the opening being about one by two inches. This area was selected because of the possible relationship of the injury of three years ago, the pain in right eye, the probable discharge of pus through the cribriform plate of the ethmoid bone, and the certain involvement of the motor zone, as it gave freer access for exploration of the parts thus indicated. The accompanying cut shows the location of the abscess as nearly as it can be determined from the operative procedure, which will be described by Dr. Porter.

Following the operation the patient progressed favorably, there being, as expected, an increase in the paralysis from the operative traumatism. About three or four days after the operation, the patient complained of a little oppression in the upper portion of the chest. His somewhat constrained position rendered necessary from the operative procedure would cause some discomfort, and not much stress was laid on the symptom, although I did examine the chest once with negative results. About 11:30 a. m., October 5, seven and three-quarter days after the operation, after finishing his dinner, he suddenly complained of feeling very ill, became pallid with labored breathing and tumultuous heart action, and almost immediately became unconscious. He was seen by Dr. Porter and myself within twenty or thirty minutes, at which time he had rallied somewhat, the pulse being small and irregular, but he had a dazed expression and the breathing and heart action were still labored, so much so in fact that the heart sounds could not be analyzed at all. A careful examination failed to show any signs of unusual brain disturbance. There was no increase of paralysis, the pupils were symmetrical and normal in size and reaction, the heart disturbance with resulting respiratory embarrassment being the only symptom, to which might be added, perhaps, the temporary unconsciousness and subsequent dazed condition, both of which were undoubtedly the result of an embarrassed heart.

No autopsy would be permitted, but death was due to an acute cardiac lesion very possibly related to the septic process of the brain, probably a septic endocarditis with cardiac atony from toxemia. An antemortem blood clot probably formed in the heart, and perhaps had been

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forming for several days unrecognized. The clinical picture was that of sudden heart failure from such a cause. I have made autopsies in two cases in which death occurred under very similar circumstances; antemortem clots were present in both.

Examination of the pus obtained from the brain showed a profusion of rod organisms with the usual microscopic characteristics of pus. No other organisms were found. On careful cultural experiments the organisms showed all the characteristics of the Eberth bacillus, and bacteriologically could not be labeled anything else. No history of typhoid fever could be obtained, but it is well known that many cases of typhoid fever are very mild, and it is more than probable that the patient had been the victim of such an attack which passed under some other name. The typhoid fever organism is well known to be pyogenic in character and has been known in a number of instances to remain latent in the organisms for years and later become virulent with the production of local suppurative or other morbid processes.

The possible relation of the injury on the left side of the nose three years before the examination is a point worth considering. From the history given, the injury appeared to be exclusively to the left of the median line. It does not seem probable that there

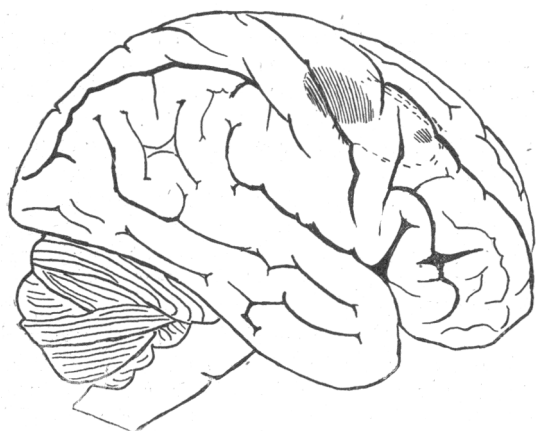


Diagram of right lateral surface. Large heavily shaded area indicates locations of abscess cavity. Small heavily shaded spot, a point at which pus was found in small quantities. Dotted line, area of brain uncovered by surgeon—about 1 by 2 inches.

could have been any actual brain injury excepting by transmitted force. If the infection had been a streptococcus or some of the other more common pyogenic organisms, the possibility of the local infection traveling from the side of the injury to the brain would be more plausible. But it would certainly seem as though the infection must almost necessarily reach the corresponding side of the brain, rather than the opposite one if such a relation existed. The presence of the typhoid bacillus, furthermore, seems to exclude a local infection of this character. That there may have been some contusion of the brain from the injury which lowered the resistance of the brain tissue and made it a prey to the pyogenic processes of the organism which in some manner found its way there is quite possible. Unless such a latent injury can be assumed, and the history at the time of and following the injury does not give the slightest indication of such an injury, the case must be looked on as strictly one of the so-called idiopathic type developing from a latent typhoid infection of unknown date and origin, the latter being in either event sufficient cause for the abscess.

OPERATION AND REMARKS BY DR. PORTER.

Mr. A. T. was operated on at the request of Dr. G. W. McCaskey, on Sept. 27, 1902, at St. Joseph's Hospital.

The scalp was prepared in the usual way. Dr. E. V. Sweringer anesthetized the patient, using ether. A horseshoe-shaped flap was turned down and a section of bone one by two inches removed by the use of the trephine, Gigli saw and De Vilbiss' instrument. A crucial incision in the dura was made and the flaps reflected. Nothing abnormal could be discovered by sight or touch. A small trocar and canula inserted in various directions discovered nothing until a thrust was made in a downward and backward direction at the posterior extremity of the opening in the bone, when the point of the instrument appeared to have entered a cavity, whereupon the trocar was withdrawn and a few drops of pus flowed from the canula. Using the canula as a guide the opening was enlarged and a small soft rubber drain introduced. Thinking the amount of pus removed insufficient to account for all the trouble other areas were explored and we were finally rewarded by discovering a cavity not larger than a pea located at the anterior internal aspect of the uncovered area. This was drained by a strip of gauze. The posterior cavity was about an inch beneath the surface and the anterior one about one half or three-fourths of an inch beneath. All told I do not think the quantity of pus from both cavities would reach 2 drams. The bone was not replaced, the flap was turned back and sutured, leaving only enough opening for the drain. The operation was not followed by shock or any untoward symptom save a slight increase in paralysis such as was expected.

The unhappy ending of the case was, in my opinion, in no wise the result of the operation. This is not the first case in which the exact location of a subcortical lesion was first made known to me by exploratory puncture. A sudden change in the resistance offered to the progress of the instrument, even though slight, is easily appreciated. Had I been using a probe or a needle in this case I would have felt perfectly justified in enlarging the openings, for the sudden lack of resistance offered to the trocar was what first made me aware of the location of the cavities.

On another occasion¹ a subcortical tumor was located because of the increased impediment offered to the progress of the exploring needle by the capsule of the tumor. Exploration by this means is, if carefully done, almost without danger. One's anatomic knowledge should keep him from puncturing large vessels or the floor of the fourth ventricle. Vessels of lesser size may be avoided if, when the needle is arrested by their coats, it is slightly withdrawn and its direction slightly changed. It is to be regretted that no autopsy was allowed.

SHOCK PRODUCED BY GENERAL ANESTHESIA,

WITH RELATION TO DISTURBANCES OF THE BLOOD AND GASTROINTESTINAL TRACT.*

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Shock as a result of simple anesthesia in the absence of trauma, hemorrhage or fright has not been carefully worked out. The term "shock" is unscientific. It is the clinical expression for a group of symptoms, the result of failure of important functions of the body, as those of circulation, respiration, excretion and secretion, and general metabolism. A lowered bodily temperature is a more or less constant phenomenon. Shock is intimately connected with the nervous mechanism.

1. THE JOURNAL A. M. A., Jan. 25, 1902.

* Read before the Chicago Academy of Medicine, January, 1902, and Chicago Medical Society, March 4, 1903.