**A CASE OF EPIDURAL ABSCESS OF THE TEMPORAL
REGION AND ABSCESS OF THE FRONTAL LOBE.
OPERATION. RECOVERY.**

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H. Shoemaker, fifty-three years old, always healthy until February, 1904, after a slight passing cold, was seized suddenly by a violent pain in his left ear, with constant whistling which ceased in two weeks. The pain, however, persisted. It was of a steady, pressing, squeezing character, sometimes throbbing. The severity varied, at times becoming so great that the patient would cry out. Once in an especially violent seizure, he fainted. There was no dizziness or spasm, but with the sudden exacerbations, he complained of soreness in the neck and difficulty in turning his head. In the course of three or four weeks these attacks declined.

A month after the onset of the illness, the ear began to discharge, and at the same time the pain decreased, but remained as prickling feelings in the brow and temple on the left side. Occasionally the discharge stopped, when the pain immediately increased as at first.

During the fifth month of the illness a new symptom appeared, namely, drowsiness, which persisted and was occasionally accompanied by slight chills. During the whole time the patient felt feeble and tired, with disinclination to work. He was emaciated, but his digestion was not disturbed, and his bowels were regular.

The patient applied to the writer on August 23, 1904. He seemed to be in great pain, with pale, grayish face. By otoscopy, pus was seen in the left auditory passage, and removed. The membrana tympani appeared slightly opaque with injection of vessels along manubrium. There was no perforation or scar. The pus oozed out through a fistula in the upper posterior part of the external auditory canal, a little external to the membrana. The opening of the fistulous tract was surrounded by a few small granulations. A probe introduced passed through in the direction of the antrum mastoideum. The temporal and mastoid regions appeared normal, and were not tender on percussion; pupils equal, re-acting to light; sight normal; no paresis or disturbance of sensibility. The reflexes were normal; pulse 80, vigorous regular; urine, acid, clear, free from albumen and sugar; no disturbance of speech.

The day after, August 24th, I operated upon the mastoid under ether narcosis at St. Josef's Hospital. After chiseling through 1 cm. of eburnated bone I entered the antrum, to find it full of pus with swollen mucosa. As it was not possible to discover any fistula, the wound was packed with Iodoform gauze and dressed. On the morning of the day following, temperature was 36.9° C., but the evening temperature was 39.9° C., with pulse of 120 and chills. On removing the packing, a single drop of pus was seen trickling from a very fine fistulous opening in the most posterior part of the tegmen antri.

August 26th. Under ether narcosis, the mastoid wound was extended upward and an epidural abscess as large as a hen's egg was evacuated. The pus was yellow and creamy, but not foul smelling. The dura was depressed, especially in the direction of the middle cranial fossa. Here it was of a dirty gray color, feebly pulsating. The posterior wall of the abscess cavity, corresponding to the posterior cranial fossa, pulsated markedly and the dura was more swollen and covered with granulations. The bone was removed in almost the whole extent of the abscess. The wound was packed and dressed. The next day, the temperature was normal; and during the subsequent course of the illness, no rise of temperature occurred. On the second day, following the operation, the

dura was found to have gained its natural color and pulsation. The general condition of the patient improved considerably in a very short time, and he "felt like a new man." At the daily dressing, there was observed a considerable secretion of pus, which came chiefly from the posterior part of the cavity of the wound, from which part a large amount of a thin, purulent liquid escaped occasionally.

August 31. Under ether narcosis, the trephine opening was much enlarged, and a tubular extension was made backward, about 4 cm. The dura was found spongy and swollen, with a single black necrotic spot. Everywhere pulsation was felt. The large gaping wound in front was brought together by two sutures and dressed. After the operation, the patient was rather weak; but he regained his strength very quickly, so that after two days he again felt perfectly well. The pulse varied between sixty-eight and seventy-two, and did not rise after the evacuation of the large epidural abscess. The temperature remained normal except for the rise after the first operation. Urine normal. Ophthalmoscopy revealed nothing abnormal. (Prof. Edm. Jensen.)

During my absence in October, Prof. Schmiegelow was kind enough to dress the patient. He was discharged November 3, with the wound completely healed, except for a fistula located well posteriorly from which there was some discharge.

December 21st. The flow of pus continued unchanged, and as the skin above the tubular resection opening had become infiltrated, a sequestrum was supposed to lie here.

December 24th. Under ether narcosis, a square flap incision was made through the scalp, with attachment superior and inferior edge corresponding to the cicatrix. The flap was raised and a large quantity of pus flowed out. The dura here was spongy and swollen, with isolated spots of necrosis. The sequestrum was not seen immediately as it lay completely wrapped up in the skin flap, surrounded by a firm web. Only its black, discolored point was freely visible. It was removed and wound packed and dressed.

December 27th. Pus was abundant. The wound showed fresh granulations. A drop of pus appeared on the granulations on the dura, similar to the pus seen at the operation; but by careful probing nothing was discovered. Temperature was normal.

January 7th, 1905. Patient felt entirely well except for slight pressure in anterior part of temporal region. Pulse 70. A slight amount of pus trickled out steadily between the granulations at

anterior edge of the wound. The granulations were scraped away, and the flow of pus became more abundant. Further probing was attempted and the probe was introduced between the dura and bone about 8 cm. A large quantity of pus escaped and pulsation was noted. Streptococci were found in pus. The urine, normal; ophthalmoscopic examination, negative.

