

ABSCESS OF THE FRONTAL LOBE SECONDARY  
TO SINUSITIS.

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F. P., age 41, Bohemian. Admitted to Cook County Hospital complaining of pus discharging from a sinus on the right side of the forehead, of fever and headache.

History: Patient is said to have had some sort of operation for nasal obstruction. The trouble in the forehead followed. (The physician who operated on him stated that this was not true; that he had not done any operation inside the man's nose but had only opened the subperiosteal abscess over the right side of the patient's forehead.) Patient was sick a week before entering the hospital.

Physical examination: Patient is a well developed man of 41. He has an opening on the forehead midway between the right eyebrow and the hair of the scalp above, from which pus is discharging freely. The surrounding area is deeply infiltrated. The scalp is edematous half way to the occiput and past the median line towards the left side. The right upper eyelid is edematous so that the eye can be only partly opened. The pupils are equal.

There is a large amount of pus in each naris, but particularly in the right. The nasal cavities contain crusts. Apparently all four turbinates have been removed either by operation or by disease.

Marked pyorrhea is present and the pharyngeal vessels are injected. The tonsils are small and submerged. There is no cervical glandular enlargement. Both maxillary sinuses light up well on transillumination. The frontal sinuses do not light up well.

Smears from the pus from the nose show a few chains of streptococci of from five to seven members.

Examination of thorax and abdomen is negative. The X-ray report states that there are no frontal sinuses.

Diagnosis: Suppurative right frontal sinusitis.

Twenty-four hours after the above examination was made patient became irrational and held his left forearm strongly flexed at the elbow and with the left upper extremity spastic. The head was turned strongly towards the right with conjugate deviation of the eyes to the right.

The abdominal, epigastric and cremasteric reflexes were absent. The pupillary reflex was present on both sides. Babinski was present on the right side but not on the left. The patellar and triceps reflexes were much exaggerated on the right side. Achilles jerk was present on the right side but not on the left. Ankle clonus and plantar reflexes were absent.

Patient does not remember that he was in the X-ray room yesterday. He points to the doctor, mistaking him for someone else. It is with difficulty that he can be made to fix his attention or do the simplest thing, as, for instance, look upwards, or to one side or protrude his tongue. On irritating patient by pulling his hair there is a coarse tremor set up in the left hand.

Lumbar puncture produces a clear fluid under increased pressure and containing 73 cells per cu. mm. Nonné + + +.

Blood count gave 14,200 whites. Blood pressure S. 130, D. 70. Edema of the right eyelid is greater than yesterday. Pupils are widely dilated but react to light. There is no rigidity and no hemianopsia. Ophthalmoscopic examination was not satisfactory on account of inability to keep the eyes still.

Operation: After the usual preparation the skin over the lower part of the forehead was infiltrated with  $\frac{1}{2}$  per cent novocain and an incision made transversely from the midline through the right eyebrow to its outer extremity. The soft parts were retracted upwards and pus was seen oozing through the bone about two inches above the orbital margin. With a gouge the bone was removed over the usual location of the right frontal sinus, and finally a sinus about 2 cm. in diameter and  $\frac{1}{2}$  cm. in depth was exposed and found full of pus. After the sinus was well cleaned out its posterior wall was removed and a large amount of pus found between the bone and the dura. This came from every direction for a distance of 5 cm. After enlarging the opening in the frontal bone and evac-

uating this pus the dura was found red and granulating. It was incised and pus found in the pia in every direction for at least 5 cm. An abscess cavity about 2 cm. in diameter was found in the inner part of the right frontal lobe, lying near the falx cerebri. It was evacuated and a rubber drain inserted. The skin incision was then extended across to the outer extremity of the left eyebrow and search made for the left frontal sinus by means of a gouge. The bone was excavated to a depth of about 2 cm., with no sign of a frontal sinus, so it was concluded that there was no left frontal sinus. The wound was closed with skin clips after inserting drains. The patient seemed a little improved after the operation, but soon relapsed and died in about 48 hours.

The peculiarities in the case were the suppurative rhinitis, the absence of turbinates, the abnormally thick skull, the absence of a left frontal sinus and the extensive involvement of the meninges and brain that must have been present at the time of the first examination without corresponding symptoms. At that time he walked into the examination room just as any other patient would walk and showed no sign of the serious intracranial trouble he was having. Twenty-four hours later he had spasm of the left upper extremity, with turning of the head to the right and conjugate deviation of the eyes to the right, and was comatose. Had he been able to speak English we might possibly have been able to note mental disturbance, but it is not likely.

The frontal lobe is notoriously a silent area. I have seen a sequestrum of the frontal bone 5 by 7 cm. separate as a result of a combination of syphilis and suppurative sinusitis, the dura bathed in foul smelling pus for weeks, with no symptoms referable to the brain.

On the other hand, I have seen suppurative frontal sinusitis on the right side cause a man to write his name upside down and backwards and to set up a sort of double personality so that the patient went to another town without realizing where he was and later "came to" and remembered that he lived in Chicago, and all these disturbances cease in a week after external operation on the sinus with drainage.

Definite symptoms of abscess of the frontal lobe are wanting. There may be the ordinary symptoms of brain abscess, such as

headache, choked disc and increased tension of the cerebrospinal fluid, but, on the other hand, these may not be at all definite. The spinal fluid may be clear or contain but few cells, and changes in the fundus may be absent. Headache, while always present, is a symptom common to so many conditions that it has not much significance in abscess of the frontal lobe. For the present the diagnosis would seem to be best made by exploratory operation in any case of suppuration of the frontal sinus where headache is not promptly relieved by drainage and where lumbar puncture shows changes of an inflammatory type. If we wait until symptoms of involvement of the motor area present themselves the case is apt to have progressed too far for operative interference to be of much avail. In this type of case, when external operation on a frontal sinus is decided upon, exploration of the brain for abscess is justifiable. At least there is no harm apt to result from exposure of the dura. In any case of frontal sinus suppuration, where a subperiosteal abscess has resulted from the pus extending through the bone to its outer surface, remember that the inner wall of the sinus is thinner than the outer wall and fully as apt to be perforated by the pus. Hence in such a case explore inside the skull.

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