

Stapedectomy

WHAT IS STAPEDECTOMY?

This is an operation to remove the stapes, one of the three tiny bones (ossicles) of the middle ear. The operation is to relieve the severe deafness caused by the hardening disease otosclerosis. An incision is made around the eardrum which is elevated to reveal the middle ear cavity. The outer part of the stapes bone is removed, a hole is drilled through the "footplate" of the bone, and a small steel or plastic prosthesis is inserted to complete the so-called ossicular chain, which transmits sound waves to the inner ear. The operation, which is usually performed under local anesthesia, requires 2-3 days stay in the hospital.

WHY IS IT PERFORMED?

The middle ear cavity, enclosed on one side by the eardrum (tympanic membrane) and on the other by the bony wall of the inner ear, houses the sound conduction mechanism called the ossicular chain. This is composed of three tiny bones, or ossicles, suspended from the roof of the middle ear cavity by ligaments and muscles. The Latin names of these three little bones malleus, meaning "hammer", incus, or "anvil", and stapes, or "stirrup" - hint at their combined function in transferring vibrations received at the eardrum to the inner ear.

The footplate of the stapes occupies the oval window in the bony casing of the inner ear, and it is at this point that the inherited condition known as otosclerosis interferes with the transmission of sound. For in otosclerosis there is an overgrowth of bone around the footplate, causing the stapes bone to become fixed and unable to vibrate. The disease - twice as common in women - is gradual in onset, causing progressive hearing loss. Usually both ears are affected, although not necessarily to the same degree.

Stapedectomy is performed to replace the immobile stirrup with an artificial piston. It is usual to operate only on one ear at a time, starting with the poorer one.

RISKS AND BENEFITS

In the vast majority of cases, stapedectomy is effective in relieving so-called conductive deafness, the onset of which may become apparent anywhere between the ages of 15 and 45. Rarely, the hearing loss is more marked postoperatively.

The risks of the procedure are very low. They can however include loss of hearing; perforation of the eardrum; middle ear infection; persistent vertigo; and damage to the nerve supply, resulting either in distortion or loss of taste or in facial palsy.

THE PROCEDURE

PREPARING FOR SURGERY

There is no special preparation for stapedectomy, although you may be asked to come into the hospital the previous day. You should be warned that full recovery of hearing may not take place for some weeks after surgery.

ON THE DAY OF SURGERY

Dressed in a hospital gown, you may be given premedication to relax you an hour or so before the procedure is due to begin.

IN THE OPERATING ROOM

The surgeon works with you lying on your back, with your head resting on a supportive ring. He or she uses a special operating microscope to illuminate and magnify the delicate structures of the middle ear. A general anesthetic is used.

Once this has taken effect, an incision is made around the eardrum, which is now turned up on itself like a folded pancake to reveal the middle ear cavity. Fine instruments are used usually to remove the hoop of the stapes, leaving the footplate in place. A fine hole is now drilled through the footplate to take the metal or plastic piston which is designed to link to the incus bone. The ear drum is returned to its normal position.

AFTER SURGERY

You will be returned to your room where you should rest on your side with the operated ear uppermost. Painkillers will be given as necessary and drugs to counteract any nausea or vertigo. Sudden movements of the head should be avoided as these may make you feel dizzy. Do not be alarmed if your hearing deteriorates a few hours after surgery. This is due to blood collecting in the middle ear and the external ear canal, and it will improve as the blood clot dries and disperses in a week or so. You will be warned not to blow your nose and not to sneeze if you can help it for at least a week, while the incision is healing. Also, you should avoid getting water in the ear. With good progress, you can look forward to going home in a few days.

GOING HOME

You will be shown how to change the dressing as necessary and given an appointment for a postoperative checkup with your surgeon. It is important to complete any course of antibiotics which may have been prescribed. You will probably be advised to avoid swimming or any activity causing pressure changes in the ear (such as flying) for several weeks after surgery. Otherwise, you should be able to resume all normal activities, including going back to work, within about two weeks.

POSSIBLE COMPLICATIONS

The most common complication is vertigo (dizziness), which is normally relieved by drugs. If it persists, further surgery may be necessary. Rarely, there is immediate or late hearing loss, months or even years after successful stapedectomy.