

membrane lining the tympanic cavity. They take the form of simple granulations or of pedunculated polypi. The latter, growing through a perforation in the membrane, may present quite a slender pedicle, and may mask the perforation by filling it entirely and overlapping its edges. They are seen as projecting masses, usually of a lightish red colour. It is important to remember how easily they are hidden by profuse discharge, so that they may very easily be missed if the ear be not syringed carefully before examination with a speculum. In structure, polypi are usually of two forms, small round-celled (identical with granulation tissue), or fibrous tissue; the latter is, of course, only a further development of the former. Myxomatous tissue is rare. The formation of cholesteatomata is due to an excessive desquamation of epithelial cells in the external meatus and mucous membrane of the tympanum.

If this desquamation be not too excessive, and forms no hindrance to the exit of pus, it may continue for years without giving any trouble, but when excessive it may lead to the formation of large collections of dead epithelial masses in the tympanic cavity. In such a case the results of the formation of these masses are that they not only form an obstruction to the exit of pus, but they swell by imbibition of moisture (such as after syringing, exposure to steam, or in very damp weather), and may cause acute exacerbations of the chronic middle-ear trouble. The result of a cholesteatomatous formation may be a fatal one, by pyæmia following retention of septic material behind the mass, or by meningitis, or some other of the sequelæ already mentioned. Their diagnosis is, therefore, important, not only on account of their danger to the patient, but also because the middle-ear suppuration cannot be made to cease before the mass is removed. The diagnosis can be made with certainty only when the masses of dead epithelium lie in view, but the frequent finding of malodorous gritty masses or sodden strings in the solution used for syringing the ear should arouse suspicion of their presence. Recurrent pain, headache, and inflammatory exacerbations should also be regarded as of significance.

As regards the prognosis of middle-ear suppurations it is, generally speaking, uncertain. When it follows scarlatina, measles, influenza, or typhus, or is due to tubercle, syphilis, or other cachexias, the prognosis is less favourable than when the cause is more easily removable. When the perforation is large or in Shrapnell's membrane, or there are extensive granulations, or caries of the temporal bone, stenosis of the external meatus, formation of cholesteatomata, involvement of the facial nerve, or involvement of the mastoid antrum, the prognosis is distinctly unfavourable.

We now come to the all-important subject of treatment. This will be greatly influenced by two

conditions, the local changes which have been observed in the ear and the cause of the disease. Let us take the latter first. A careful examination of throat, nose, and naso-pharynx should be made in every case, and any existing condition which can act as a primary cause or tend to keep up the middle-ear trouble should be remedied. Hypertrophied tonsils and post-nasal adenoids should be removed, and it may be said here that the removal of post-nasal growth in adults is equally as important as in children. One often finds that a chronic middle-ear suppuration in an adult will resist treatment until a comparatively small pad of adenoids has been removed. The operation for post-nasal growths is too well known to need description here. Personally, in common with my colleagues at The Royal Ear Hospital, I prefer to operate under general anaesthesia with Gottstein's curette or a modification of that instrument. The necessity of general treatment, more especially where there is any constitutional dyscrasia such as syphilis, anæmia, and the like, need not be insisted upon here.

The local treatment to be adopted must be, as I have said, influenced by the local condition. The chief local causes which lead to the chronicity of the suppuration are the presence of granulations and polypi, the retention and cariation of purulent material in the recesses of the tympanum, caries of the ossicles or temporal bone, the formation of cholesteatomata, and chronic inflammatory conditions of the nose and naso-pharynx. The first duty in local treatment is, then, to gain as accurate a knowledge as possible of the local condition, the second is to effect a thorough cleansing of the ear. In order to carry out the first, one must be prepared to at once remove any polypi or granulations that may be present—a simple operation, and one which in the majority of cases can be done under cocaine or eucain with a small snare and the curette. The ear should be thoroughly well antisepticated first, and all superfluity of pus or *débris* removed; and when the granulations have been thoroughly got rid of the ear should be syringed with hot antiseptic, and then dressed by packing with a strip of double cyanide gauze soaked in 1 in 40 carbolic, further treatment being postponed for twenty-four hours. When the anatomical form of the tympanic cavity is considered, the necessity for a thorough cleansing to prevent stagnation of discharge in one or more of the many recesses is at once evident. In simple uncomplicated cases, thorough cleansing with aseptic or antiseptic fluid will often suffice to bring about a cure. This question of preliminary cleansing of the affected ear is a very important one. Fifteen to twenty minutes' careful cleansing with peroxide of hydrogen and strong carbolic will often save much vexation and disappointment afterwards.

(To be continued.)

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