EAR COMPLICATIONS AND SEQUELAE OF INFLUENZA.*

BY M. A. GOLDSTEIN, M. D., ST. LOUIS.

Professor of Otology, Marion-Sims-Beaumont College of Medicine.

Perhaps the most frequent localized inflammatory conditions secondary to influenza are the acute invasions of the Eustachian tube and middle ear cavity.

Statistics and repeated clinical evidence substantiate the fact that over 70 per cent of all acute inflammatory affections of the middle ear cavity result from previous affections or infections of pharynx or naso-pharynx. This is especially true of all acute foci dependent upon infection by a pathogenic micro-organism. The tonsils and the lateral walls of the naso-pharynx seem to be unusually favorable points of attack, and by virtue of the continuity and similarity in structure of the mucous membrane lining these parts of the upper respiratory tract are extended through the Eustachian tubes to the tympanic cavity and its accessory spaces, the frequency of these ear sequelae is logically explained.

On the virulence and character, then, of the pharyngeal and faucial infection depends the intensity and rapidity of such aural complications. So in simple tonsillitis either follicular or parenchymatous, in whooping-cough and in acute pharyngeal infections where the accompanying micro-organism is not especially virulent, extension through the Eustachian tube and middle ear tract is less common. In diphtheria and scarlet fever, where an especially active invasion of the pharyngeal tissues takes place, ear complications occur with much greater frequency. It is in Influenza, especially of the epidemic type, which usually attacks the nasal and post-nasal areas suddenly and viciously, that the most rapid involvement of the ear ensues. Clinically a severe coryza may call forth similar inflammatory conditions of the ear, but rarely with the same intensity and penetration of the tissues as that form produced by Influenza, which we term "the grippe ear."

The rapid onset of an Influenza infection, no matter what portion of the respiratory tract is involved, is clinically well known,

*Read before the middle section of The American Laryngological, Rhinological and Otolological Society, St. Louis, Feb. 22, 1902.

as is also the treacherous character of the pathogenic micro-organism responsible for this infection. This is especially true in aural sequelae, for they usually occur suddenly and unexpectedly in the course of an Influenza attack.

The acute otitis media consequent upon a grippe infection is not usually of the simple catarrhal form, but rather ushered in by a symptom complex and an intensity and diffusion of pain about the ear which is at once characteristic of Influenza. The usual catarrhal otitis media beginning with ear ache, and congestion of the membrana tympani and the lining membrane of the tympanic cavity is a form common to all ear sequelae dependent on acute faucial or naso-pharyngeal inflammations; the sudden, intense, deep-seated pain, involving much of the temporal region, with rapid tenderness over the mastoid area and profuse serous effusion into the tympanic cavity, vertigo and persistent hemicrania are characteristic of "the grippe ear."

In simple catarrhal otitis media when the indications for paracentesis auris have been presented and a free drain has been established, pain and pressure-symptoms soon subside; in the "grippe ear" the relief of these symptoms is not always effected after paracentesis has been made and a free drainage secured. The persistency with which this train of symptoms is maintained in an Influenza ear presents a difficult problem in the therapeutics and surgery of this affection.

Anatomically the tympanic cavity proper, the attic, the antrum and mastoid cells are all lined with the same mucous membrane, and in the light of modern otology are now known to constitute the tympanic cavity in its entirety. When, therefore, the pathogenic invasion of the middle-ear cavity by Influenza occurs, it is reasonably assumed and clinically corroborated that such invasion attacks all of these accessory spaces of the middle ear cavity alike. This accounts therefore for the quick mastoiditis frequently occurring almost spontaneously with the onset of ear-ache.

To regard the "grippe ear" simply as an acute catarrhal otitis is to under-value the importance of the subject, the gravity of the affection, the rapidity of its invasion, and the oft-times serious consequences to the patient.

In no other form of acute inflammation in the field of otology, unless perhaps in that of mastoid abscess, is there such a variation

in symptomatology and indications for treatment. In many cases the treatment adopted in simple catarrhal otitis media will suffice to effect a cure.

Pre-eminent among all measures for the relief of acute inflammation of the middle ear cavity, especially where serous, bloody or purulent effusion has taken place, is paracentesis auris. Until recently the indication for paracentesis in such conditions has been that of a bulging membrana tympani. I will go one step further in this direction and urge the free and early incision of the drum membrane as soon as a definite diagnosis of "grippe ear" has been established. I do not wait for the results of thermal applications, either hot or cold, but establish a drain from the middle ear cavity at the outset. If the drum membrane is bulging as a result of effusion in the tympanic cavity, the more promptly we evacuate the contents of this cavity the better; if the drum membrane is retracted producing an interference of air equalization from within and consequent pain, paracentesis re-establishes this air balance. In either case free incision of the drum membrane is the first principle to be observed.

