

# Loud And Clear

## Asia’s First Middle Ear Implant

Hearing loss is a common problem that both afflict the young and old. About 200 million people in Asia (excluding Japan) are currently wearing hearing aids, to overcome this problem. It is the number one disability in the world and yet it is the most preventable one. *MillionaireAsia’s* **Brian Yim** interviews Dr Lynne Lim, Ear Nose Throat Head & Neck Consultant Surgeon Director, Centre for Hearing Intervention Language Development, National University Hospital, Singapore, to get better clarity of some of the problems as well as the solutions to hearing loss.

**What is the official definition of deafness? How does one find out?**

Deafness is defined as partial or total inability to hear. As it is a silent and invisible problem, the problem is grossly under-reported and under-estimated. Hearing loss significantly impacts learning, work, communication, social and quality of life options.

Hearing loss is easily missed by caregivers, patients and even doctors. Someone with severe hearing loss can often still hear the telephone and the doorbell ringing but has difficulty hearing soft consonants and sounds like “sh”, “f” and “z”, “t”, “s”, “k”.

How can one suspect hearing loss? Some signs are if you complain that people are always mumbling, or if you cannot hear in a noisy place or in a place where there are many people talking at the same time. Other tell-tale signs are having to lip read, or if you turn up the TV volume to extra loud and have difficulty hearing when using the telephone.

**Please define mild, moderate and severe-profound deafness.**

Hearing loss at low and high pitch areas may differ in severity. At many screening-hearing

tests done informally, high pitch hearing is not tested and hearing loss may still be missed. Age-related and noise induced deafness affects high frequency hearing first and more severely, though low frequency hearing is also lost gradually. Though these adults will hear fairly well in a quiet environment, they cannot discriminate words in conversation easily, even if their average hearing loss is mild.

Normal – one is able to hear leaves gently rustling and the tap dripping.

Mild – difficulty keeping up with conversations, especially in noisy areas (25-40 dB).

Moderate – Need a hearing aid usually to keep up with conversations (40-70 dB) or for someone to raise their voice to be heard.

Severe – (70-95 dB) – Hears only words shouted into ear.

Profound – > 90dB loss.

**What are the most common causes of deafness?**

Deafness in a very young child is commonly due to genetic inheritance or congenital syndromes and maternal infections or postnatal infections. For adults, hearing loss is more often age-related, noise-induced, post-infections in the middle or inner ear, and traumatic. Diabetes, hypertension and auto-immune diseases increase the risk. Adults with hearing loss since young may have genetic hearing loss, even without any family history of deafness. A genetic blood test is available at the National University Hospital. Less common are causes such as benign and malignant tumors of the middle ear, hearing nerve or posterior nose space.

**At what age do people become deaf?**

Deafness can occur at any age due to the causes listed above. Increasingly, many have hearing loss in their 30’s and 40’s from noise exposure, diseases and trauma. From 50 years, hearing degenerates. Over 35 percent of people above 60 to 65 years have hearing loss. By 2030, 20 percent of Singapore’s population will be above



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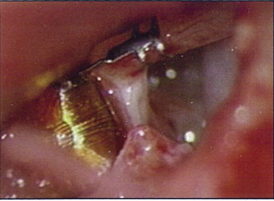
60 years old, double the current 9 percent. But with increasing hearing-aid options available due to rapid advancements in technology and surgery, Asians no longer need to tolerate hearing loss and live in a world of distorted sounds and silence.

**Lifestyle trends among the younger set, such as listening to mobile devices at full blast, going to noisy discos and nightclubs etc. How harmful are these activities?**

Dangerous noise is defined as sounds over 80dB for more than 8 hours a day with

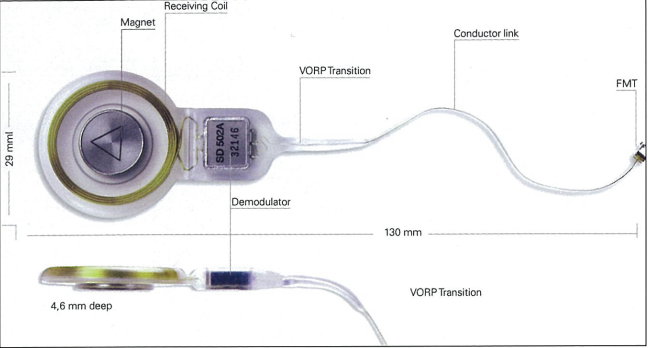
unprotected ears. The younger generation is often exposed to loud concerts, home entertainment systems, cinemas, game arcades, ipods at volumes louder than 80dB for long periods of time. Increasingly, more young people have hearing loss. The high pitches are affected first. Noise-induced deafness has become the second most common cause of hearing loss in developed and urbanised areas, second only to age related hearing loss. Continuing to require loud volumes of sounds to hear because of one’s hearing loss will expose one’s ears to noise damage, which may

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INTRAOPERATIVE LIGHT MICROSCOPIC PICTURE OF IMPLANT CLIPPED ONTO MIDDLE EAR BONE

RIGHR: MIDDLE EAR IMPLANT - INTERNAL COMPONENT



further accelerate hearing loss. Hearing aids help by allowing someone with hearing loss to hear at normal volumes.

**Who can use Middle ear implants to enhance hearing?**

The middle ear implant is used for patients with loss at the high frequency that is worse than in the low frequency. This is common for those with age related or noise-induced hearing loss. Usually, these patients have tried hearing aids, but failed to achieve satisfactory hearing gain. Implants can also be used for patients with failed middle ear bone reconstruction surgery.

Mr Lim SH, a 73 year old active businessman, was the first Asian to undergo the middle ear implant surgery. At National University

Hospital, the internal component was surgically placed under the skin behind the ear.

There is no need for ear molds, so the middle ear implant avoids the “blockage” effect and feedback from ear molds of normal hearing aids, improving comfort and length of use. It is

also more cosmetic as the external processor is the size of a 20-cent coin easily hidden under hair, not directly above the ear, but further back and above. It is easily detachable as it is attached to the head via magnetic attraction to

the implanted device below the scalp.

In September 2006, we further performed Asia’s first middle ear implant placed directly onto the round window. The child had diseased ear bones and thus the implant had to bypass the ear bones to allow hearing.

**What is the cost of the procedure?**

The middle ear implant is highly sophisticated and comes with a price of S\$18,000. However, in cases where even advanced hearing aids don’t work, it is worth every penny.

**How long do they last and are there any replacements needed?**

The internal component is expected to be life-long.

**What are the risks involved?**

The operation is generally safe in experienced hands, with a very low chance of trauma to the middle ear and facial nerve. I use a facial nerve monitor in every case.

**How long does it take to recover from the procedure?**

The patient is admitted on the day of surgery, and stays one-day post surgery. The device is ‘switched on’ three weeks later, and tuned by our audiologist to the patient’s needs with respect to specific pitches and level of hearing loss.

**Is there anything to avoid post surgery?**

High-impact contact sports like boxing and rugby should be avoided after the procedure, although it’s still all right to dive or ski. ■