THE TREATMENT OF OTITIS MEDIA SUPPURATIVA ACUTA.

BY S. MACCUEEN SMITH, M.D., PHILADELPHIA.

The early recognition and prompt treatment of acute inflammatory diseases of the organ of hearing is one of the most important duties devolving on every practitioner of medicine. It is a sad reflection on our boasted civilization to realize that it will take some years yet to impress upon the medical profession the great importance of this simple fact, and overcome the professional skepticism that became prevalent many years ago, and to some extent still exists.

The ignorance of the laity in the most fundamental rules governing the care of their own ears, and especially those of their children, is not surprising when we recall the empiricism that has surrounded the organ of hearing and its treatment throughout the history of medicine. It comes within the province, I may say within the power, of this and similar societies to effectually end the prevailing gross ignorance of the most simple methods for taking care of the ear.

Many of our members direct the teaching of otology in the various medical institutions of this country, and can therefore exert an effective influence at the foundation, the very beginning of medicine, by properly instructing the medical student. I, for one, regard it as a disgrace and an injustice both to the embryo practitioner and to the public, to confer the honored degree of Doctor of Medicine upon any candidate who is not able to diagnose and properly treat acute diseases of the tympanic cavity. If such knowledge were more general, and greater pains were taken to instruct the public in their duty, the specialist would be called upon to treat only a small part of the multitude of suffering humanity that now crowds the clinics of every city in the world.

It will not be denied that the prompt and proper care of an acute catarrhal otitis media, will in a great majority of cases prevent it from progressing to the stage of suppuration; furthermore, should the case have already reached the stage of suppuration, this same prompt recognition and care will in most instances arrest the progress of the disease, and insure a prompt recovery without loss of function or other disability. Then again, should the disease be purulent from its inception, immediate evacuation of the pus will effectually prevent many serious complications and consequent loss of life.

To clearly define the exact termination of an acute otitis media without suppuration, and the beginning of an acute suppurative inflammation of the tympanic cavity, is purely a supposition based on theoretical, and not on practical knowledge; neither is the ending of an acute suppuration distinguishable from the beginning of a chronic discharge.

Some cases are doubtless purulent from the very inception of the disease, and may therefore be properly termed acute suppurative. On the other hand it will not be denied that a great majority of all suppurative diseases of the tympanum are primarily catarrhal, but later become suppurative from sheer neglect, either on the part of the patient or of the attending physician. So long as the acute inflammation is confined to the stage of hyperemia and consequent hypersecretion of the mucosa, it can be classed as the non-suppurative variety. If, however, the accumulating secretion remains for a time confined within the tympanic cavity, further pathologic changes rapidly develop, over-distension and perforation of the membrana tympani occurs, and the case is then known as acute suppurative.

It is impossible, therefore, to distinguish between acute *catarrhal*, and acute *purulent* otitis media, until the stage of perforation becomes manifest; hence the treatment to be applied during the hyperemic or acute stage is identical in each.

In the interest of effective treatment, however, it is important to distinguish, as far as possible, between an acute otitis media caused by an attack of coryza, or other mild forms of the disease, and that of the more virulent type occurring as a complication or sequela of one of the exanthemata, or from epidemic influenza or pneumonia. The former variety usually yields to the application of the most simple remedial agents if these are employed during the stage of congestion; while the latter are generally purulent in character and demand prompt and heroic measures for their relief.

In the opinion of the writer, the aural diseases complicating epidemic influenza and pneumonia, on account of their virulency and persistent tendency to cause necrotic changes, are probably more prone to produce intra-cranial lesions than an aural involvement complicating one of the exanthemata. The ravages of the bacillus of influenza and of the pneumococcus, after the acute symptoms have somewhat subsided, are so insidious that mastoid or intra-cranial involvement is in many cases actually well advanced before the complication is discovered, and this occurs notwithstanding the physical symptoms apparently denote marked improvement in the general condition.

In these cases a relapse frequently takes place, and without presenting any aural symptoms whatever, death occurs during a violent convulsion; or, as was manifest in two cases seen by the writer this past winter, death was preceded by a condition in which Cheyne-Stokes respiration was most marked.

Recent bacteriologic investigations demonstrate beyond question that the quantity, and especially the quality, of the discharge are all-important factors in considering the treatment and prognosis of individual cases. Generally speaking, a discharge without fetor has been considered harmless, and, therefore, in most cases has received but little attention except for cosmetic purposes. It is a mistake to assume that the virulence of an aural discharge can be judged by its odor, or that the gravity of an otorrhea can be measured by its chronicity. An odorless discharge from the ear sometimes contains pathogenic micrococci which may cause some of the most serious intra-cranial inflammatory lesions. The same observation is true in many cases of fetid otorrhoea. Nevertheless, non-pathogenic cases are often seen, even where the fetor is extreme, clearly illustrating the value of the microscope and cultures in the differential diagnosis of cases of suppurative diseases of the tympanum. Such a demonstration of the presence of the bacillus of influenza or other infectious micro-organisms is a practice to be commended, and should be employed when at all practicable. Within a very short time, however, the discharge from the tympanic cavity is liable to develop a mixed infection, such as the streptococcus, pneumococcus, staphylococcus, etc., thus often supplanting the original germs present. To be of service, therefore, the examination must be made as soon as the pus has been evacuated, whether from a spontaneous rupture, or after an incision of the membrana tympani.

