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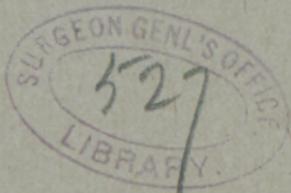
Opening of the Mastoid Process, Kuster's Operation. Finally, Spontaneous Elimination of a Portion of the Labyrinth.

BY

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NECROSIS OF THE LABYRINTH.*

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*Opening of the Mastoid Process, Küster's Operation.
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CHRONIC suppurative inflammation of the middle ear may invade the surrounding structures and cavities and produce serious complications. At the annual meeting of this faculty a few years ago I had the honor of reporting a number of cases in which the principal secondary affections were inflammation of the mastoid process and septic intracranial complications (meningitis, thrombosis of the lateral sinus).

To-day I wish to describe an interesting case in which the mastoid process and especially the osseous internal ear were secondarily involved.

Mary H., aged four years, came under my treatment in October, 1890, suffering with chronic suppurative otitis media of the left ear.

* Read before the Medical and Chirurgical Faculty of Maryland at its semi-annual meeting, held at Cumberland, November, 1894.

Previous History.—Sixteen months ago had scarlatina, with severe scarlatinal diphtheria and symptoms of meningitis. She was very ill for about two weeks, then recovered entirely excepting a purulent discharge from both ears. This was treated with injections and boric acid, and the right ear rapidly recovered and has since then been entirely well. But the discharge from the left ear continued in spite of treatment. A few weeks before the case came under my observation a small piece of bone had escaped with the discharge.

Present State.—Auditory canal filled with offensive pus. A large polypus hangs from above, near the inner end of the canal, obscuring the deeper parts. The ear was thoroughly cleaned and a crescent-shaped piece of bone, on which the sulcus for the insertion of the drumhead could be distinctly recognized, was extracted. The polypus was removed with a snare. On the following day (November 1, 1890) the patient had a chill and high fever (103.6°). The fever continued for several days and the discharge was lessened, indicating retention of pus. The patient at times suffered great pain in the head.

November 6, 1890.—A consultation was held with Dr. Gombel, the family physician, and the child was again accurately examined. The patient was weak and pale (the lungs, liver, spleen, and throat were normal). There had been no other chill, but the fever was still high (temperature 102.4° , pulse 148). The child was very somnolent and the headache at times was very great; but there were no other symptoms of cerebral complications (such as rigidity of neck, twitchings of peripheral muscles, sensitiveness of jugular vein, jaundice; the optic discs were normal). The discharge from the ear had again increased and it was occasionally bloody. The external ear was not sensitive, nor was the region of the mastoid process or the skull near the ear. The symptoms were therefore referred to retention of pus in the temporal bone, probably deep in the mastoid process, and cerebral complications were excluded. Having tried internal medication for almost a week without any improvement, we determined to open the mastoid.

On the following day, November 7, 1890, this operation was

performed under chloroform in the usual manner. We were rewarded by finding a deep-seated abscess in the mastoid process, which was scraped and cleaned. The patient rapidly recovered from the operation, but our expectation that complete recovery from the aural inflammation would result was not realized. The wound closed rapidly,* but the otorrhœa continued, though diminished in quantity, and the polypus returned. It was repeatedly removed with the snare, the curette, chromic acid, and with absolute alcohol. Whenever removed we could probe a carious cavity through a fistulous canal which had an opening about three quarters of a millimetre in diameter in the upper and deeper part of the osseous portion of the auditory canal. The purulent discharge remained about the same, but was kept inoffensive most of the time by frequent irrigation and boric acid. Fearing that the carious process might extend, we determined to scrape out the cavity through the fistulous canal.

This operation was performed under chloroform May 3, 1891, but it proved ineffectual, and the polypus returned within two weeks. The former treatment was resumed. The patient's condition remained about the same for many months. Toward the beginning of the following year (1892) there were frequent attacks, during which the ear would become sensitive and painful; the patient would be restless and would sleep badly. There was frequently slight fever without chills. During these attacks the discharge would diminish in quantity.

The recurrence of these attacks induced us to make another attempt to reach the source of the disease. In April, 1892, an operation was performed according to Küster,† consisting in the partial removal of the upper and posterior wall of the auditory canal with the chisel, after having laid the auricle forward by an incision along its posterior attachment. We soon entered the carious cavity, and this was scraped out as thoroughly as possible with a sharp spoon. No sequestrum was found. The

* The iodoform gauze which was used to pack the wound produced eczema of the surrounding skin. Subsequent experience showed that the patient had this idiosyncrasy toward iodoform, and suffered with eczema whenever this medicament was applied.

† See *Deutsche med. Wochensch.*, 1889, Nos. 12 and 13.

cavity was packed and the patient again recovered rapidly, but again we were disappointed, for the otorrhœa recurred. We therefore gave up all hope of relieving the deep-seated caries by surgical means, and restricted the treatment to removing the polypus with the curette when it would become large, and to daily irrigations and instillations of a saturated solution of boric acid or insufflation of the powder. The discharge was not considerable in amount and was kept free from odor. We were finally rewarded for our patience, for in May of this year (1894) a sequestrum found its way into the auditory canal and was removed. The fistula closed and since then there has been no discharge whatever. The canal ends in a membrane occupying the position of the drumhead, but showing no landmarks, indicating that the ossicles have been lost and that the drumhead has probably been replaced by a cicatricial membrane.

Many careful experiments have been made to determine whether there is any remnant of the function of hearing. These are very difficult and the results are doubtful in a child—now only eight years of age—but it appears certain that the hearing of this ear is entirely lost.

The sequestrum is small and is distinctly a part of a semicircular canal. It is crescentic in form, much thicker at one end than at the other, and its surface is very rough. On one side we find the canal mentioned above, of whose wall about a half is preserved. The sequestrum is seven millimetres long, two and a half wide, and about three thick.

Remarks.—Our patient at no time suffered from vertigo. This symptom, it is true, has not been frequently observed in such cases, as was shown by Bezold in his comprehensive study of this subject.* When due to involvement of the semicircular canals, it is observed during the earliest period of invasion of the labyrinth. When this occurred in our case it is not difficult to surmise. It was probably soon after the onset of the attack of scarlet fever when symptoms which were referred to a meningitis appeared. These

* *Arch. of Otolology*, vol. xvi, p. 297.

symptoms were in all probability due to acute suppurative inflammation of the labyrinth.

The origin of the labyrinthine affection deserves to be considered. Did it arise as a complication of suppurative inflammation of the middle ear, as was assumed at the beginning of this paper, or was it a primary affection? The former is much the more probable. There are a few cases on record in which the affection was probably primary in the labyrinth, but they are very few, and are not absolutely proved (cases of Christinnek, Trautmann, Toeplitz, and Kretschmann). The vast majority are secondary to the affection of the middle ear. Thus, in Bezold's list of forty-six cases there is but one which is probably primary.

We should also mention that there was never any facial paralysis, a very common symptom of necrosis of the labyrinth. One important feature of this case is the long course during which every possible attempt was made to relieve the sequestrum, but without success. To the patient cleansing, to keeping the fistulous canal free, and to the antiseptic treatment carried on without interruption for three years and a half, we may, in part at least, ascribe the final happy result.

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