CHOLESTEATOMA OF THE EAR.

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The subject of cholesteatoma has received a considerable amount of attention on both sides of the Atlantic, yet seems one to which further attention can be profitably devoted. Writers on pathological anatomy are apt to be silent on this point, as though true cholesteatoma were a very rare tumor, met almost solely on the brain membranes; or else they strongly combat the claim that the ear is a frequent seat of the growth. Aural surgeons, on the other hand, too often regard these cases as only desquamative inflammations, and draw no distinction between mere aggregations of exfoliated epidermis and the true pearly tumor. The reason is not far to seek. Desquamative conditions are frequently met, and are open to ready study; cholesteatomata are generally buried in the bony cavities, and are removable only piecemeal during life, and are then nothing more than epidermal shreds, almost indistinguishable from any other flaky masses.

Waiving in great part the question of how often the cholesteatomatous masses met in clinical work are to be viewed as tumors in the strictest sense, I would like to draw attention to their frequent occurrence and their serious importance. A recent statement of Virchow's fittingly opens the discussion: "Of the fatally-ending cases of middle-ear suppuration among us, nearly one-third are to be ascribed to this form of growth," —a statement that for force and authority could hardly be surpassed, and needs no additional citation of authorities. Having had no personal ac-

after numerous sittings was approximate completeness attained in the cleansing. Then suppuration promptly ceased—to recur once or twice in the past year, when the collection of epithelium had formed anew.

A still more notable case was that of a fellow-pupil in the same institution, Susan C., æt. 14, who was brought with suppuration of both ears. The greatly altered tympanic cavities were so tightly packed with pearly epidermis, that only after six or eight sittings of half an hour's duration, when forceps, probe, curette and syringe were used to the exhaustion of both patient and surgeon, were the tympana emptied. Drum membranes and ossicles were gone on each side, and a glazed cicatricial tissue covered the visible surfaces. At the next visit the right ear was dry; but on the left some suppuration continued, a few epidermal flakes were visible, and the probe and curved forceps drew away a good deal more of the same material from the attic and the entrance to the antrum. Although now clean, as far as sight and touch could determine, continued syringing was ordered, unless the ear remained perfectly dry. This was carried out for three days, and when next seen, there was found a cholesteatomous mass filling the auditory canal, and measuring on removal $26 \times 8 \times 6$ mm. It was doubtless swollen by imbition of fluid, but after drying was still nearly as large in each dimension; and one could but wonder where there had been room in the temporal bone for it to hide itself. Suppuration at once ceased, and has recurrence only once or twice for short periods, and on this side alone.

So large a proportion of the deaf-mute patients whom I have treated presented this condition in greater or less degree, that I now expect it in the old supplicative cases, and distrust any negative findings until after repeated examination; and I always order the cases showing it to return within a couple of months, even if the ear remains apparently free from any suggestion of trouble. Some of them do so, and renewed collections are generally found; others suffer a renewal of the otorrhœa before the time set for their return, and the removal of the fresh collection is followed by prompt cessation of the discharge.