The character of the general illness, of which the aural complication is but a local manifestation, will frequently aid us in determining the necessity for early surgical interference. If, therefore, the organ of hearing becomes involved during an attack of one of the exanthemata, epidemic influenza or pneumonia, the ear should frequently be examined and treated energetically. This is all the more important in the case of children, and especially in infants, so many of whom have died from meningitis or other complications, while the underlying cause of their illness had been entirely overlooked.

Primarily then, the most effectual method of treating an acute suppurative otitis media, is by the adoption of preventive measures to arrest the disease at the stage of hyperemia, thereby preventing it from progressing to the point of suppuration. If, however, this is not accomplished, and the stage of suppuration has arrived, it is

most unfortunate, if from tardiness, or through ignorance or neglect, the membrana tympani is *allowed* to rupture spontaneously. It is equally to be regretted if the patient has been subjected to the ineffectual operation known as paracentesis of the membrana tympani; a procedure, to the mind of the writer, that has no useful place in aural surgery.

The old surgical axiom, "Wherever there is pus leave it out," is to-day quite as pregnant with truth as it was when first promulgated by the elder Gross. When the middle ear, as well as other cavities, is filled with pus, it must be thoroughly evacuated; this, however, can never be accomplished by a simple puncture of the membrana tympani. The membrane, consequently, must be *freely incised*, the chief requisite being to carry the incision from the most bulging point downward to the lower border of the canal, said incision to be continued either in an anterior or posterior direction, until about the sixteenth part of a circle has been formed. This will not only provide for good drainage, but will insure the opening remaining patulous long enough to admit of after-treatment.

There are two principal reasons, then, why so many cases of acute suppurative otitis media do not yield to treatment in the initial stage. In the first place, if the membrana tympani ruptures spontaneously, the opening thus formed is usually situated in the superior part of the membrane, which only allows pus to escape by the process of overflow; furthermore, pressure sufficient to produce rupture frequently causes maceration and peeling off of the mucosa. Auto-infection, therefore, occurs on account of the cavity being constantly filled with pus up to the point of perforation. Again, the edges of the ruptured membrane are irregular, consequently they do not coaptate readily, nor unite kindly; whereas, a clean incision will always repair with the greatest facility. On the other hand, if only a puncture of the membrane is made, the opening is too small to provide for adequate drainage.

The logical measures, therefore, to be employed in the evacuation of pus from the tympanic cavity, is, as above stated, a free incision of the membrana tympani, but never to commit the folly of a simple puncture. The practice of so-called paracentesis is non-surgical in so far as it relates to otology, and in order that the future shall be free from the inefficient treatment this procedure has engendered in the past, the word should be dropped from aural literature.

In considering the treatment of an acute suppurative otitis media, therefore, it must be assumed that every effort has been made to arrest the progress of the disease before the formation of pus. If, however, pus formation has already taken place, there is, of course nothing to do but evacuate it in the manner above stated.

The classical indications for incising the membrana tympani are in some cases as unreliable and misleading as the classical rules are for operating on the mastoid. Generally speaking, it is well to wait until some bulging of the membrana tympani occurs, but a grave error will have been committed if we wait for this symptom to become prominent in ear diseases complicating the exanthemata, epidemic influenza or pneumonia. As these cases are usually purulent from the very inception of the disease, it is important that an *early* incision of the membrane should be made, even though bulging has not yet occurred. This is especially true if the pain is severe and not influenced by blood-letting and the employment of other measures for relief. Should the suffering continue for some time after thorough evacuation of the pus, and an examination shows the presence of the streptococcus or the bacillus of influenza in any considerable number, the patient's future health, as well as conservative surgery, will be best served by an immediate opening of the mastoid.

After evacuation of the fluid from the tympanic cavity has been accomplished, many cases will make a good recovery by cleansing the canal and middle ear with an antiseptic solution, followed by introducing a strip of iodoform gauze well into the deep canal, to provide for good drainage, this to be renewed every day or two. It is well to keep in mind, however, that the two essential elements for the rapid development and multiplication of bacteria are heat and moisture. The treatment in many cases, therefore, must be directed to the avoidance or correction of these elements, as the site of a suppurative otitis media is a veritable hot-bed for the propagation of disease germs. Our chief object, then, in such cases is the application of therapeutic measures to rid the ear as far as possible of these bacteria, and endeavor to inhibit their further development by the destruction of the very pabulum of their existence through the reduction of inflammatory heat and by keeping the propagatory surface dry. After the secretions have been removed by inflation, irrigation, or a cotton carrier, the surface can be gently dried with cotton and hot air, and then dusted with some impalpable powder, such as boric acid or aristol, care being taken only to *dust* the surface, as an excess of powder would become impacted and interfere with drainage.

The general health must not be neglected. Absolute rest in bed, with free diuresis and properly conducted diaphoresis are of the first importance. The bowels should be freely opened, and the diet restricted to milk and broth. Indeed, one or two days of absolute fasting, and enforced rest in bed will frequently accomplish more in prophylaxis than any other single or combined therapeutic measures.