

HEALTH

Understanding hearing loss

Seek treatment of ear problems as early as possible to prevent progressive loss in hearing

HELEN Keller, the famous deaf-blind author, once said "Blindness separates us from things but deafness separates us from people". Indeed, untreated hearing loss is linked with an increased risk of developing dementia, social isolation and mental health issues like depression.

Despite this, public awareness about hearing loss and its potential avenues of treatment is rather poor. Even worse, particularly in the elderly population, there tends to be a blasé attitude towards their hearing loss with a stubborn misconception of what hearing aids look like and what they are capable of.

But why does hearing loss occur? There are two main types of hearing loss: The first is the conductive type

which is due to problems with the outer ear canal, the eardrum or the tiny ear bones (ossicles). The second type, sensorineural hearing loss, results from issues concerning the delicate inner ear structures (cochlea) and nerves which lie deep within the skull.

Outer ear problems

The simplest cause of conductive hearing loss is impacted earwax inside the ear canal which may be affected by the type of skin, tortuosity of the canal and even possibly the level of stress one might be experiencing.

Another common problem is infection of the ear canal skin which can lead to

severe pain, swelling and unpleasant discharge. Digging one's ears with cotton buds or metal instruments only worsens the inflammation and may often be the root cause itself.

Patients who suffer from skin conditions such as eczema may be more prone to recurrent outer ear infections. Interestingly, fungal infections of the outer ear are so common here, probably related to the humid weather, that they are also known as "Singapore Ear".

Meticulous cleaning of the ear with fine tools under the microscope, followed by application of topical ointment or eardrops usually helps settle most cases. However, some patients may suffer narrowing of the ear canal (stenosis) as a result of recurrent ear infections scarring the skin and closing the ear canal off.

Benign bony growths called osteomas may also enlarge to block off the



Infection of the ear canal skin can lead to severe pain, swelling and unpleasant discharge. Digging one's ears with cotton buds or metal instruments only worsens the inflammation and may often be the root cause itself. BY FILE PHOTO

ear canal, giving rise to hearing loss and ear infections from the earwax trapped within.

Patients with poorly-controlled diabetes may develop outer ear infections which can progress quickly to invade and erode the underlying bone of the ear, resulting in unremitting ear pain, multiple nerve palsies and brain abscesses. This condition may be potentially life-threatening so early diagnosis and treatment with systemic antibiotics and strict blood sugar control are critical.

Middle ear/eardrum problems

Having a bad cold or the flu may sometimes result in the infection spreading to the middle ear, leading to an accumulation of fluid trapped behind the eardrum. The eardrum infection (acute otitis media) can be treated with a course of antibiotics but sometimes, the infected fluid may burst through the eardrum, resulting in a purulent ear discharge.

If the ruptured eardrum does not heal, then the patient may be left with hearing loss and a wet, smelly, discharging ear. Patients who usually wear hearing aids but also have a ruptured eardrum which continues to discharge, should have their eardrum perforation repaired to stop the infection. Surgical repair of the eardrum is relatively straightforward in the right hands, using natural materials such as cartilage lining to graft the perforated area and may be performed "keyhole" through the ear canal with the help of an endoscope.

Destructive skin cysts may also be found growing on and behind the eardrum. As they enlarge, they end up destroying the ear ossicles which form a continuous chain to conduct sound to the inner ear. Hence, these cysts should be removed as early as possible

to prevent further complications such as total irreversible hearing loss, dizziness and meningitis.

One particular condition called otosclerosis alters the bony texture of the third ossicle (the stapes) so that it becomes fixed. The stapes thus are no longer able to vibrate and conduct sound to the next stage of the hearing pathway, the inner ear. Surgery to remedy this is usually quite successful with more recent advances in technique including the use of laser to improve safety and achieve better hearing results.

Problems with the Eustachian tube equalising the pressure between the back of one's nose and eardrums may also lead to hearing loss, crackling sounds and an annoying blocked pressure sensation. This dysfunction of the Eustachian tube is most often noticed after a bad cold or if one suffers from nasal allergy issues, as the amount and tenacity of nasal secretions tend to increase. Inability to open one's Eustachian tubes to equalise the pressures during a flight (during descent), can cause severe ear pain and eardrum rupture.

Inner ear problems

As people grow older, they often suffer high frequency hearing loss due to degenerative changes in the cochlea and hearing nerve. People with age-related hearing loss struggle to hear in noisy places and group situations, and also while listening to music.

Elderly people with hearing loss may become increasingly withdrawn as they find it an uphill task communicating with their loved ones. The simple solution is for them to invest in a good quality hearing aid which can potentially restore the quality of life they once had when they could hear.

At the other end of the age spec-

trum, there are more and more young people being diagnosed with noise-induced hearing loss, probably due to the widespread practice of listening to music too loudly through their earphones.

Certain occupations, such as aircraft technicians, construction workers and some military personnel, carry a risk of exposure to loud noise at a prolonged duration and require such employees to protect their ears with special noise-reducing earmuffs.

A persistent ringing sound in the ears (tinnitus) is usually the first warning that the inner ear has already suffered some damage, which can then become permanent. As far as noise-induced hearing loss is concerned, prevention is still the best way forward.

Of note, inner ear infections may lead to sudden hearing loss and/or dizziness. This is usually thought to be due to viral inflammation of the inner ear structures and should be treated promptly to try to optimise hearing recovery. Rarely, an MRI scan will detect the presence of an inner ear nerve tumour, an acoustic neuroma, whose management will depend on different factors such as tumour growth and patient's age.

What happens to people whose hearing is so poor that hearing aids or standard surgery just can't help?

For this group, hearing implants are a reliable modern solution and can considerably improve quality of life. The type of hearing implant will naturally depend on the type and severity of hearing loss. These include bone conduction hearing devices (Bone Anchored Hearing Aids BAHA and Bonebridge) and cochlear implants.

Cochlear implants are surgically implanted devices which stimulate the inner ear (cochlea) with electrical signals. These are converted into sound signals by the brain to allow the patient to hear again. More than 300,000 cochlear implants have been performed worldwide since 1985, with overall good results, while bone conduction hearing implants were first introduced more than three decades ago and continue to be used today.

Therefore when my patients ask me, "Doctor, why can't I hear?", I listen to their detailed history, perform a thorough examination of the ears under the microscope, undertake a hearing test (audiogram) and may arrange a CT or MRI scan, so that I can always answer this question with absolute confidence and offer the most suitable treatment option to each patient.



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