

ACUTE BILATERAL MASTOIDITIS. MENINGITIS ASEPTIC. OPERATION. RECOVERY.*

DR. HAROLD M. HAYS, New York City.

R. M., aged 6, had been suffering from influenza for a few days before I saw her on April 3, 1920. Examination of her ears at this time, showed a bulging of both ear drums which necessitated immediate paracentesis. A culture taken from the pus from the middle ears, revealed the presence of the streptococcus hemolyticus. For four days following the operation, the temperature rose to 103° , and finally acute tenderness developed over both mastoids, with considerable sagging of the drums. In the right ear, the canal and drum looked worse than the left, and it was decided that this ear was more involved. On the night of April 8, 1920, a bilateral mastoidectomy was performed. Operation showed that both mastoids were entirely destroyed down to the sinus and dural plate. Neither sinus nor dura was exposed. The zygomatic cells were considerably involved. Cultures taken from the pus on both sides, showed the same organism that had been found in the middle ear. Both wounds were closed except at the lower angle where a small drain was inserted passing into the antrum. After operation, the child did not do well. There was considerably more discharge from both ears than there should have been, and she ran a temperature up to 102° and 103° . She seemed to have no vitality. Blood counts showed the white cells 20,000 with a polynuclear count running between 80 and 85 per cent. This continued for some time. At the end of two weeks the left ear healed up almost completely, but the right ear still continued to discharge, and there was an excess of granulations.

The child constantly complained of a very severe pain over the supra-orbital notch, radiating backward. This pain was so excruciating that it made her cry out in agony a number of times throughout the day. It was a question what was causing this pain, as there seemed to be no direct relationship between it and the ear condition. However, having had the same experience in other cases, I came to the conclusion that in all probability there was still some necrosis of the zygoma which had not been reached at the time of the operation. Apparently, last year, the streptococcus

*Presented at the New York Academy of Medicine, Section on Otology, Nov. 12, 1920.

hemolyticus seemed to have the tendency to involve bone beyond the mastoid region, and this invasion frequently extended into portions of the zygomatic process which were not cellular in type.

In two other instances, where similar pains had been complained of, complicating conditions of the mastoid were found. At the end of three weeks Dr. Whiting was called in consultation and, after probing on the right side, he felt some bare bone in the upper region of the wound near the zygomatic cells, and confirmed my opinion that the advisable thing to do was to re-operate this ear.

On the night of April 17 the child was again operated upon. On exposing the wound, it was found to be filled with numerous granulations which extended into the antrum which also contained pus. The cavity was well cleaned out. The incision was then extended upward and forward over the zygomatic process and the investigation of the bone in this region was continued until there was no more evidence of any necrosed bone. In doing this work, a small portion of the dura was exposed, over an area adjacent to the upper portion of the tympanic ring. I did not feel, at the time of operation, that there was sufficient necrosis in the zygoma, to warrant the severe pain that this child had had, although there was no other way to account for it. After searching exhaustively for all foci of infection, the wound was lightly packed.

At the time of this second operation the child's temperature was 99.8°. The following day it rose to 102° and then was irregularly intermittent to the 22nd of April, that is, five days. The child was restless, apathetic, and still complained of severe pain over the supra-orbital region on the right side, and did not seem to respond to anything that we did for her. The discharge from the wound was thick and tenacious. On the morning of the 23rd of April, the temperature rose to 105.8° and in a few hours dropped to 102.6°, rising at six o'clock that evening to 106° with a slight chill. At that time a blood count was taken which showed 25,000 white blood cells with over 90 per cent of polynuclear cells. A blood culture taken proved negative. A lumbar puncture found the fluid under quite some pressure, and cloudy. The fluid was taken over to our laboratory immediately, for examination and culture. Examination showed 2,200 leucocytes to the cubic millimeter, which indicated a very severe infection. A consultation was held that night with the family physician Dr. Waller, and Dr. Libman. Examination showed every evidence of meningitis. The child's head was considerably retracted. She was in a state of opisthotonos, the reflexes were slightly exaggerated, Koenig's sign was present. We decided

that the case was practically hopeless, and that within a few days the child would die. Up to that time we had not received the report of the culture of the spinal fluid.