Much has been written of the comparative value of hot and cold applications. This question has been discussed not only in our field of otology, but in all branches of medicine, where acute inflammations require attention. It is generally conceded that in the earliest stages of mastoid inflammation the application of cold, either by the ice bag or Leiter's coil, is the most effective; in the later inflammatory stages heat, either by means of the hot water bottle, aural coil or irrigating douche, is frequently used.

To promote free drainage after paracentesis or spontaneous perforation I use the one-half inch selvedged gauze strip, either sterilized, carbolated or iodoform, packing the canal from fundus to meatus, and renewing the dressing whenever wet or saturated. In the early treatment of Influenza otitis, after free drainage has been secured, I rarely use any of the several forms of antiseptic powders, for no matter how perfectly soluble they may be, there is a possibility of choking up the small incision in the drum membrane through which the pus must be drained. Under no circumstances is Politzerization or inflation indicated in any stages of this affection.

To assist in evacuating the contents of the tympanic cavity

after paracentesis has been made I employ the Siegle otoscope, using only gentle suction, as a too vigorous application of this kind might bruise or injure the swollen tissues of the tympanum.

A condition which requires most careful attention and which I regret to observe is frequently neglected, is the treatment of the fauces and naso-pharynx. As the source of the trouble is usually located in these areas and as continued infection may result from inattention to such measures, active cleansing and medication should here be diligently carried out.

As Influenza is a constitutional invasion, the general treatment of the patient should be given every attention.

In the symptomatology of Influenza otitis one of the most treacherous conditions to cope with is the marked deafness, often beginning in the early stages and persisting until all other symptoms have subsided. Hearing tests with the watch and tuning-fork indicate that the form of deafness common to Influenza otitis is not that of an impaired conducting apparatus alone, but seems frequently to involve the labyrinth as well. In many cases in which careful tests have been made, I have found a marked diminution of bone conduction, thus proving the involvement of the labyrinth in this affection. It seems very plausible that in the extreme congestion of the entire mucosa of the ear the labyrinth should also be attacked. This important factor of marked deafness adds to the gravity of the affection and should direct us to a guarded prognosis as to the final restoration of hearing.

Another unusual condition which unexpectedly occurs in Influenza otitis is sudden deafness. During the past few years I have observed this neurosis in four or five cases. Sometimes in the early stages of the affection, sometimes in the third or fourth week of suppuration, the patient will suddenly experience that he is unable to hear with the affected ear. In three of such cases, which have come under my own observation, hearing tests were made soon after the occurrence of this symptom and nerve deafness diagnosed, as indicated by absence of air conduction and decided diminution of bone conduction for watch and tuning-fork.

I have one case of this character under treatment at present where all efforts to restore the hearing of the affected ear have thus far failed. I regard this condition distinctly as a grippe neurosis affecting the labyrinth.

Much could be said of the mastoid complications which are encountered in the course of Influenza otitis. With the vigorous onset of an Influenza otitis and the diffuse inflammation of the many pneumatic areas of the tympanic cavity we would expect to find a greater frequency of mastoid complications, but this is not verified by my own experience. In Influenza otitis the characteristic symptoms of the affection develop in such rapid succession that we have almost with the onset mastoid tenderness and sharp radiating pain extending from the mastoid to the occiput, vertex, eyes and teeth. I do not regard these symptoms, however, as characteristic of mastoid inflammation, but rather as a neuralgia so constant in Influenza of every type. In the simple acute or chronic suppurative otitis media with such symptoms, the radical aural surgeon might urge prompt operation; in Influenza otitis I have frequently subdued these symptoms by thermal applications and free tympanic drainage.

When the mastoid antrum and cells are actively attacked in the course of an Influenza infection of the ear the indications for the mastoid operation are so promptly and markedly developed that there is no doubt concerning the diagnosis or operative necessity.

To recapitulate then the main points of value in the conduct of Influenza otitis:

1. Epidemic or endemic Influenza is the etiological factor in this affection.

2. A careful differentiation should be made between simple otitis media and Influenza otitis.

3. Free incision of the drum membrane at the earliest indication of effusion into the tympanic cavity should be made. This free drainage should constitute the most important principle in the treatment of this affection.

4. A guarded prognosis should be given, especially as concerns the complete restoration of hearing.

5. Conservatism is urged concerning operative interference when mastoid symptoms appear, as many of these symptoms are accompaniments of Influenza and should be regarded as neuralgias rather than evidences of suppuration.