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Thrombosis.

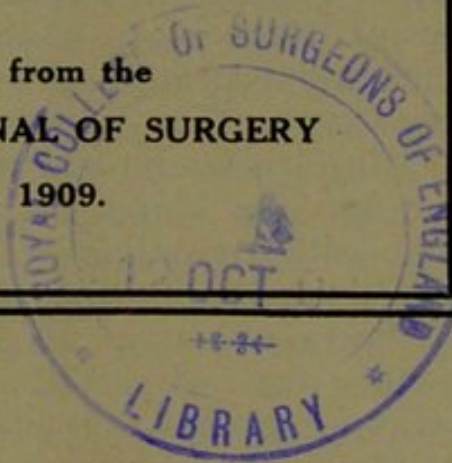
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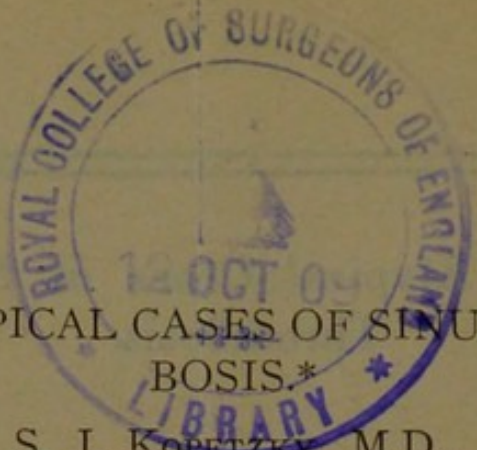
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TWO ATYPICAL CASES OF SINUS THROM-
BOSIS.*

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CASE I.—C. W., aged 43, appeared at the Manhattan Eye and Ear Hospital on October 8, 1907, giving a history of having a discharging ear, which had persisted for one year; having been caused by a severe "cold." The examination showed a perforation of large size, marginally situated, through which a moderate amount of purulent discharge came away. The patient was put upon rational cleansing treatment, and seemed to improve as time went on. On March 20, 1908, he appeared at the Clinic with a swelling over the mastoid process of the left side, stating that this swelling had appeared two days previously. He had no pain and no fever or chills, and had passed a comfortable night. The swelling extended well over the temporal and parietal regions and forward as far as the outer angle of the eye. The external auditory canal showed edematous infiltrate.

Believing that I was dealing with an acute exacerbation of his chronic otitis media, I suggested operation and immediately sent him to the ward for preparation, and within a half hour the operation was performed.

Status on admission: temperature, 100.2; respiration, 20, pulse, 80.

Operative Findings.—The usual post-auricular incision demonstrated no pus from the swollen edematous tissue over the mastoid process. This was

* Read before the Section on Otology (N. Y. Academy of Medicine), October 9, 1908.

the first intimation that I had that I might be dealing with some sinus trouble, as previous observation on sinus cases had shown this finding in sinus involvement. This swelling should not be confused with the edema which results from a phlebitis of the mastoid emissary vein. (*Annals of Otology*, March, 1908.) The removal of the cortex showed the mastoid epophysis filled with fluid pus. The cortex overlying the antrum was rather thick. The mastoid cells extended backward and upward rather unusually far and were found filled with necrotic débris and pus. The sinus took a course rather far forward and almost bisected in a diagonal direction the mastoid process, cells being evident both above and below it. The sinus wall was covered with necrotic granulations and its exposure for considerable distance failed to show a healthy wall. The sinus was then opened at the level of the antrum and found to contain a dark firm clot. The sinus was now traced backwards toward the torcular for about an inch and a half, being opened all along its route, and free bleeding was obtained about one and one-half inches back from the knee. Working downward toward the bulb the central end of the clot was not reachable, therefore, after temporarily packing the mastoid cavity, re-sterilizing our hands and instruments, the neck was prepared for re-section of the jugular.

The operation on the jugular was easily performed, the internal jugular resected from just above the clavicle to above the facial vein. The clot was now removed from the bulbar end of the sigmoid sinus and free bleeding followed, probably from the petrosal. Both wounds were cleansed, mastoid wound packed in the usual manner and the lips of the neck wound approximated and ligated with three sutures, each having one surgical knot, leaving *in situ* a strip of iodoform gauze to act as a drain. The neck wound rapidly healed, the mastoid wound took the usual course and healed, the middle ear became dry without further incident. Patient eventually discharged cured.

This case is presented to demonstrate how extensive an involvement of the sinus may be present without giving the usual up and down temperature or any other signs to point to the gravity of the patient's condition. Here is a man who walks into the Clinic with a clot in his lateral sinus at least three to three and a half inches in length. Secondly, the only physical sign was an edematous condition over the mastoid region and extending well beyond it.

To point the lesson of this case more thoroughly, I present case two.

CASE II.—B. S., aged 6, came under observation June 10th, 1908, at the Ear Clinic of the N. Y. Throat, Nose and Lung Hospital, giving a history of having had scarlet fever two years previously, from which he recovered with a persistent purulent otorrhoea from the right ear. At the time of his appearance at the Clinic the right ear was profusely discharging a foul smelling thick creamy pus. The left ear was examined and found normal. Cleansing, antiseptic treatment was instituted and this was continued until June 15th, when the mother reported that he had vomited during the previous day; had passed a restless night; had some temperature, and complained of pain in the right ear. During the examination he vomited excessively and seemed a very sick child. Temperature 101.6, pulse 120, respiration 26.