As soon as this decision was given to the family, they immediately decided to take up Christian Science, and a practitioner was called in. I expected to see the child in extremis the next morning. So you can imagine my surprise when I went to the hospital the following day, to find her half-sitting up in bed, playing with her doll. The temperature had dropped to 104°, and from then on the temperature gradually went down and every symptom of meningitis disappeared. The report on the culture showed that it was sterile. The wound gradually healed by secondary intention, until practically no evidence of any trouble was present.

I neglected to say that, at the time of the second operation, in investigating the condition of the antrum and the attic, the malleus and the incus were removed, so I had very little idea that any hearing would return in that ear. I have watched the child carefully since the time of operation, and have been agreeably surprised to see how she has improved, both mentally and physically. At the time of her ear disease, she was extremely irritable, and impossible to manage, while today she has returned to a normal state of mental equilibrium. At that time her physical condition was so poor that she was nothing but skin and bones, while today she has developed so well that she is normal in every particular. I have examined her within the last few weeks, and find that both ears are absolutely dry, both mastoid wounds are healed properly, and much to my surprise, her hearing in her right ear, in which the ossicles were removed, is just as good as in the left.

There are a number of important points to deduce from a case like this one. *One.* That there are certain types of acute mastoiditis, particularly due to an infection from the streptococcus hemolyticus, in which we get invasion of the bone, beyond the mastoid cavity. *Two.* That such cases frequently necessitate a secondary operation. *Three.* That symptoms of meningitis may be present, which may clear up, when the culture of the spinal fluid remains sterile. My own opinion is that there must have been a localized, epidural abscess which had eventually ruptured into the mastoid wound, clearing up the trouble. It is almost impossible to definitely conjecture how a case like this one can get well, but there is no doubt that, in this instance, the child had some localized infection which fortunately cleared up. *Four.* One must be extremely cautious in his prognosis, even when the severest symptoms are

present. I have no doubt that if the consultants had waited until the next day, when a report of the culture of the spinal fluid had come in, they would never have given the prognosis they did. It is just in instances like this that Christian Scientists step in, and are credited with the cure. Fortunately the parents are sensible enough people to realize that a co-operative interest such as was given this child, perhaps had a great deal to do with saving her life, but there is no reason that they should not think that Christian Science had something to do with the miracle. *Five.* It is of peculiar interest that this child's hearing should be as good as it is in the re-operated ear, when one considers that the ossicles had been removed. We have always been of the opinion that under such circumstances, the ear practically is dead, but there are instances, apparently, where the hearing returns, even after the ossicles have been taken out.

2178 Broadway.

THE PRINCIPLES INVOLVED IN THE X-RAY TREATMENT OF TONSILS.*

DR. W. D. WITHERBEE, New York.

The tonsil histologically is made up chiefly of lymphoid tissue and a connective tissue framework. Pathologically, the cells of the lymph follicles are stimulated to excessive cell proliferation, causing distortion of the crypts and retention of their contents.

The proliferation of cells of the lymphoid tonsil shows a much larger increase in the lymphocytes than in the germinal center of the follicles. The fibroid tonsil, on the other hand, shows an increase in the germinal center of the follicles. The germinal center of the follicles is characterized by the different forms of lymphoid cells all the way from the embryonic type to the mature cell at its periphery. Therefore, one finds numerous cells in this area in various stages of mitosis. These pathological cells which are found in the follicles of the diseased tonsil are as susceptible to the effects of X-ray as any of the embryonic cells in the body.

The filtered dose of X-ray used in this treatment is only about one-fourth to one-third the dose used in the treatment of ringworm of the scalp in children, hence overcoming the objections of a possible injury to any of the adjacent normal cell structures. The frac-

*Abstract of paper read at Laryngological Section, New York Academy of Medicine, December 22, 1920.