

MASTOID AND TYMPANOPLASTY OPERATIONS.

This description of mastoid and tympanoplasty surgery is designed to acquaint the patient with the basic facts concerning the underlying diseases in the middle ear and mastoid and the surgical operations used to treat them.

1. THE MIDDLE EAR AND ITS FUNCTION

First a few words about the middle ear which is illustrated on the last page. It consists of an ear drum which is a vibratory membrane, three tiny connected bones (the hammer, anvil and stirrup) and an air-filled space which connects with the throat through the "Eustachian" tube, with the mastoid air cells through the "attic" and with the inner ear through two windows, an oval window and a round window.

The job of the middle ear is to act as an amplifier. We normally need such an amplifier because our inner ear, which contains the "microphone" and the "transmitter" (auditory nerve), is filled with salty fluids. Therefore, in order to hear through a submerged "water-filled microphone" we need the middle ear to act as a "booster" or amplifier. Our normal middle ear does an excellent job as such an amplifier.

However, when disease attacks the middle ear, it may destroy all or part of this vital structure and thus damage the hearing by damaging the "amplifier". In some cases, the inner ear may also be damaged by disease.

2. THE MASTOID

The word '*mastoid*' refers to part of a skull bone connected with the middle ear. It contains many small air cells which have no special functions to perform. But, when disease from the middle ear invades the mastoid, a condition sets in known as "*mastoiditis*". "Mastoiditis" is the name of the disease.

3. OTITIS MEDIA AND MASTOIDITIS

A very common disease of mankind, *otitis media* means "infection of the middle ear". Many different conditions can give rise to otitis media either in childhood or adult life. In most cases, otitis media soon spreads to produce mastoiditis as well. In some cases, the infection produces swollen membranes or tumor-like growths and frequently the bones of the middle ear may be partly or totally destroyed along with the ear drum and mastoid cells. It is possible to treat such conditions without surgery in some cases, but when the disease has extended to a certain degree, medical treatment alone cannot help and surgery becomes necessary.

4. MASTOID OPERATIONS

In cases of otitis media with mastoiditis where surgery is necessary, some types of mastoid operation are required. Technically, there are a number of different types of mastoid operations which are available to the surgeon. He will select the type which solves the particular problem he meets. The primary aim of the mastoid operation is the removal of disease in order to convert a “dangerous” ear into a “safe” ear.

5. TYMPANOPLASTY

Until a few years ago, the ear surgeon was content to remove the diseased tissue and make the ear a “safe” one. Recently, a new development called *tympanoplasty* (which means reconstruction or plastic repair of the middle ear) was introduced through research. Now the ear surgeon will try to perform such a repair along with a mastoid operation whenever possible. It is not always feasible to perform a tympanoplasty, but it is a possibility in most cases. Sometimes it is necessary to postpone the tympanoplasty to a later date as a secondary operation. In some cases, a first stage tympanoplasty done with the mastoidectomy is followed by a second stage tympanoplasty months or years later.

The type of tympanoplasty, as is true of the mastoid operation, will depend on the conditions found in each individual case. None of these operations are “standard”. Certain basic principles are followed, but they are adapted to each individual problem. Thus, varying degrees of disease will call for various types of plastic surgical repair. For example, a damaged ear drum will be repaired or replaced with tissue usually taken from the ear itself. Diseased ear bones may be removed, repaired, or replaced by cartilage or artificial prosthetics.

The purpose of every tympanoplasty, regardless of type, is the repair of the middle ear so that it will function again as an amplifier and improve the hearing in the previously diseased ear.

6. PREPARATION FOR SURGERY

Following completion of examination, audiologic studies, x-rays studies and other laboratory procedures, the total problem will be discussed and arrangements made for a surgical date. If possible, please arrange for your family doctor to send us a report of your present general physical condition. If you have not had a general physical examination recently we would suggest that you see your family physician.

In women patients, surgery will usually not be scheduled during menstrual periods. It is advisable that the hair be washed one or two days before surgery.

The patient is expected to report to the office for a pre-operative examination one or two days before the operation. Hospital admission will be on the day before surgery. Necessary urine and blood tests will be made and pre-operative medication will then be given.

7. ANESTHESIA

This surgery is usually performed under complete general anesthesia so that there is no pain at all. The physicians administering the anesthesia will usually also examine the patient at the hospital prior to the operation.

8. THE OPERATION

The operation is performed under a surgical microscope by the surgeon, always assisted by our specially-trained surgical nurses and usually also by an associate surgeon. The procedure takes between two and four hours, following which the patient will be in the recovery room until awake.

