

CASE OF RECOVERY FROM OCCLUSION OF ONE OR
MORE OF THE CEREBRAL SINUSES.

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ON March 1, 1880, I was called to see Miss M., a robust white person, twenty-two years of age. She had been complaining since February 22d of general and local pains which she called neuralgia, but now her complaint was especially of œdematous swelling about the eyes and face and atrocious pains in the head; the pain was constant and tensile, but with exacerbations of severity. The pains and swelling were most marked in the face, temporal and frontal regions, and more manifest on the right side. The pains in the temporal region seemed to alternate in severity with the changing appearance of venous distension in the forehead, nose, eyes, temples, and the whole orbital region. There was internal strabismus of the right eye; the pupils were normal; the eyes were protruded, the right eye more than the left; there was ecchymosis of both conjunctivæ.

Negative points were the absence of sweats and vomiting, though nausea was present. No definite motor paralysis could be made out, but the grip of the right hand seemed weaker than the left.

On having her to stand and walk a few feet with eyes shut, she fell unless supported. There was hyperæsthesia of the left cutaneous surface, and anæsthesia of the right. The recognition of impressions on either side was uncertain. Vision was not impaired. The hearing was defective on the left side, but this she stated to have been the case for years. The tendon reflexes were normal. Her mental condition was unaffected. There was general fever, pulse 100, and respiration more frequent than normal.

The only history afforded as to causation was that she had fallen eighteen months previously, and had struck upon her right knee; since, she had pains and swelling in the right and

left knees and ankles, and pains in the leg bones, which remained continuously in the right tibia. There were present periosteal inflammation and thickening of the right tibia.

The diagnosis was made of complete or nearly complete occlusion of one or more of the basal cerebral sinuses either from internal or external causes, and was based on the local appearances and the history given by the patient; the circulation being so obstructed as to cause a damming backward of the blood in the ophthalmic veins into the facial veins, which ought to have been emptied into the cavernous sinuses.

The treatment ordered was cupping, free purging, the use of bromides and ergot in large quantities, morphia to relieve pain and procure sleep.

On March 2d Dr. C. K. Mills met me in consultation, and concurred in the diagnosis. He co-operated with me afterwards in the management of the case. The pain was greater and more diffuse over all the region before mentioned; the conjunctiva was more ecchymosed; the strabismus was decided; there was very marked collateral venous distension over the whole face, nose, and temples. Urination was less free.

The same treatment was continued, and it was deemed prudent, lest there be some blood contamination, to add the use of iodide of potassium and bichloride of mercury.

On the third, there was an amelioration of all the head symptoms. She required morphia for sleep, as the insomnia was distressing without it. No change was made in the treatment. Severe purging by senna and salts appeared to have a happy effect.

On the fourth, she complained of a throbbing pain in the right side of the head, with each beat of the heart; the headache was very distressing, but was relieved by morphia frequently given. She had annoying pruritus and formication over the whole body, which was palliated somewhat by washes of borax and muriate of ammonia.

On the fifth, she had very much pain, as if the head would burst; she was delirious, and had illusions, but no permanent hallucinations. The squint had disappeared. Her pulse was 108, and her temperature 103°. Her local head temperatures were taken at three stations—a central frontal in the middle of the forehead, and a lateral frontal just above and behind each external angular process of the frontal bone. The results were—

Central frontal	99½°
Right lateral frontal	98
Left lateral frontal	96½

Her right knee was painful and swollen; the left was also painful. Her grip was equal in both hands.

On the sixth, she showed a remarkable improvement which came on in the course of a few hours. She slept well and without any narcotic for four hours, and made no complaints until later in the day, when swelling and pains in the left knee and scattered pains over the body appeared. She was now kept on bromide and reduced quantities of the iodide, with mercury.

On the seventh, she slept tolerably well and continued better. The superficial sensibility of the body was normal. The knee was less swollen. The ecchymotic condition of the eyes was disappearing. The temperature record was—

General temperature (axilla)	103°
Central frontal	98½
Right frontal	98½
Left frontal	98½

She complained of a beating sensation on the right side of the head anteriorly. There was a purplish blotch on the right molar bone, one and a half inches in diameter, of irregular outline between the eye and ear. The conjunctival ecchymosis, the ocular protrusions and nasal swelling, present the day before, had all left.

On the eighth, she was doing well, but had some slight delirium. The pulse was 82 and temperature 100½°.

On the tenth, she vomited occasionally, was melancholy and complained of flying pains.

