TWO CASES OF SINUS THROMBOSIS WHICH PRESENTED UNUSUAL DIFFICULTIES IN DIAGNOSIS.*

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Case 1.—I saw this boy first, April 15th, with another physician at his office. He had then a profuse purulent discharge from his left ear. For two weeks he had had this condition accompanied by considerable pain. He was going to the physician's office for observation and was carrying out irrigation at home.

Three years previous to this, he had had an acute otitis media in the same ear which had entirely cleared up. At that time he looked rather ill, but he had always been delicate looking. Two myringotomies had been performed and drainage was free. He had had no chills and no marked tenderness over the mastoid region. On April 21st, the physician told me that he was sending him to the hospital under my care. When I saw him, after admission, his temperature was 100.4° and pulse 82. There was no discharge from the ear and no tenderness on deep palpation in the mastoid region. He looked more ill than the local symptoms would warrant. Later in the day his temperature went up to 104.8°. A myringotomy was performed by the house surgeon. The next morning the temperature was down to 102°, later on, however, going up to 106°, accompanied by very severe headache. He was seen by several of my colleagues at the hospital, and although there was not much to be seen in the middle ear, I decided to open his mastoid. I did quite an extensive simple mastoid, but found nothing to account for the symptoms. On exposure the dura and sinus looked healthy—in fact, the appearance of the mastoid was that of one undergoing resolution. His blood count had given no

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positive evidence, there being a slight leucocytosis with about 78 per cent of polynuclears. The blood culture was taken on the day of the operation, April 23rd. The night after the operation he had severe pain in the right shoulder. The next day this was slightly swollen and immobilized. In the afternoon his temperature went up again to 104.4°; dressing showed no pus either from the wound or from the middle ear. The following day the report from the blood culture showed the presence of streptococcus viridans.

The physical examination by the medical attendant, Dr. Howe, showed lungs negative, a slight systolic murmur at the apex of the heart, but this was not considered due to endocarditis. At this period, therefore, there were clinically a pyemic temperature, with pulse rate usually under 100, the mastoid to all appearances undergoing resolution, apparently an embolic process in the right shoulder, with streptococcus viridans in the blood. It was most improbable that the focus of origin was in the ear. In fact, so far as I knew, no case of streptococcus viridans in the blood had been reported with a primary focus in the ear.

Dr. Dwyer, the pathologist, substantiated this view. The patient's teeth and tonsils were both badly infected, and, as either of these are more likely the habitat of the streptococcus viridans, we took cultures from both these regions, but found only diplococci present. For the next four days the patient had a pyemic temperature with a constant daily rise to 104 or 105 degrees, with remissions in the morning down to 100 or 101 degrees. There were no chills, and the pulse rate ranged from 84 to 108, most of the time below 100. The case was in the meantime subject to much consultation, and I could hardly mention the number of otologists who saw him, some advising operation and some against it.

With the streptococcus viridans in his blood, operation seemed hopeless, besides it was most unlikely that the blood infection could have come from the ear. On the other hand, it was argued that if he were going to die anyway, he should be given the odd chance of exploring his sinus. To this I agreed without much hope for ultimate good.

On exposing the sinus from the bend downward, the wall appeared quite healthy. However, I kept on going toward

the bulb. Suddenly, to my surprise, pus began to well up in considerable quantities. A perisinus abscess had been tapped around the bulb. The jugular was ligated and the bulb cleared of the clot. The culture from the pus in this region showed streptococcus hemolyticus.

The patient's temperature came down by a step-like process in the next week. His ear entirely cleared up and he has remained well ever since.

Case 2.—This patient was first seen September 28, 1917. He came to the clinic with a very severe pain over his right eye and looked very ill.

Since an attack of whooping cough in childhood, he had had a periodical discharge from his right ear. Three weeks before admission, his ear began discharging, and he had had severe pain in the right frontal region, varying in intensity at different times of the day. Up to that time there had been no pain in the ear. He had been treated in another hospital, and an operation on his ear had been discussed. On admission there was no evidence of any discharge, but there was a large perforation in the drum membrane, with no pain or tenderness over the mastoid. What pain he had was all located in the right frontal region. His hearing was markedly impaired on that side.

For the past week he said he had had a severe chill every day but not recurring at the same time of the day. The patient was X-rayed, both frontal and mastoid regions, but nothing was found. Shortly after admission, he had a chill and his temperature went up to 105° . The next two days he had a daily rise to about 104° with chills at less than twenty-four hour intervals between these daily rises.

I advised operation but patient refused. He thought he had malaria. This seemed, of course, possible. With the entire absence of local ear symptoms, we were inclined to eliminate every other possible cause. One aurist, for whose opinion I have a great respect, said that he would want to give the ear the last consideration as the cause of the phenomenon. Repeated examinations for malaris were negative; the possibility of pyelitis was eliminated; lungs and heart were negative; blood count showed 77 per cent of polynuclears, but this did not tell us much; blood culture was negative.

On the fourth day his temperature remained down and he had no chill. The fifth day, October 2nd, there were two sharp upward variations, the last one accompanied by severe chill and reaching 106.8° . Such a phenomenon with a double rise of temperature in twenty-four hours, I believe to be pathognomonic of a pyemic process and nothing else. Moreover, it is significant of absorption into a large vein, such as the jugular or uterine veins. I was now fairly certain that he must have a sinus thrombosis, although there were still no localizing symptoms in the ear or neck, and the pain was still confined to the frontal region. The patient's consent for operation was now obtained, October 4th, and the operation performed on the following day. The sinus wall above near the bend looked suspicious only, but on following it down it appeared thickened and of a grayish color. There was no perisinus abscess or granulations on the surface. I put in some compression plugs at each end of the exposure. I then ligated the jugular above the facial. There was no evidence of disease of the jugular. A free incision into the exposed sinus liberated liquid pus with free bleeding from the torcular end. This end was packed and a portion nearer the bulb opened further. A little more pus was obtained. The exposure was now down to the bulb. Very free bleeding occurred, probably from the inferior petrosal. This was packed off and dressing applied, and the patient returned to the ward. The temperature remained down until the fourth day, when it went up to 105° . All packing was then removed and a small quantity of pus was seen coming from the region of the bulb. The packing was loosely inserted in this region and changed daily, considerable pus being present at each dressing.

From that time on, his recovery was uninterrupted. A radical mastoid was performed five weeks later.