

Teacher Gives

# Stapedectomy

# High



A few years ago, teacher Susan Hartman found that she was having difficulty understanding speech in her classroom, especially when her students had high-pitched voices or didn't speak clearly. She was also having problems hearing conversation in staff meetings. At home, she found that she needed to increase the TV volume to hear what was said, and she began compensating on the telephone by using an amplifier.

Sue remembered that both her grandmother and an aunt had hearing problems. She decided it was time to have her own hearing checked. She'd seen a newspaper article about the House Ear Institute and Clinic, and when a friend recommended HEC, she made an appointment for an evaluation.

***"Because I'm planning to continue teaching for several more years, I really needed to have my hearing back at optimum level."***

Although the results of Sue's evaluation showed hearing loss in both of her ears, it indicated significantly greater loss in her right ear. William M. Luxford, M.D., explained to Sue that her hearing problem was due to stapedial otosclerosis, a hereditary condition that affects function of the middle ear bones which transmit sound to the inner ear and then to the brain via the hearing nerve. Dr. Luxford told Sue that her condition typically diminishes the amount of sound traveling beyond the middle ear.



# Marks

In normal hearing, sound vibrations enter the ear canal and cause the eardrum membrane to vibrate.

Movements of this membrane are transmitted across the middle ear to the inner ear by three small bones: the malleus (hammer), incus (anvil), and stapes (stirrup). The middle ear bones act as a transformer, changing air conducted sound signals to mechanical sound signals, which then travel into the waves of fluid in the inner ear. The fluid waves stimulate delicate nerve endings in the hearing canals of the inner ear, creating electrical impulses, which are transmitted along the nerve to the brain where they are interpreted as sound. When otosclerosis is present, minute areas of the stapes soften or harden, immobilizing the bone and reducing sound transmission from the middle ear.

Dr. Luxford gave Sue three options to consider. She could do nothing, and it was possible that her hearing would not deteriorate further. She could use a hearing aid, which would somewhat improve her ability to hear. Or she could have surgery, a stapedectomy, to correct her condition. Surgery offered a possible 90% improvement in her hearing. Because it provided the greatest potential benefit among her three options, Sue chose to undergo surgery.

A stapedectomy procedure is performed under local anesthesia as an outpatient procedure. Using powerful magnification, the surgeon works through the ear canal to move aside the eardrum and partially or completely remove the immobile stapes by means of a drill or laser. A tiny prosthesis is inserted to replace the stapes, and the eardrum is then returned to its normal position. The entire surgery usually takes less than one hour.

The stapes prosthesis restores movement in the middle ear, allowing the transmission of sound vibrations again to pass from the eardrum through the inner ear fluids to the sensory cells. Hearing improvement gained from this procedure is usually permanent, though it may

or may not be noticeable immediately after surgery. If the hearing improves at the time of surgery, it often regresses in a few hours, due to swelling in the ear. Hearing improvement is usually apparent within three weeks of surgery, once swelling has gone down, though maximum improvement is reached after approximately four months of healing.

Sue's surgery took place in June 2000, and she immediately experienced a marked improvement in her right ear. "I remember that as I was driving back home after my surgery, I could hear every bump and noise on the road, and many background noises. In markets I could again hear the movement of shopping carts and the conversations of other shoppers," she recalled. When she returned to the classroom Sue found she was able to hear students in the back of the room without any difficulty.

Because the surgery in her right ear had been so successful, Sue recently returned to Dr. Luxford at the



Clinic for surgery on her left ear. She has had an equally positive outcome. "I had no side effects with either surgery and never needed pain killers during the healing process," Sue commented. "I'm very happy with the results. My insurance covered both my surgeries and because I'm planning to continue teaching for several more years, I really needed to have my hearing back at optimum level." ♦