

A CASE OF LESION OF THE THALAMUS.—  
DEATH FROM INTESTINAL HEMORRHAGE.<sup>1</sup>

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AT the last meeting of the American Neurological Association, I reported a case of tumor of the thalamus, with a view of adding to our knowledge of the symptoms which may occur in connection with disease of this body. I now present the history of a case in which disease of the thalamus, while producing no characteristic symptoms during life, may have had some influence in causing the hemorrhage from the colon, which was the immediate cause of death.

It is an interesting fact that many years ago, several experimenters produced ecchymoses and hemorrhages from the mucous membrane of the stomach and colon, and in the thoracic viscera, by artificial injuries of the corpora quadrigemina and thalamus. My attention was drawn to these experiments by a lecture by Dr. Wm. F. Norris on "The Ophthalmoscope in Diseases of the Nervous System,"<sup>2</sup>—in which he refers to Samelsohn who also quoted the observations of Lusana, Brown-Sequard, Ebstein and Schiff, on the effects of wounds of the corpora quadrigemina and thalamus.

Schiff (*Lecons sur la Physiologie de la Digestion*, 1867, page 417), showed as long ago as 1844, that hemisection of the thalamus or of the peduncles of the brain in rabbits was followed in eight days by stasis of the blood and softening of the mucous-membrane of the stomach. He states that Krammerer had called attention to the coincidence of certain cerebral lesions, with a special form of softening of the stomach, for which he

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<sup>1</sup>Read before the American Neurological Association, Washington, May 31, 1894.

<sup>2</sup>*Med. News and Library*, March, 1879.

proposed the name "gastromalachia rouge." Schiff, in this lecture, goes on to say that transverse sections of the pons, or at a point in the posterior angle of the fourth ventricle and section between the first and second cervical vertebræ, have the same result as those mentioned as following section of the thalamus. He believed that the extravasations and softening are probably the result of the action of the juices of the stomach, and the irritation of the food upon the swollen epithelium; he, therefore, regards the hyperæmia, a neuro-paralytic one.

Lusana (*Giornale veneto di Scienze Medice*, 1870, quoted by Samelsohn, *Graefe's Archiv. Ophthalmol.*, XXI, 1. 159) describes the thalamus as the centre for the tonic contractions of the blood vessels in the stomach and colon, and states that lesions in the thalami produce softening of the stomach and colon, and hyperæmia of the liver. Samelsohn also quotes Brown-Sequard as having proved the occurrence of hemorrhage into the organs of the thoracic and abdominal cavities after injuries produced at the base of the brain in animals.

Ebstein (*Archives f. Experimentale Pathologie und Pharmakologie*, 1874, No. 12, p. 183), showed by experiments on rabbits that two days after artificial injury to one side of the corpora quadrigemina, which resulted in a small effusion, that there was found an extravasation of the blood into the mucous membrane of the fundus of the stomach of the animal.

Upon injecting a solution of chronic acid into the anterior part of the left corpora quadrigemina, producing here a necrotic area one mm. in diameter, a change in the mucous membrane of the stomach similar to that produced by the first experiment was caused. These changes are not constant. In twenty-five cases operated upon, only nine gave stomach symptoms. When the thalamus on one side was similarly treated, a high-grade change took place in the mucous membrane of the stomach; but cutting through both thalami gave negative results.

Brown-Sequard (*Lancet*, 1871), reported that injuries

to the pons were followed by ecchymoses into the lungs, and, at times, pulmonary apoplexy. He stated that injuries to the crura were also sometimes followed by the same results.

In another communication on the result of his experiments on artificial irritation of the base of the brain in animals (*Archives of Scientific and Practieal Medicine*, 1873, Vol. I., p. 150), he refers to the frequency with which ecchymoses are produced in the organs of the thoracic and abdominal cavities. This communication is a long and interesting one.

In connection with these observation, it seemed to me desirable that I should place upon record the following case. (I am indebted to Dr. W. G. Kleinstuber, my interne at the Philadelphia Hospital, for the careful observations of the case):

Patrick D., aged 67 years, white; by occupation a laborer. Both of his parents were healthy, and reached a mature age. He had always been well until the onset of the present disease, two years ago. He worked in quarries, and was, therefore, subjected to extremes of temperature, and the inclemency of the weather. He received frequent small injuries of the head from being struck with pieces of stone. He was a hard drinker, and often went on prolonged debauches. Syphilis was denied.

In July, 1892, while exposed to the sun, the patient was suddenly taken ill, and had to be taken home, where he arrived in an unconscious condition, and remained so for several hours. He was then seized with convulsions involving one or the other side of the body alternately, and at times they were general. He was delirious, and the greater part of the time was in a maniacal condition. At the end of two days he began to gradually improve, the convulsions subsided, and the delirium ceased, but a degree of hebetude remained.

A month after the onset, the patient was able to resume work, apparently well. Two weeks later, however, he began to have epileptic convulsions, and these recurred at irregular intervals of from three to seven days. The seizures were invariably preceded by an olfactory aura, the patient perceiving an odor of burning sulphur. At times, the attacks would succeed each other at short intervals, and each would be followed by a condition of

mental excitement lasting for several hours. After having these attacks for several months, the patient's mental condition began to change. He became subject to fits of depression, and had morbid apprehensions. Finally, he had mild delusions of persecution. He then began to have attacks of violence after each epileptic seizure, so that he could no longer be cared for at home; and he was admitted to the Philadelphia Hospital on December, 26, 1893.