9. POST-OPERATIVE COURSE

Following surgery, there may be a slightly sore throat for one or two days as a result of the anesthesia tube. Dizziness may be present for a few days.

The patient will probably be able to be up to the bathroom on the day following surgery and is usually up and around on the second post-operative day. Most patients are able to leave the hospital on the third or fourth post-operative day. Generally, there is relatively little discomfort. The gauze dressing over the ear and around the head is changed every few days and is worn for seven to ten days.

Appropriate medication will be ordered for several weeks following the operation. The patient must carefully follow dosage instructions.

Nose blowing should be avoided for several weeks following surgery

Upon discharge from the hospital, the patient will receive instructions as to home care and an appointment given for office treatment. Patients will usually be away from work for two to four weeks.

10. POST-OPERATIVE OFFICE VISITS

Post-operative visits are important, and patients are urged to keep appointments faithfully. Such office treatments are necessary for healing of the wound and reestablishment of an air space in the ear. In many cases, patients will be taught to do a certain amount of self treatment at home also. Such visits will be several times a week for about a month, and then less frequently.

11. RESULTS

It is impossible to predict with only moderate certainty the chances of success of this secondary purpose, namely, improvement in hearing.

As stated above, the primary purpose of the mastoid-tympanoplasty operation is removal of diseased tissue. In a great majority of cases, with our present microscopic technique, it is possible to completely remove the disease. Thus, we usually find no further evidence of mastoid or middle ear disease in the majority of patients. In a small number, however, recurrences may occur. Such recurrences usually respond to medical treatment of the ear cavity, but occasionally require surgery.

The secondary purpose of the mastoid-tympanoplasty operation is reconstruction of the middle ear and improvement in hearing. This purpose is achieved in some cases completely, in some cases partly and in some cases not at all. Many factors play a part in the success of the reconstruction. These include:

- a. Severity of the disease
- b. Degree of obstruction of the middle ear structure
- c. Status of the nose and sinuses
- d. General resistance of the patient
- e. Allergic reactions and other constitutional conditions which may affect the manner in which the graft is nourished.

Thus, it is possible to predict with only moderate certainty the chances of success of this section purpose, namely improvement in hearing.

12. THE GRAFT

The Graft used to create a new ear drum takes a considerable amount of time to become a vibrating membrane. Many factors influence this time, and no two ears behave exactly the same following surgery. In some cases, prolonged treatment is necessary before this occurs. In other, hearing may be improved in a very short time.

Occasionally a minor secondary graft operation may be necessary if a portion of the graft does not “take”. In some cases, several such secondary minor operations may be necessary.

13. HEARING

In the successful cases, the degree of hearing improvement may vary considerably. In ideal cases, hearing gains many reach levels close to normal; in the majority of cases, hearing is improved substantially and usefully, but not to the level of “perfect” hearing.

In cases where the hearing nerve is also weak, the hearing gain may be significant but not good enough for “practical” hearing. In some cases, there is no gain in hearing.

It takes a long time, sometimes a year or more, before the hearing gain approaches its maximal improvement.

14. EAR DRAINAGE

In the vast majority of cases, the ear discharge ceases in several months. It may never recur, or may recur temporarily following a cold, sinus attack or allergy.

In a few cases the ear may continue to discharge for several months due to delayed healing. Such discharge is generally not serious and usually responds to treatment.

15. RISKS

There are some risks with every surgical procedure. In mastoid-tympanoplasty surgery there is no known danger to life. In most cases the only risk is that involved in the use of any anesthetic. With modern anesthesia techniques, such risks are slight.

In all major ear surgery, there is the risk of injury to the facial (VII) nerve, since this nerve may be involved by the diseased tissue in the middle ear and/or mastoid. With modern microscopic

control such injury is rare and even if it occurs it is generally partial and temporary, although in some instances further surgery might be necessary.

16. INVOLVEMENT OF BOTH EARS

Where both ears are involved by disease in most cases it is our practice to operate on the poorer ear first.

We rarely advise surgery on both ears simultaneously. If the second ear also requires surgery, we usually wait four to six months before the second operation.

17. PRECAUTIONS WITH COLDS AFTER SURGERY

We consider it a wise precaution to prevent ear infections for our patients who have had ear surgery. Therefore, it is our advice that antibiotics be taken at the start of a cold, sore throat, an acute sinus infection, or the flu.

Penicillin (Ampicillin) is the drug of choice, unless you are Penicillin allergic in which event Terrastatin is recommended. These drugs require a prescription which may be obtained from your family doctor or this office. If you ever should develop an ear ache in the operative ear, even though you may not have a cold, start the same precautionary use of the antibiotic and telephone this office for further instructions. If you live out of this city, consult your personal physician informing him of these instructions.