



OTOSCLEROSIS

Introduction:

Otosclerosis is an inherited condition caused by the accumulation of abnormal bone growth onto the tiny stirrup-shaped bone, the stapes. The stapes is the third of the hearing bones, and its motion on the footplate of the inner ear moves the fluid within the inner ear and allows us to hear. The over-growth of bone associated with otosclerosis may cause the stapes bone to become fixed, thus restricting its motion. This process may affect one or both ears. It usually begins in the late teens or early twenties, and it is slowly progressive. When otosclerosis fixes the stapes it causes a “conductive” type of hearing loss due to poor motion of the hearing bones. This is a correctable type of hearing loss. Otosclerosis can also cause a “nerve” type of hearing loss due to the release of chemicals into the inner ear fluids. This may increase ringing in the ear known as tinnitus. This type of hearing loss is not correctable. The portion of your hearing loss that is conductive and nerve can be determined by detailed hearing tests.

Medical Treatment:

There are no medicines that can correct or prevent the conductive type hearing loss of otosclerosis. However, treatment with a fluoride medication may be used in the patient who is developing nerve-type hearing loss related to otosclerosis. Fluoride in moderate doses has been shown to inactivate the toxic chemicals of the abnormal otosclerotic bone that are toxic to the hearing nerves. It does not recover any nerve loss or improve any tinnitus that has already occurred but can prevent its worsening. However, it must be taken in moderate doses for at least one to two years until the progression of nerve loss has stopped, and thereafter in smaller doses indefinitely. This medicine should not be used in any individuals of child-bearing age and has several other potential risks.

A hearing aid can be effective in treating the hearing loss related to otosclerosis in the majority of patients whether it is nerve or conductive. Whether or not a hearing aid is the best option for you is an individual decision between you and your doctor.

Surgical Treatment:

The conductive type of hearing loss of otosclerosis is correctable by a highly successful surgery known as a stapedectomy. The surgery can be performed in the operating room either under local anesthesia with intravenous sedatives or under general anesthesia. This operation is carried out through the ear canal. A small incision is usually made either in the scalp behind the ear or on the wrist for the purpose of obtaining a tissue graft. In any of these locations the incision is inconspicuous. The operation itself consists of elevating the eardrum and inspecting the hearing bones directly. The fixed stapes in the entrance of the oval window is then removed by using a

highly precise CO2 laser. It is a very delicate procedure performed under high power magnification using the operating microscope. Seldomly, a small microdrill must be used to free the fixed stapes from an excessive amount of the abnormal bone. Once the stapes is removed, the oval window is sealed with the previously obtained tissue, and a tiny prosthetic stapes is put into position, connecting the hearing bones with the oval window. The eardrum is repositioned and absorbable sponge packing placed into the ear canal.

After the surgery, it is important that the patient lie in bed with the operated ear up for four hours. The patient may go home later that same day. Since the inner ear contains the balance organs, dizziness can occasionally occur and at times be rather severe. This may affect how long the patient must stay in the hospital. Nose-blowing, heavy lifting, straining and airplane flight are also prohibitive in the first few weeks following a stapedectomy.

Hearing improvement may be noticed partially at one week when the sponge packing is removed from the ear canal. By three week, significant hearing improvement is usually apparent but is not complete for up to six weeks.

Stapedectomy is highly successful in 95% of patients. Approximately 4 patients out of 100 will not experience hearing improvement and may need a revision surgery to achieve optimal results. Less than 1% of patients have a worsening of hearing after surgery. There is no way to predict which patients will sustain such a complication, and it can occur after an otherwise “perfect” surgery.

7777 Forest Lane, Suite A-103
Dallas, Texas 75230
(972) 566-7600
Fax: (972) 566-6560
www.dallasear.com

Name

Your hearing loss as indicated by our test is approximately:

Right ear _____dB

Left ear _____dB

(_____) Your hearing loss is predominantly conductive with normal nerve function, and you are a good candidate for stapes surgery.

(_____) Your nerve of hearing functions slightly less than normal. However, if the stapes surgery is successful, serviceable hearing will be restored.

(_____) Your nerve of hearing has been damaged to some extent. If the stapes surgery is successful, you will be able to hear in many situations without a hearing aid, but it is possible you will need one under some circumstances.

(_____) Your hearing nerve has been severely damaged. If stapes surgery is successful, you would still need a hearing aid but would derive considerably more benefit from it than you do now.

(_____) Your hearing nerve has been damaged and makes up the majority of your hearing loss. This is best suited for treatment with fluoride medication and the use of hearing aids.