A CASE OF CHRONIC PURULENT OTITIS MEDIA COMPLICATED BY THROMBOSIS AND SUPPURATION OF THE TRANSVERSE SINUS, EXTRADURAL-ABSCESS AND CEREBELLAR ABSCESS.
OPERATION AND RECOVERY.

DR. H. TANAKA, Takasaki, Japan.

Case reports of intracranial complication following otitis media have been rather frequent in recent otological literature. Most of these cases, however, prove fatal; only cases of extradural abscess or of sinus thrombosis show more favorable results. Prognosis in brain abscess is bad, but occasionally a case of brain abscess involving the temporal lobe is reported with a favorable outcome. As regards cerebellar abscess, reports of cured cases are very few.

Suppuration in the temporal bone may invade the cranium and cause infection in the lateral sinus and also the transverse sinus. The path of the infection is either through the destroyed bone (Korner) by osteophlebitis, or by a emissary vein (Jansen). Occasionally infection of the transverse sinus may come from the dura or from the surrounding thrombus.

The following case report presents some very unusual features:

Miss K. H., 14 years of age. First seen August 14, 1918.

Family History: Unimportant.

Personal History: The young lady is stout. At the age of four years she had an exanthem on the head, which yielded easily to treatment. When the patient was six years old, while in bathing, some water entered the left external auditory canal, which gave rise to an acute otitis media. This has persisted until the present day more or less, and as a result of this disability she became hard of hearing on the left side.

Present History: Since February, 1918, this deafness has become worse and the discharge has become foul. The patient states that she had several attacks of vertigo. By the end of July the vertigo as well as a headache and earache, of which the patient complained, became exacerbated, and she consulted an ear specialist, who, on two occasions, enlarged the drum perforation. Some relief resulted from this procedure, but it was only temporary, for all the symptoms became even more aggravated, and the discharge began to diminish in amount. No fever was present until August 14th, when the patient suffered a severe chill accompanied by a rise in temperature to 40 degrees C., and nausea and vomiting.

It was at this time that the writer was called in consultation, and he advised immediate operation. Consent was not obtained, however, for two days.

Examination: Patient unable to stand up because of vertigo. Every motion causes pain. Urine normal; no nystagmus or paralysis. Headache severe in left frontal region. Right ear normal, left ear aching, foul sanguineous discharge. External auditory canal reddened on inner half but no sagging of the posterior-superior wall. Perforation of the drumhead located in the center and moderate in size. Drumhead surface congested, especially posterior portion. The mucous membrane of the tympanum as seen through the perforation, swollen and very congested. Discharge poor. Mastoid region sensitive to touch, but does not show swelling.

Operation: Under local anesthesia; mastoid exposed by the usual T incision; duration of operation five minutes. As soon as the cortex was penetrated a large amount of foul pus gushed out. The antrum was opened and found filled with a cholesteatomatous mass. Opening further, enlarged sinus exposed, but no abnormal condition of the sinus wall was found.

August 18 (second day after operation): Patient had chill; fever 49.8 degrees C., pulse 120.

August 19: Bandage changed. Very little pus from the wound. Fever subsided gradually.

August 21: Chill; fever 40 degrees C., pulse 120. Bandage changed again and fever subsided.

August 22: There appeared considerable infiltration in the subcutaneous dura of the infraclavicular fossa, sensitive to pressure.

August 23: Elevated the periostium two centimeters backward, and with a chisel exposed the transverse sinus in the sigmoid fossi three centimeters long. It was yellow, and showed no pulsation. Puncturing proved that it contained pus instead of blood. Incision for a distance of $2\frac{1}{2}$ centimeters and a thick yellowish pus flowed out but there was no bleeding. A probe inserted along the course of the sinus, namely, upwards and backwards for a distance of $2\frac{1}{2}$ centimeters, and downwards for a distance of $1\frac{1}{2}$ centimeters brought about a sluggish bleeding. Iodoform gauze pack inserted. Culture showed pure staphylococcus albus from sinus pus.

August 25: After the sinus operation the patient seemed a little better but today the fever rose to 38 degrees C., pulse 70 and full, patient felt very weak. Assuming that there was another focus of infection somewhere, I resected the external sinus wall

for a distance of two centimeters; then I searched in all directions in the wound and found the pus anterosuperiorally, namely, in the fossamedia. Another focus was discovered anteroinferiorly, but the amount of pus here was less than in the former place. There is no clinical sign of internal ear disease.

August 26-30: Patient is free from fever and her general condition is better, except a headache, which is located in the left frontal, temporal, and parietal regions. The headache is more intense at night and prevents sleep. There is still some pus exuding from the extradural abscess cavity, but it is scanty and has no odor. If I insert the probe for a distance of five centimeters into the upper crus of the sinus it causes active bleeding. If it is inserted for the three centimeters into the lower crus there is sluggish bleeding and it encounters a hard resistance.

August 30: Most of the headache has disappeared except slightly in the left frontal region. The patient is able to sleep better. Pulse is below normal.

September 1: While in conversation with me the patient complained that she was very sleepy and fell into a stupor from which she could not be aroused. Suspecting the presence of some foci in the brain, I cleaned the wound with hydrogen peroxide and searched for an abscess $1\frac{1}{2}$ centimeters deep in every direction, but with an entirely negative result.