The first notable case of this kind which I met was Margaret M., æt. about 35, who came in January, 1883, to the Episcopal Hospital. She was very deaf, and spoke a scarcely intelligible German dialect, so that little was learned of the history or subjective symptoms, except that she suffered much with dizziness. Examination showed the left canal clear, and the drum membrane largely destroyed and altered almost past recognition by thickening and adhesions, evidently the results of old, long-standing supplicative disease. On the right the canal was blocked with a mass, apparently cerumen, and its removal showed a condition of the deeper structures closely similar to that on the left. The endeavor to inflate the tympanic cavities probably failed, but some relief seemed to have been obtained. At her second visit, a scale of dark material was still present on the posterior wall of the right meatus, and it was removed as a matter of principle, since several cases of sinus in such a situation had recently been seen. A large sinus was revealed, from which an astonishing mass of material was removed, most of which resembled moist buckskin, but the central portions of which were dry, opalescent, and closely laminated. The walls of the cavity were moist with a pus of strong odor, having a pungency rather characteristic of cholesteatomatous masses. Further relief followed this clearing. At a subsequent visit, the walls of the cavity were found dry, smooth and firm except in the innermost part. The portions visible through the opening in the meatus wall were pale, cicatricial and glazed. The opening into the wall of the canal was found to measure 12 mm. in each dimension; and the cavity in the mastoid extended from the level of the meatus floor to 12 mm. above its roof, and a curved probe could be passed 15 mm. directly backward, and its tip could be brought so far outward as to show that little bone was left between it and the skin. We had therefore a cavity some 20 mm. in height, 15 mm. antero-posteriorly, and extending from near the surface of the mastoid at least 30 mm. inward. Two points were found up and in where the probe met no bony resistance, and pressure caused vertigo and faintness, probably from pressure on the meninges. There was some further improvement in hearing, and less dizziness; but advance soon ceased, and as she was near confinement, she dropped out of sight. The wonder was in this case, that there was room in the mastoid for such a cavity; and there was probably here a beginning of that encroachment of the mass upon the cranial cavity, which has been so marked in some of the fatal cases described.

In a closely similar case more recently seen, the woman was seriously ill, with high fever, severe pain, and much mastoid tenderness on the right; but the acute symptoms were in large part due to a developing quinsy. Polypoid masses filled the meatus, and by their recurrence after removal, obscured the condition; but enough epithelial flakes were removed at the first sitting to indicate the probable nature of the trouble. Cleansing with syringe, probe and forceps, was pushed as far each time as the patient's condition permitted, and when last seen, two months later, the large cavity above and behind was clear and dry, except for the trace of discharge which came from some granulations on the inner lip of the sinus, where the polypus had formerly grown around a small carious point. Instillation of warm water showed that the capacity of the cav-
ity and canal was at least double that of the normal canal upon the other side. A fraction of the hearing had been gained, and the patient considered herself well.

In each of the cases cited, the formation was quite surely secondary to destructive suppurrative inflammation; and the cases are extremely few where this can be excluded, and the growth regarded as primary. Yet such cases have been reported by Lucæ, Kuhn, and others, as occurring in the mastoid without perforation or other evidence of previous inflammatory trouble; and similar growths have occurred independently upon or in the drum membrane. Politzer has found small pearly bodies in the mucous membrane of the promontory, clearly comparable to those usually met in epithelioma, and probably ready to develop, under favoring conditions, into the conspicuous masses under discussion. Primary cholesteatoma of the ear must, therefore, be accepted as a reality, and as probably less rare here than in other situations. Secondary cholesteatoma, varying from pearly tumors, distinguishable only by their nuclear mass of caseous matter, if at all, from the primary, to mere desquamative masses of indeterminate form and structure, are of quite frequent occurrence. Toynbee noted ten such tumors, aside from epidermal collections in the external meatus, among 1,013 diseased temporal bones, and all observers of wide experience confirm such findings. Their importance lies largely in their tendency to form insidiously in cavities, where they are out of sight and reach, and to maintain and aggravate the inflammatory processes of which they are usually the results. Continued growth leads to absorption by pressure of the surrounding walls, widening the cavities and laying open the important adjacent fossae. Huge tumors of this sort have been found invading the cranial cavity, and leading to fatal brain disease. The lateral sinus has been laid open by them, and thrombosis or hemorrhage has ensued, with fatal outcome; or septic osteitis has been set up, with resulting pyæmia. These are their more direct results: they constantly interfere mechanically with the drainage in suppurating cases, increasing the danger, extending the destruction, and forming most serious obstacles to successful treatment. Their removal is often very difficult, and their recurrence probable and dangerous; so the claim with which this paper opened, that they are worthy of most careful study, seems fairly sustained. Awkward as is the name cholesteatoma, its employment in this connection has no small value; for it better suggests the importance and tendency of the pathological condition than does the misleading, if correct, term, desquamative inflammation. Many of the text-books regard these conditions as usually belonging merely to the external auditory canal; and I believe that many students have, like my-