Up to the twentieth she steadily improved, but on this day she complained of gastric distress and a smothering feeling in breathing.

On the twenty-third, she had neuralgic pains in the left side of the body and a rectal abscess was opened.

On the twenty-fourth, she felt quite stupid; the left side of the body, particularly the leg and foot, felt weak. The rectal abscess was discharging.

On the twenty-ninth, she had much pain in various joints, and felt mentally enfeebled. Her left arm and fingers felt weak. She could not cut with the scissors (her usual occupation).

On April 3d, the last day she was seen, the symptoms noted

had all disappeared; though weak, she was otherwise well and at work.

The chief features of this case may be summarized as follows: The patient had suffered for several weeks with scattered neuralgic pains, when she was taken down suddenly with great pain in the head and œdema of the right side of the face, temples, and orbital region, with conjunctival ecchymosis and ocular protrusion; the left side soon became involved in the same condition. Paralysis of the right sixth nerve occurred, and the patient suffered from throbbing pain in the right side of the head, weakness of the limbs, and want of co-ordination, and varying conditions of sensation in the two sides of the body were present. General fever, accompanied by local increased temperature, persisted until the sudden disappearance of the severe head symptoms and the paralysis of the sixth nerve.

How can we account for these phenomena and their fortunate and unexpected disappearance? It would seem to me that a blockage of the intracranial venous circulation could alone account for the train of symptoms, which were undoubtedly those of venous stasis; the parts exhibiting this stasis were those drained by the ophthalmic veins and the portions of the facial vein communicating with it. The facial vein communicates at the inner angle of the eyes, by the angular vein which receives the blood of the veins of the *alæ nasi* and superior palpebral veins. The ophthalmic veins terminate in the cavernous sinus; and the cavernous sinuses on each side are in communication with the circular sinus, so as to completely surround the pituitary body. It seems to me that the blockage of the right cavernous sinus subsequently extending by way of the circular sinus to the left cavernous sinus might account for the local manifestations present in this case. The paralysis of the right sixth nerve could be explained by pressure upon it either in its course through the cavernous groove or in its passage through the sphenoidal fissure.

If a thrombus were present in the right cavernous sinus, this might have accounted for the condition, or the distended ophthalmic vein passing through the sphenoidal fissure may have pressed upon the nerve.

Thrombosis of the transverse sinus is said to occur with more frequency than thrombotic disease in any other intracranial location. This is owing to the fact of its being more likely to

become involved in local disease of the ear and of the petrous portion of the temporal bone; but no evidences of local disease or injury were present. Undoubtedly, however, involvement of the cavernous sinuses with the transverse, would explain the manifestations almost as well as the view of the conjoint implication of the circular and cavernous sinuses. This, after all, however, is not a matter of great moment.

The history, course, and termination of this case favor the idea that it was one of true phlebitis, and that the probable occlusion was not of the nature of a marantic thrombosis. It is well known that most of these cases of phlebitis sinuum arise from special local causes, as disease of the cranial bones, the latter accompanying suppurative inflammation of the middle ear. No evidence of this kind was discoverable. According to Nothnagel,¹ proof is wanting for the fact that phlebitis of the sinuses can arise as a spontaneous and primary affection. Under the influence of some specific condition of the blood, however, I see no reason why inflammation of the inner walls of the cerebral sinuses might not occur.

No furuncles were present about the face or body. I am inclined to think that the rectal abscess indicated depressed vitality in the patient, rather than that it had any relation to the cerebral condition.

The case was certainly not one of erysipelas. The erysipelatous appearance did not precede the ocular and intracranial manifestations. We had, in fact, a "pseudo-erysipelas," as Rosenthal calls it, but no true erysipelas. The recovery of the patient precludes the supposition of an intracranial abscess.

Pressure upon the sinuses, arteries, and certain of the cranial nerves by a tumor or exudation, might have given rise to most of the symptoms presented, but the symptoms evolved in such a case would not have arisen with such rapidity.

Congestion of the brain would hardly remain so persistent as in this case; there was passive congestion from stasis due to obstructed circulation from the apparent thrombosis of the sinuses. If there were acute congestions of the brain, we should have had apoplectic symptoms, which did not appear in the history of the case.

The result of the treatment instituted would seem to bear out the view that the case was one of phlebitis.

¹ Ziemssen's Cyclopædia of the Practice of Medicine, vol. xii. p. 211.

