

Tympanoplasty

WHAT IS TYMPANOPLASTY?

This is a procedure to repair damage to the eardrum (tympanic membrane) and to the chain of three tiny bones, called the ossicles, which link the drum to the inner ear and transmit sound vibrations. It is nearly always performed under general anesthetic, and requires a hospital stay of several days. In some cases complete reconstruction requires a follow-up operation.

WHY IS IT PERFORMED?

The middle ear structures (the eardrum and the three ossicles) transmit and amplify the sound waves entering your ear passing them to a sensitive organ in the inner ear that converts them to the nerve pulses that cause you to hear the sound. There are several conditions that can affect, or damage these structures. Examples are cholesteatoma (a tumor-like growth); polyps (small growths); granulations (formation of fibrous material); and seromucinous otitis media (inflammation of the middle ear with sticky secretions). This latter condition (also known as glue ear) is the commonest form of middle ear inflammation in children. All these conditions will impair hearing ability; the more serious the condition, the greater the hearing loss. They can also be extremely painful. The cause, and removal of the problem may damage the tympanic membrane and sometimes the ossicles. Any such damage can be repaired by tympanoplasty.

RISKS AND BENEFITS

Any operation requiring a general anesthetic will carry some degree of risk. Since the surgeon is working in a very small area (a microscope is needed) there is some risk of damage to other structures in that part of the head. There is also a risk of bleeding and infection. It is not always possible to restore hearing. However, conditions that require tympanoplasty are serious or potentially serious, and some, if untreated, can cause considerable damage. Pain can be acute, and prompt treatment is essential to prevent irreparable damage to the hearing mechanisms.

THE PROCEDURE

PREPARING FOR SURGERY

A thorough examination of the ear, including x-rays and sound tests, is carried out. Bacteriological samples are taken to determine the best antibiotic to use; antibiotic treatment is carried out both before and after surgery.

ON THE DAY OF SURGERY

You should have had nothing to eat or drink after midnight. A premedication injection may be given about an hour before surgery to relax you.

IN THE OPERATING ROOM

After you have been anesthetized the surgeon will make an incision in the fold behind the ear. An instrument called a retractor is used to separate the lining of the external auditory meatus (the tube leading into your ear from the outside) from the bone. The surgeon enters the middle ear

by drilling through the bone of the mastoid process. At the same time diseased tissue in the mastoid can be removed and the cause of the problem in the middle ear cleared out. Great care is taken not to damage the three tiny bones that transmit sound from the eardrum, but a lot depends on the damage already caused by the disease. The operation may include reconstruction of the tube joining the middle and the nose. It is important that air can reach the middle ear, via this tube (eustachian tube), to equalize the pressure on both sides of the eardrum. Damaged ossicles can be replaced by grafts made from cartilage, or from prostheses (artificial spare body parts) made from plastic or ceramics. In some cases the full reconstruction requires follow up surgery. After this the eardrum graft may be put in and glued into place between the bone and the skin of the outer ear canal. The retractor can then be withdrawn. The ear canal may be packed with special foam and gauze strips. The wound is closed after a drain has been inserted.

AFTER SURGERY

Ideally the foam and gauze strips would stay in for at least two weeks. If necessary the gauze can be changed. The drain can usually be removed after about for days and antibiotics are given for about ten days.

GOING HOME

Regular checkups should be made to monitor recovery. If the cause of the problem was cholesteatoma then a follow-up operation is recommended to check for recurrence. Further reconstruction can be carried out at the same time.

POSSIBLE COMPLICATIONS

Complications are rare. Bleeding and infection are possible, but are controlled by proper packing of the ear and antibiotics respectively. Other possible complications may result from incomplete removal of the problem's cause, its recurrence and problems with the packing.