

CENTRAL DEAFNESS.

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Case report and discussion of an apparently hopeless lesion involving both auditory tracts in the upper pons,—recovery.

Mrs. W., age 23, American. Family history was negative.

She had typhoid fever at the age of fifteen and five attacks of pneumonia between the ages of eleven and sixteen. During the last seven years she experienced a great deal of trouble with indigestion and dizziness, and at times she was troubled with numbness of the left leg, arm and left side of the face.

Two and a half years ago, following tonsillitis, she developed an abscess in the left ear and probably infection of the right frontal sinus. The discharge from the left ear persisted about a month, but the hearing never returned to normal. She was treated some time later for catarrhal deafness.

About one year ago she developed severe headaches with intense pain in the ears at times and rapidly increasing deafness in both ears. The vertigo and stomach trouble became much worse. Nine months ago she was well nourished but intensely nervous. She had slight jerking of the muscles in both arms and neck, possibly more evident on the right side. Rhomberg test was positive and co-ordination was poor; she was markedly ataxic. Patellar reflex was overactive and the grip of the left hand was weaker than the right. There was a feeling of numbness and a loss of the pain and temperature sense over the left leg and arm, and the left side of the face. There was no aphasia. There was a slight Babinski on left side. Stereognosis was normal. No heminopsia was present.

Cranial Nerves:

First Nerve: There was a loss of smell on the right side.

Fifth Nerve: There was loss of sensation to pain and temperature on the left side of the face and the head. There was no sense of taste over the anterior two-thirds of the tongue. Left corneal reflex was absent. Left side of the soft palate was weaker than the right side.

Eighth Nerve: (1) *Auditory tests.*

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The light reflex was normal for both drums, but there was a scar in the anterior part of the left drum. She had severe pain in each ear.

Right ear. Hearing, conversation was $2/40$. Rinne, very short positive. Weber, not well lateralized. High and low tones in doubt.

Left ear. Hearing, conversation was $1/40$. Rinne, very short positive. High and low tones uncertain.

Vestibular tests. (1) Revealed spontaneous nystagmus when she looked up or down, which made her very dizzy. Fell to the right.

(2) *Turning reactions* were almost normal with the exception of prolonged vertigo when turned to the left, head backward.

(3) *Caloric reactions.* Right ear. There was nystagmus from the vertical canal only when she looked to the left. Left ear—vertigo was greatly exaggerated and prolonged from the vertical canal. Patient was quickly nauseated and had severe hiccoughs.

(4) The patient past pointed to the right with each hand when the right ear was irrigated with the head 30 degrees forward; at all other attempts the arms made prolonged wild excursions in all directions as though she had no control of them.

Laboratory report—Wasserman and urine negative, spinal fluid and X-ray examinations not made.

After two months' treatment with mercury and iodides the patient was materially worse; she had several hard convulsions, projectile vomiting and a little later a blurring of the vision in both eyes from papillitis. She suddenly became entirely deaf in the left ear after a loud noise in her head. Weakness and twitching of the left facial mimic muscles developed. Temperature was normal.

At this stage, the last time I saw her, a diagnosis was made of tumor involving the pons and but little hope was offered from a subtemporal decompression. As nothing was done she was materially worse at the end of another month. After several hard convulsions paralysis of the left side of the face and left leg and increased numbness of the left arm came on. She was almost blind. Six weeks after the onset of the paralysis the left ear began to discharge pus and blood. After one week she was greatly improved and was soon herself again. Now, five months later, her physician informs me she is entirely well, that she has gained twenty-seven pounds, has no deafness, her sight is normal, there is no sign of paralysis or numbness, and that her stomach trouble and dizziness have disappeared.

Discussion. (1) Two points must be considered in the etiology of this case: (a) The typhoid fever at fifteen years of age and the numerous attacks of pneumonia between the ages of eleven and sixteen. (b) The occurrence of the abscess in the left ear two and one-half years ago.

That the otitis media was not the source of the brain infection seems evident from the fact that all her old troubles disappeared when the discharge occurred recently through the left ear. Yet, it is singular that the otitis media was on the left side, that the brain abscess formed on the left side, and that the pus burrowed its way through a healthy attic on the same side.

(2) Equally interesting were the bilateral pons symptoms. On the left side the fifth nerve, the vertical semicircular canal fibres and the auditory tract were implicated. On the right side the pyramidal tract (including the cortex facial fibres), the lemniscus and the auditory tract were involved.

The irregular nystagmus from the right vertical semicircular canal fibres, and the vertical nystagmus when looking up or down also indicated pons trouble. The exaggerated past pointing reaction in all directions on the left side suggest pressure irritation to the cerebro-cerebellar motor fibres in the pons.

(3) The extensive pons disturbance with such rapid and complete recovery as seen in this case could not have been from a primary abscess in the pons itself, but was from a left-sided basilar abscess, possibly a tempero-sphenoidal lobe abscess, pressing against the root of the left fifth nerve, with contra-lateral pressure of the right upper pons against the inner part of the posterior aspect of the petrous bone and attached tentorium.

Conclusions. (1) The lesion in nerve deafness should always be located.

(2) The vestibular reactions are of great value in the localization of intra-cranial lesions.

(3) Vestibular disturbance should always be considered in the etiology of obscure gastro-intestinal disease.

(4) More frequent recourse to well established surgical procedures will still further limit the number of hopeless intra-cranial diagnoses.