Authors of American text-books have paid comparatively little attention to the subject of cerebral thrombosis. Da Costa's *Medical Diagnosis* finishes the matter in six lines, thus: "Thrombosis of the sinuses of the brain may occasion partial palsies, and the symptoms of cerebral pressure, like those of tumors, and cannot be distinguished except in those instances in which we can find distension of the collateral circulation and injection and œdema of the forehead and eyelids. Convulsions, further, are very rarely among the symptoms."

Flint is taken to task by the *Dublin Medical Journal*, Jan. 1880, p. 183 (Review of "Clinical Medicine"), for giving, among the symptoms of thrombosis of superior longitudinal sinus, exophthalmia due to post-ocular venous congestion. The reviewer thinks the exophthalmia should be regarded as evidence of blockage of the petrosal sinuses, one or both, or of the corresponding lateral sinuses, into the former of which the cavernous sinus debouches; not into the superior longitudinal sinus, with which it has no anatomical connection whatever.

Hammond¹ expresses his doubt that cerebral thrombosis (venous) possesses a symptomatology so as to admit of its being identified during life. He mentions as symptoms, headache, convulsions, paralysis of different parts of the body, particularly of the ocular muscles, squinting, double vision, etc. etc. Again, at p. 137 he says: "if the clot is small (of vein or sinus) and removable, the case may be favorable, depending upon our judgment of the course of the affection and the severity of the symptoms."

Nothnagel² has a fair article on cerebral thrombosis. He says: "The relations of the sinus cavernosus to other veins are such as to give rise, under the fitting conditions, to pronounced and characteristic symptoms. These were noticed by some of the earlier observers, but especial stress has been laid upon their diagnostic importance, within the last few years particularly, by Corazza Heubner, Huguéin, Genoivelle, and others. The ophthalmic veins are the ones through whose agency these symptoms are brought about. Thus, in case of thrombosis of the sinus cavernosus, venous hyperæmia of the fundus oculi has been observed, as well as œdema of the eyelids and the conjunctiva, together with prominence of the eyeball, due to hyperæmia of the retro-bulbar veins and of the vena frontalis. These symptoms

¹ Diseases of Brain, p. 133.

² Ziemssen, vol. xii.

may persist until the death of the patient, or they may disappear during life. In cases of thrombosis of the cavernous sinus, one important symptom may be present which is peculiar to the affection of that vessel, and is due to the fact that, in its walls and neighborhood, various nerve trunks are disposed which are liable to be irritated or paralyzed by the pressure of the thrombosis (or the swelling of the peri-venous connective tissue), an accident from which important symptoms must result; these nerves are the first division of the trigeminus, the trochlearis, the abducens, and the oculo-motorius. In this way a paralysis of the motor nerves may arise, and in a case reported by Lebert there was neuralgia in the distribution of the upper branch of the fifth nerve and a trophic disturbance of the eye, such as may be produced experimentally by section of this nerve.

“In the presence of the conditions just described, which admit of being objectively recognized, and by a careful consideration of all the attendant symptoms in the case, it might certainly be possible to arrive at a diagnosis which would have more than probability in its favor. It is evident that all the symptoms due directly to venous stasis may be present as well in cases of phlebotic thrombosis as in those of the simple marantic thrombosis.”

In the *Transactions of the American Ophthalmological Society* for 1875, is an article by Dr. Geo. C. Harlan, of Philadelphia, on two cases of vascular disease of the orbit; in which the view is strongly presented that many cases of supposed orbital aneurism are in reality cases in which the return of blood through the ophthalmic vein is prevented by some pathological condition. The strong assertion is made that with the exception of one case recorded by Guthrie, we are without positive proof that such a thing as an aneurism of the orbit has ever existed. Brief notes are given of fourteen cases. “Competent observers had committed themselves to the diagnosis of orbital aneurism in nearly all the cases, and in the remainder the same conclusion could hardly have been resisted by any surgeon whose attention had not been particularly called to the subject. In only five cases was there anything like an aneurism, and in them the arterial lesion was so situated that it would be the cause of the orbital symptoms only in the same manner as any other obstruction to the venous flow might be.” Four were cases of venous clot from phlebitis, and in three cases malignant growths were present.

I have referred at some length to Dr. Harlan's paper to impress the fact that obstruction of the cerebral sinuses, and particularly of those which communicate with the ophthalmic veins, is, comparatively speaking, not uncommon. The cases here collected were chiefly instances of chronic conditions; the case which I have just reported was acute in character; but the reasoning in regard to the possibility and probability of obstruction of the sinuses at the base of the cranium, will apply equally to acute or chronic cases.