A CASE OF LABYRINTHITIS AND CEREBELLAR
ABSCESS.

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R. F., male, nine years old, had suppuration of the right ear since infancy. Entered Dr. Dench's service at St. Luke's Hospital July 20, 1920.

Tests showed hearing in diseased ear for loud whisper 6 ft. Lower tone limit, 90; upper tone limit, normal; vestibular mechanism, active; spinal fluid, normal. No history or symptoms of brain involvement.

On July 22nd I performed the radical mastoid operation with primary skin graft. Thirty-six hours later the patient developed vertigo, marked nystagmus to sound side, vomited and complained of headache. Temperature 101°. Total deafness of operated ear, tested with dressings removed. Douching the ear with cold water did not increase the nystagmus or vertigo, with hot water did not produce nystagmus to the diseased side. Spinal fluid contained 350 cells to the millimeter with high polymorphonuclear percentage. Globulin test strongly positive. Right pupil dilated. Eye grounds practically normal.

Labyrinth operation was done after the Neumann method. There was free flow of cerebrospinal fluid from the internal auditory meatus, also from the cochlear region after the removal of the mediolus.

Improvement took place after this operation and convalescence was apparently becoming established. Headache and fever subsided, nystagmus and vertigo became progressively less. This continued for ten days, when a free purulent discharge from the region of the internal auditory meatus developed. The patient became drowsy, complained of headache and vomited. His spinal fluid contained 20 cells to the cubic millimeter. Globulin test mildly positive, overpointed with

right hand indiscriminately. As I was off service, the subsequent care of the case fell to Dr. Bowers.

Operation August 6th. Sequestrum of bone removed from the region of the internal auditory meatus. This opened an abscess in the cerebellum from which a considerable quantity of pus escaped. Culture of this pus grew the pyocyaneus. An attempt was made to tie off the sinus, in order to obtain more room to evacuate and drain the abscess, but it was unsuccessful on account of hemorrhage, which was controlled with difficulty by packing. The patient showed much improvement after this operation. This continued for eighteen days. Then there was an attack of projectile vomiting. Headache, nystagmus to both sides; overpointed to left with right hand; inequality of pupils, right the larger. These symptoms continued for about a week, when a further attempt was made to locate and drain an intracranial abscess. The temporosphenoidal lobe was explored with negative results. Cerebellum exposed posterior to the sinus and explored with the grooved director. Upon passing this instrument rather deeply into the upper part of the cerebellum, a hard resisting wall was encountered, which at the time was interpreted as the tentorium, but which at autopsy was found to be the thick capsule of an abscess. After this operation there was no improvement. The patient died eight days later.

Autopsy showed meningitis at the base, and "A large abscess, with thick wall, occupying a large portion of the upper two-thirds of the right cerebellar hemisphere, extending to within two centimeters of the posterior pole." Cultures of pus from this abscess grew the pyocyaneus.

This case raises several points to which I will allude briefly:

1. Upon opening the dura at the internal auditory meatus there was a free flow of cerebrospinal fluid. I have come to regard this occurrence as an omen of good augury. It doubtless means that the cerebellopontine cisterna has been opened and when it occurs the active process seems more likely to be localized in this region. At any rate the meningitis in this patient began to improve as shown by the subsidence of the temperature and headache and clearing up of the spinal fluid. The next specimen, taken twelve days later, after cerebellar

symptoms had developed, showed a cell count of 20 with practical disappearance of the globulins.

2. The question arises as to the time of the cerebellar infection. Whether it occurred previous to the radical operation or if after it. Was it present at the time of the labyrinth operation, or did it take place some ten days later when wound infection became evident with pus discharging from the internal auditory meatus? The importance of fixing this date arises from the fact that it gives the length of time during which a brain abscess may form a thick hard capsule. Dr. Bowers, who performed the later operations and was present at the autopsy, believes that it would have been impossible for such an abscess and capsule to form in the forty-eight days intervening between the radical operation and death, but that it was present in a latent form when the patient entered the hospital. However, it seems improbable that an abscess of such size should occupy and more or less destroy a large part of one cerebellar hemisphere and yet produce no symptoms. More likely the cerebellar infection occurred between the labyrinthitis and meningitis and the wound infection. That is, between the 39 and 29 days before capsule was discovered upon exploration. So this would be the length of time in which abscess developed and formed a thick, dense capsule. The part played by the pyocyaneus infection in producing a capsule is to be noted. The pneumococcus is perhaps found more often than any other germ in abscesses with capsules. This observation shows that in so far as the germ determines this condition the pyocyaneus is effective.

3. The inadequacy of the grooved director as an exploring instrument is strikingly shown in this case. The resistance of the capsule was so great that it was believed to be the tentorium. Perhaps a sharp knife would have evacuated the pus. It would seem that a procedure advocated by Ballance, which largely has fallen into disuse in this country, might have resulted in locating the abscess. I refer to digital exploration. The finger surely would have succeeded in making out such a large, firm abscess.

4. Finally, the difficulty of using the sinus area as an approach is shown. The attempt to tie off the sinus as advised by Ballance and independently by Friesner, failed on account

of free hemorrhage, which required packing. There are two objections to this procedure. First, one hesitates to inflict sufficient traumatism to the cerebellum properly to insert the ligatures. Second, the resistance of the dura would interfere with their being tied sufficiently tight to occlude the sinus lumen unless they tear their way through, when bleeding would be very likely to occur. So, while approach through the sinus area is ideal in those cerebellar abscesses following sinus thrombosis and has been utilized by McKernon and others, it is not liable to be of very much use when the blood is freely flowing through a patent sinus.