On examination, the scalp was found to be covered with numerous small linear scars, the result of the injuries received while working in the stone quarry. A marked arcus senilis is observed in the eyes. The pupils are unequal, the right being the larger. They react to light and accommodation. There is no nystagmus; the tongue is protruded straight and without tremor. The pulse is regular, but weak, and the heart is normal. The urine contained no albumin or sugar, and no casts were found; the specific gravity was 1018. There was no paralysis of motion, or disorder of sensation. The patellar reflexes were diminished. The patient seems to be melancholy. He sits in his chair in the ward, taking little or no interest in his surroundings. He says he wants to go home, and frequently asks for letters from his family. He complains of constant headache.

On January 7th, he had the first of his attacks since admission. He suddenly jumped from his chair, rushed wildly out of the ward screaming out that the ward was on fire, and that a lot of demons were after him. It required several men to stop him in his flight and return him to the ward, where, after a short time, he became perfectly calm. This attack was neither preceded nor followed by convulsions or coma. Three weeks later the patient had a similar attack.

On February 23d, he was taken ill with vomiting, without apparent cause; complained of vague general pains, and an increase in the headache from which he had suffered continuously for the past two years. His temperature rose to 103°. The physical examination showed nothing abnormal about the lungs or abdominal organs. The symptoms subsided on the next day, but four days later the temperature again rose to 103°. For the following two weeks the temperature was slightly elevated, but there was no physical symptoms to account for it. The patient's mental condition was worse. His memory was impaired, and he frequently started out of his bed, saying that he is going home. At times he posi-

tively refused to take nourishment of any kind. There was incontinence of urine.

On March 20th, the patient began to be somewhat somnolent during the day, but rested well at night. During the night of March 22d, the patient was found in a state of great exhaustion, with shallow, feeble respirations and weak pulse. He rallied from this condition in a short time, but there was a return of the prostration on the succeeding nights. During the day his condition was variable; he was generally somnolent and, at times, in a stuporous condition, so that he could not be roused, although there were times when he could be made to answer a question, or protrude his tongue.

On the 27th, he had a convulsion, which was described by the attendant as a typical epileptic convulsion.

Dr. Gould, the ophthalmologist of the hospital, attempted to examine the eye-ground on March 29th, but he found it almost impossible to do so, owing to the profound stupor in which the patient was at the time. He thought, however, there was no change in the eye-ground.

On April 3d, there had been but little change in the patient's condition for several days, except that there was slight loss of strength. The temperature had been normal or subnormal, and the patient could be made to take a sufficient amount of nourishment.

On the afternoon of this day, at 5.30 P.M., the patient had suddenly, and without any intestinal or other symptom, a profuse hemorrhage from the bowels. About one and a half pints of blood were discharged. It was largely in clots, some of which were dark, but most of the blood was bright. He was seen almost immediately after this hemorrhage by myself, as I happened to be visiting the ward at the time. He was delirious and extremely nervous, having to be held in bed. An examination of the rectum showed no cause for the hemorrhage, and the abdomen was not tender. The pulse was strong, and normal in frequency. Cold was applied to the abdomen, ice suppositories introduced, and ergot given hypodermically. One hour after the first hemorrhage, a second occurred, about the size and character of the first. This was again followed by delirium, but more violent and prolonged. The hemorrhage seemed to have no effect upon the circulation until the third occurred, at about 8.30 P.M. The patient now became very much weaker, and, in spite of strong stimulation, gradually sank, and died at 8 A.M., fourteen and a half hours after the first

hemorrhage. He was delirious during the greater part of the last night.

The post mortem was made twenty-eight hours after death. The pleural cavities each contained about one drachm of clear fluid. The lungs were exceptionally healthy. The pericardium was normal, and the heart was healthy, except for a few atheromatous plates at the beginning of the aorta. The spleen was normal in size, but of softer consistency than usual, and the trabeculae were prominent. The kidneys were congested, but presented no pathological changes. The large intestine, from a point two and a half inches below the splenic flexure to, and including, the rectum, was distended with clotted and fluid blood. The walls of the intestine were stained a deep purplish red color by the contained blood. On opening the intestine, a careful examination failed to reveal an ulcer or other lesion which could have been the source of hemorrhage. The mucous membrane of the colon was softened, and seemed to have been involved in a diffuse hemorrhage, capillary in character. The walls of the colon are thinned, and at points there is marked pouching of the intestinal wall. Several of these pouches are found throughout the length of the colon, and are large enough to admit a pigeon's egg. There is a sharp line of demarkation between the involved and healthy portions of the intestine. The duodenum and stomach present nothing unusual in their appearance.

**BRAIN AND MEMBRANES.** The anterior portion of the falx cerebri is calcified for about two inches in length, otherwise the dura presents no change. There is marked evidence of an old leptomeningitis over the convexity of the left hemisphere. The vessels on this side are somewhat larger and more injected than on the right side. The vessels at the base of the brain show a slight degree of atheromatous change. On opening the ventricles, the choroid plexus is seen to be highly injected, as are the other vessels of the left lateral ventricle. The right lateral ventricle is apparently healthy. No evidence of disease is found in the cortex, but on a section of the mid-brain there is found in the posterior and inner portion of the right thalamus a small area of softening. The area involved measures one-third of an inch in antero-posterior diameter, and about one-fourth of an inch laterally. It is yellowish at the periphery, and light brown in the centre. It was not preserved for microscopic examination. A careful dissection showed no other points of disease in the brain.