BRAIN ABSCESS AS A COMPLICATION OF ACUTE INFECTION OF NASAL ACCESSORY SINUSES.

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The following case occurred in one of the British hospitals in France to which the writer was at the time attached and is reported because of some points of interest in its course and the subsequent autopsy findings.

Case Report. Patient was admitted to the hospital with a diagnosis of influenza and was treated on the Medical Service for two weeks. He was then referred to the writer because of persistent pain, in spite of medical treatment, in the left frontal region and about the left eye.

Examination. Tenderness over left frontal sinus and anterior ethmoid cells. No swelling. Right nares negative, except for some congestion of the mucous membrane. Left nares showed congestion of mucous membrane and thick pus discharging from beneath the middle turbinate. Eyes negative. Reflexes normal.

Operation was advised to secure better drainage. This was done the next morning under local anesthesia. Part of the left middle turbinate was removed and the ethmoid cells exenterated.

The next day the patient was feeling very much improved; not as much pain and less tenderness over sinuses.

On the second day the patient's condition was good in the morning but in the afternoon the temperature rose to 104°. The patient said that he did not have much headache but complained of severe pain in the legs. Reflexes normal. Eyes negative. Chest negative.

For the next two days the patient seemed to be improving and had very little pain. Some pus discharge from nose continued. The fifth day after operation he had some trouble in talking in the afternoon, but this speech difficulty had all disappeared the next morning.

On the seventh day there was again some trouble with speech in the afternoon.

White blood count, 18,000.

The next morning there was motor aphasia, marked paresis of right arm and almost complete paralysis of right hand, paresis of the right abdominal muscles and right leg. The tongue did not deviate from the midline.

Examination of the eyes did not show any optic neuritis.

It was now very evident that we had a brain lesion, and the most probable source of the infection seemed to be from the frontal sinus.

The patient was sent to the operating room for operation on the frontal sinus. Before beginning operation lumbar puncture was done. Spinal fluid clear.

Operation. Under general anesthesia the frontal sinus was opened. It was filled with pus and the mucous membrane degenerated. The anterior wall of the sinus was entirely removed. The posterior bony wall appeared normal, except a small area at the lower part. The posterior wall was also removed. The dura was not under pressure and the incision did not show any pus underneath. The brain was explored and a small amount of pus evacuated from a point about one inch in depth upward and backward. A drain was placed at this point. The skin wound was only partially closed.

The following day the patient could use the right hand and arm very much better, but the aphasia was unchanged. The eyes now showed a little congestion of the optic discs.

Bacteriological report on the spinal fluid, and pus from the frontal sinus and from the brain were all negative. Smears were negative and there was no growth on cultures.

Lt. Col. Gordon Holmes, Neurological Consultant for the British Expeditionary Forces, saw the patient at this time. He believed there was an abscess in the white matter of the brain pressing upward on the cortical centers and advised further exploration.

Operation. A large amount of bone was removed from over the frontal lobe. Pus was pressed out of the previously made opening in the dura. This opening was enlarged and a very large sub-dural abscess found. Pus also was discharging from the brain. A rubber drain was placed under the dura and the scalp incision was partially closed.

Following this operation there was a profuse discharge from the brain abscess. Paralysis of right arm and leg became complete.

Patient died six days after the last operation.

Autopsy. At the upper part of the cortex of the right frontal lobe was a small area of softening. Otherwise the right hemisphere was negative.

Left Hemisphere. Dura thickened. Entire surface covered with thick pus. A large amount flowed from between the falx cerebri and the hemisphere. The dura over the ethmoid was very much thickened. No pus was found between the dura and the bone. The bone over the ethmoid was intact but very much discolored. It was necrotic and easily broken through. There was no pus in the ethmoid as it was well drained. There were no undrained pus-pockets in the brain.

The writer does not know whether this patient had any sinus involvement when admitted to the hospital or not, as he was not called in consultation until two weeks later. At that time the symptoms did not indicate brain involvement.

The intranasal ethmoid operation improved the drainage so that the symptoms were much ameliorated.

There were no symptoms definitely pointing to a brain lesion until the onset of aphasia. The aphasia which occurred on two days was difficult to explain because it was so transitory, but the occurrence of permanent aphasia and paresis definitely indicated a brain involvement.

Operation, at this time, on the frontal sinus, which was found filled with pus, made it seem most probable that the brain had become infected from this source and the writer would have continued to have believed that he had made a mistake in not operating earlier on this sinus had not the subsequent autopsy findings showed the real point of invasion to have been from the ethmoid.

It is probable that if this patient had been seen earlier and the ethmoid drained the brain infection might have been averted; at least extension would not have been as liable to occur.

With the communications between the nose and brain by way of the blood vessels and along the olfactory nerves and with only a thin plate of bone separating the frontal, ethmoid and sphenoid sinuses from the brain, it is surprising that nasal and accessory sinus infections are not more frequently complicated by cerebral lesions. It is undoubtedly true that this does occur much more frequently than we are led to believe from the literature, as there is great difficulty in obtaining autopsies in civil practice, and there is too great reluctance to publish reports of cases which cannot be classed as successes.

The treatment of these brain lesions is chiefly by prophylaxis; that is, by early and adequate treatment of the sinus infection. Whether the treatment of the sinuses is to be conservative or radical must depend upon the indications present in the individual case. When the brain has become involved from these sources the prognosis is poor. There are two chief reasons for this: One is the fact that the point of invasion of the brain is in the so-called silent areas, and there are no localizing symptoms sufficient to make a diagnosis until the disease has progressed so far that it cannot be stopped by surgical means. The other factor is that, except in the case of the frontal sinus, even if an early diagnosis is made, it is extremely difficult to secure adequate drainage and prevent extension of the process.

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