I sent him to the Red Cross Hospital for observation, because the local condition in his ear, the absence of any mastoid tenderness on either side and the free discharge of the pus did not seem to me to be the cause of his illness. On the other hand, a thorough physical examination by the attending physician of the hospital, Dr. L. K. Neff, gave negative results. He was kept under observation until June 18th, when because of a beginning swelling radical operation was performed. His condition

being summed up as an acute exacerbation of his chronic otitis media on the right side.

Operative Findings.—The retraction of the soft parts after the usual mastoid incision showed a well developed mastoid outline, cortical land marks well defined. The mastoid process was found partly eburnated, but there were well marked cells radiating about the tympanic cavity and mastoid antrum. These cells were filled with fluid pus and with pseudo-cholesteatomatous masses. An exposure of the sigmoid portion of the lateral sinus was effected at its knee for about $\frac{1}{4}$ -inch square. The wall was found to be healthy. The usual technical procedure to take down the post-auricular wall, eviscerate abnormal mastoid and tympanic contents, and cut a Panse flap with primary suture of the post auricular wound, then followed.

It is to be noted in passing, that the mastoid process presented no deviations from the normal process of a child, six years of age.

The day following the operation we find the temperature normal, pulse 74, respiration 22. Removal of the outside dressing showed the wound to look healthy. On the night of the second day, the temperature was still normal but the pulse rose to 102, respiration to 26. The child was slightly restless during his sleep, although nothing of an unusual character was observed; occasionally the patient complained of pain in the ear which had been operated upon. On the morning of the third day after operation the patient was sitting up in bed crying that he was hungry, presenting normal temperature, pulse 104, respiration 24. At 8.30 that morning he had vomited after having taken some gruel. Towards evening he became very restless, had a crying spell and in a seeming frenzy had torn off his bandages, nevertheless at 11.30 that night he was sleeping and the evening condition showed temperature 101.2 degrees, pulse 122, respiration 20. The nurse reported a slight attack of what she termed "delirium" earlier in the evening. On the morning of the fourth day, I found the patient lying on his back

perfectly relaxed and unconscious. Temperature 102 degrees, pulse 132, respiration 22. His condition alternated between periods of unconsciousness and periods of crying. There was no Koenig sign, no opisthotonus. The dressings were removed, the stitches taken from the wound and the entire cavity inspected. The wound was found clean with no signs of pus. Thinking that there might be some local condition in the meninges or in the sinus (although there were no symptoms to justify such a diagnosis) a few whiffs of chloroform were administered and the tegmen removed exposing the meninges and the bony sinus wall was also removed to expose the sinus. Both were found healthy in appearance and further efforts were temporarily stopped. The child died that afternoon. Tentatively a diagnosis of rupture of a brain abscess was made. Permission for a partial autopsy was obtained and this showed the meninges normal, no increase in cerebral fluid; sections of the brain failed to reveal any brain abscess and showed nothing characteristic although many small punctate hemorrhages were noticeable throughout its substance. The wound in the mastoid showed that it had been completely exenterated and an examination of the labyrinth was negative. The sinus on the right side was found normal. In the removal of the brain, the meninges of the opposite temporal bone were left *in situ* and as a last resort while looking for the cause of death, this was pulled from the cerebral surface of the temporal pyramid. In doing this the left sinus was uncovered and torn and we were surprised to find within it a yellow semi-liquid mass. The skin over the left mastoid was then retracted, its cortex exposed, and realizing then that I was dealing with a thrombosis of the lateral sinus on the left side of the head I endeavored to open the left mastoid. The first stroke of the chisel showed the sinus covered only by a thin cortex and further efforts were stopped until we had extracted the temporal bone. How far toward the torcular the clot extended we could not

make out, as part of the mass was lost in the débris following the removal of the brain. It completely filled the sinus from the knee to the bulb and beyond. The thrombus was partly organized and of yellow color and from its macroscopical aspect was pronounced by the pathologist, Dr. Gonzales, a fatty degeneration of the thrombus. He estimated that it had been *in situ* for at least a week or ten days. The specimen showed the middle ear filled with pus and detritus, the antrum small, and no other cells evident at all. The sigmoid sinus was directly under the cortex and took up the entire, partly rudimentary mastoid tip. There was no evidence of real mastoid cells, if we leave out of account the small space directly under the mastoid fossa, and at the angle formed by the two sides of the petrosal pyramid. The contrast of this side to that upon which I operated is very marked, aside from the other peculiarities of this case.

Here, then, was a case in which a thrombus developed during an acute invasion of both ears, in which marked pyemic symptoms were absent. On the right side because of its previous history and local findings and because of the pain, an operation was undertaken, the left side because of congenital maldevelopment, and resulting anatomical peculiarities permitted pus to travel direct from the tympanic cavity to the sinus which was in almost juxtaposition, and a thrombus was thus engendered. This thrombus was evidently not a very infectious variety and became organized, and then, either because of the trauma to the head during the operation on the opposite side or because of some other extraneous factor it underwent fatty degeneration and from the dissemination of this fatty material the patient succumbed. The marked symptoms on the right side marked the graver condition on the left side.

At no time during the patient's illness was there any complaint of pain in the left ear and even at the time the right ear was bandaged the patient seemed easily to hear ordinary conversational tones with his left ear up to the very time that he became unconscious. There seems to be a need for an analytical study of all the atypical cases of sinus thrombosis in order that some data of diagnostic value may be accumulated.

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