September 2: Coma persists, pupils dilated, equal on both sides, and do not react to light. Corneal reflex still present. Horizontal-rotary nystagmus. Temperature 38 degrees C., pulse 65; battellar, bisepts, and Achilles reflexes could be elicited. The neck seemed stiff. Lumbar puncture showed clear cerebral spinal fluid. Upon drawing the gauze tampon from the wound some pus flowed out. I did not reinsert it, but only covered the wound with iodoform gauze. Patient given a camphor injection. Within five minutes she regained consciousness and complained of severe vertigo and headache. There is slight motor aphasia. Her speech is very retarded, and most of the words she uttered were incomprehensible. Eye examination showed slight choked discs on each side. Nystagmus continued for almost an hour. Then the comatose condition recurred, from which she again recovered, but it was repeated almost every hour or two, and the patient was pronounced to be beyond hope. As her mother felt that she would rather have her daughter expire in her own home the patient was taken to her house. But the patient did not expire.

September 3: A little pus flowed out from the extradural abscess cavity. The wound was found to be filled with coagulated blood. No tampon inserted, in order to avoid irritating the brain and producing pressure upon it. Patient is somewhat better. She has had only two comatose attacks, and these were of short duration. Motor aphasia disappears.

September 4-11: No tampon. Wound carefully cleaned out every day with hydrogen peroxide. Patient's general condition very much better. Appetite is good; headache has almost disappeared.

September 12: Until this day most of the attention has been directed to the intracranial condition. Middle ear condition looked after.

September 18: Trying to lie on the diseased side caused a sudden vertigo lasting thirty minutes. Slight headache and vomiting. Cranial wound covered with unhealthy granulations which were curetted. In the afternoon the patient had two comatose attacks, each lasting five minutes. When she recovered from them she had a slight disturbance in speech, which, however, disappeared after two or three hours.

September 19: Patient has severe headache, nausea, vomiting, and a comatose attack, accompanied by opisthotonos. Right eye, (healthy side) shows micropia and diplopia. The skin has grown over the sinus and covered the wound. Skin resected and unhealthy granulations in the wound removed for the purpose of lessening the brain pressure. This procedure caused a rapid disappearance of all symptoms, and the patient felt very well, but the diplopia in the right eye remains. No paralysis.

September 20 to October 8: Patient improved, diplopia and micropia disappeared.

October 9: Slight headache and some speech disturbance. Exuberant granulations in the wound removed. During the night the patient fell into a comatose state. Speech disturbance and loquacity came on alternatively. I examined the wound and found some edematous granulations which I removed.

October 10: Patient is conscious; left abducens paralysis, hyperemia in the right eye, amblyopia on the same side, and very slight nystagmus toward the left or diseased side.

October 13: Headache, vomiting, and ataxia of left extremities. But she was able to perceive a little louder sound than usual in her left ear. Examination for vestibular function not possible owing to the patient's condition. Choked discs. Suspecting a cerebellar abscess, I chiseled away the bone, and explored, but

no pus was found. However, believing in the presence of pus deeper down I cut into the cerebellum for a distance of one centimeter, but no pus was obtained. I probed, but could obtain no pus. In the deepest portion of the wound I noticed a yellowish white mass and pulled it out with very slight resistance. This threadlike necros tissue measured one centimeter in length and one millimeter in thickness. When this was extracted about 2 cc. of yellow pus gushed out from the depth of the wound. Culture showed it to be *nestaphilicoccus albus*. Abscess cavity drained and iodoform pack inserted.

October 19-22: Patient's general condition is very much better. Nystagmus disappeared two days after evacuation of the pus. The abducens paralysis and cerebellum ataxia still present. Patient's appetite good.

October 23: Wound perfectly clean. There was no pus or granulation; no headache or nausea, no speech disturbance. All the symptoms have vanished with the exception of the cerebellar ataxia of the left extremities and the abducens paralysis in the left eye. The patient can change her head position on the pillow by herself without any discomfort. With each pulsation there is a gush of cerebrospinal fluid which has tended to wash the wound clean. Since this day the wound has become smaller daily and the loss of cerebrospinal fluid, which amounted to perhaps several hundred cubic centimeters, has lessened gradually. During the patient's convalescence she was taken sick with influenza. Notwithstanding the illness through which she had passed; she recovered from it.

November 10: The wound is closed. There is still some ataxia. The abducens paralysis has almost entirely disappeared, the left eye being almost normal.

Ear Examination: Weber to right; Rinne, right, negative, left, negative. Watch, right, 12/200, left, 3/200. Right ear ten inches, left ear, conversational voice, twenty inches.

Ataxia has become gradually better, and in January she was able to walk with the aid of a cane. Eye examination by Dr. Takahashi is as follows: "Both eyes normal in the cornea, sclera, conjunctive, iris, and muscular movement. Reaction to light of pupils are normal and shape and size are the same in both eyes. Ophthalmoscopic examination shows papilli in both eyes pale, veins and arteries in the fundus are thin and visual fields in both eyes are narrowed concentrically. There is no paralysis or diplopia. The patient is able to discern the finger with the right eye at one meter, with the left eye at one half meter. Diagnosis, *atrophia nervi optica*."