January 9th. Under ether narcosis, in the frontal region, a tubular opening 1 cm. broad by 6 cm. long was chiseled in the bone. The dura was very oedematous with dark discolored surface. Well forward there was seen a little opening that led to an abscess cavity as large as a pigeon's egg. The opening was extended, and by rather strong pressure a very large amount of thick pus was expressed. The cavity was explored by a probe which passed forward a distance of 3 cm. The part of the dura, that lay in front of the perforated opening, was of normal appearance. The thickened skin flaps were thinned and sutured posteriorly. The abscess cavity was packed with iodoform gauze and the wound dressed.

January 13th. The temperature remained constantly normal.

January 23rd. Patient discharged from hospital.

At the end of February the wound had healed.

April 4th. Patient feels well, but wears a padded leather plate for safety. As shown by the photograph, there is a scar on the left side 12 cm. long beginning a little behind the anterior part of the linea semicircularis, extending posteriorly in a curved line with convexity downward. The scar lies about 5 cm. superior to the external auditory meatus; 2 cm. above and somewhat posterior to the auditory meatus there is a depressed round scar about 1.5 cm. in diameter. This is connected above with the curvilinear scar by a scar 2 cm. long and below with the scar on the processus mastoideus. From the posterior part of the curvilinear scar a 4 cm. line extends upward and forward.

Dr. C. Riis and Dr. Brännich-Nielsen very kindly assisted me in the operations. The patient was presented before the Otologic Union, April 29, 1905.

The points requiring particular stress in this history are the sudden beginning of the illness, after a slight cold, with severe pain in the left ear, continuous, but of variable severity; and the absence of vomiting except once during a severe paroxysm of pain.

In spite of careful otoscopy nothing abnormal was discovered either in the auditory passage or in the membrana tympani, so that,

as he also complained of soreness in the neck together with difficulty in turning his head, the case was considered one of rheumatic neuralgia. Only a month after the beginning of the illness the purulent discharge appeared with cessation of pain which began again when the discharge stopped for a time.

In the fifth month a new symptom appeared, namely, drowsiness now and then accompanied by slight chills. The patient grew thin, felt tired and faint, but there was no disturbance of digestion. Not till six and one-half months after the beginning of the illness did the patient apply to the writer. He was evidently in pain. He answered all questions distinctly and clearly. The membrana tympani was almost normal in appearance and had no scars. There was a discharge through a fistula in the bony portion of the external auditory canal, which led into the antrum mastoideum; the temporal and mastoid region shows nothing abnormal. Pulse 80 regular and strong.

The antrum was opened by the Schwartze method; and two days later, an epidural abscess as large as a goose's egg was evacuated. This abscess was connected with the antrum by a fistula in the roof of the antrum. The drowsiness and emaciation of the patient gave an indication of an endocranial complication; but no fistula could be found until the second day when a drop of pus was seen trickling forth through the very small opening in roof of the antrum.

There may be some doubt as to how the epidural abscess originated. The most natural explanation is that the primary suppuration was in the antrum and from there extended through the fistula to the dura. That the membrana tympani was intact is not opposed to this supposition. The possibility of the abscess having arisen from an acute inflammation of the mucous membrane in the cavum tympani cannot be excluded. In that case the antrum, the walls of which were firm, with mucosa but little swollen, acted only as a reservoir from which the pus emptied itself into the auditory passage through the *locus electus*, namely, the most upper and posterior part of the auditory passage just external to the membrana tympani, where the blood vessels lie.

The epidural abscess did not make itself known by brain symptoms, as crossed paralysis, disturbances of speech, or slow pulse, which symptoms are seldom present in adults, but occur in children. Only the drowsiness of the patient bespoke an increased pressure on the brain. The pulse was at first 80, regular and vigorous; later it varied between 68 and 72. Even after the evacuation of the

abscess which diminished the pressure on the brain, it remained unchanged.

Later it was found that the pachymeningitis had extended very considerably backward and upward. This necessitated the denudation of a large area of dura. The dura was spongy, covered with granulations, swollen and in one place necrotic. It was left entirely undisturbed, as experience has shown that adhesions form quickly between dura and arachnoidea. Consequently, too radical procedure with sharp curette, scissors and forceps may break down this natural barrier and easily cause the added risk of an infection of the subarachnoid space.

The wound was kept open throughout and dressed with moist gauze compresses. When pus was seen trickling forth between the granulations in the anterior part of the wound, exploration located a cerebral abscess as large as a pigeon's egg in the frontal lobe. This abscess had been lying in the depths probably, and gradually worked its way to the surface of the cerebrum. There it had perforated the adherent membranes and escaped epidurally.

The frontal abscess was not opened until eleven months after the beginning of the illness. When it started, it is impossible to tell; but it must have been late for the patient felt very well after the evacuation of the temporal abscess. He was even discharged from the hospital, and during the six weeks that passed before his re-admission he was able to partially perform his work as a shoemaker. The hammering on the shoe, as it was held firmly over his knee at times caused him violent pains, "as if his head were to burst." The abscess was located in the third frontal gyrus, but, for all that, there was no sign of motor aphasia. The eye grounds were normal in spite of the cerebral abscess and extensive pachymeningitis. For anaesthesia only ether was used. The patient showed no signs of respiratory disturbance at any of the operations.