

OSSICULAR CHAIN REPAIR (OSSICULOPLASTY)

Risks, Complications and Post-operative Instructions

The chain of three ossicles (small bones) in the middle ear bridges the gap between drum and cochlea. The chain, comprises in turn, the malleus, incus and stapes, and is covered with fine mucosa. The three ossicles vibrate freely in the air of the middle ear, passing sound from the drum to the inner ear. The chain achieves mechanical advantage to enhance the hearing by approximately 70 decibels, and is also designed to protect the cochlear from excessive mechanical force.

Chain function is impeded if the chain vibrations are muffled by swollen surrounding tissues, or by fluid in the middle ear (this occurs if the Eustachian tube is dysfunctional). Also, the chain may be destroyed by infection from middle ear disease, or fixed by scarring, calcification or secondary bone formation from ongoing disease. The chain may also suffer gradual erosion if chronic drum retraction causes ongoing pressure on the chain.

These damaging influences reduce or destroy chain transmission, causing conductive (mechanical) deafness. When this is present, chain repair (ossiculoplasty) is performed to restore hearing.

Surgery

Ossiculoplasty may employ a range of techniques. The most common methods use either the patients remaining ossicles, re-arranged to restore connection between the drum and cochlea, or alternatively micro-prostheses developed commercially for this role. In the first method, the incus is most commonly re-positioned to join malleus to stapes, or the drum directly to the stapes or its remnants. Commercially available prostheses are more finely engineered, usually user-friendly and relatively simple to use. These devices are normally ceramic or titanium, and are compatible with MRI scans.

Ossicular repairs may be done in isolation, or combined with other ear surgery, particularly drum repair. The surgery may be done via the external canal, or through the mastoid if more extensive surgery is undertaken for other purposes.

The drum is raised, disease or scarring removed, and the incus or prosthesis is then fitted into position according to the status of the ear and the chain defect that is to be overcome. Routine repairs may be completed over a brief period.

The ear canal is generally stabilised with fine packs after the surgery is completed, for 2-3 weeks.

"Silverton Place"

101 Wickham Terrace
Brisbane Qld 4000

P: 07 38397677 F: 07 38325723

Other Locations

Beenleigh

Sunnybank

Mt Ommaney

Caboolture

More information

- Ossicular Reconstruction
 - i. [Historical](#)
 - ii. Columellas
 - [Polyethylene](#)
 - [Hydroxyapatite](#)
 - [Titanium](#)
 - iii. Assemblies
 - [Hydroxylapatite](#)
 - [Titanium](#)
 - [Other](#)
 - iv. [Neomalleus technique](#)
 - v. [Chain Evaluation](#)
 - vi. [Ossiculoplasty Prognosis](#)

RISKS AND COMPLICATIONS

Hearing

Together with disease removal, the surgery normally aims for the best possible hearing outcome (over 70% of cases), but this is sometimes not achieved, due to the extent of disease or other factors. Also although many cases have ringing (tinnitus) in the ears before surgery, this may not be eliminated and can be worse in a minority.

Generally, the hearing takes perhaps 1-2 months to fully recover after chain repair surgery. Gurgling, crackling, echoing or hollow sounds during this period are indicative of a good outcome.

Dizziness

Balance upsets after ossicular surgery are rare, but in some cases of more advanced disease the balance organs are traumatised during removal of disease or similar actions in the course of the surgery. Fortunately this generally fades, perhaps over a two month course.

Facial Nerve Paralysis

Even in expert hands paralysis of the side of the face may occur for a variety of reasons in ear surgery, in perhaps every 1-1000 cases. Chronic ear surgery not uncommonly encounters the nerve in a diseased state, requiring extra vigilance on the part of the surgeon. Paralysis may last several months and then recover

"Silverton Place"

101 Wickham Terrace
Brisbane Qld 4000

P: 07 38397677 F: 07 38325723

Other Locations

Beenleigh

Sunnybank

Mt Ommaney

Caboolture

completely or partially. Temporary paralysis may also occur from local anaesthetic injection, lasting a few hours and then recovering. Eye irritation from these incidents may require an ophthalmologist's care.

Drum Perforation

Generally in chronic disease cases drum healing is uneventful, but perforation may occur requiring limited revision surgery to overcome the problem that is fortunately relatively rare.

Taste Disturbance

The chorda tympani is the nerve that provides taste sensation to the side of the tongue. It passes across the field of surgery in many ear disease cases and not uncommonly is bruised or cut in the course of the procedure. Taste disturbance occurs in about 10% of cases and this may last for up to 12 months, a few remaining permanent, sometimes with slight dryness of the mouth,

Infection, Pain

The nature of surgery predisposes to general surgical risks but fortunately the ear is generally not troubled by these problems to a severe or prolonged extent.

If an incision has been made behind the ear, it is common for the upper ear to feel numb for up to two months, before fading

Uncommonly, a collection of blood may form under a wound behind the ear. This may cause more noticeable swelling and discomfort.

Please notify us at **07 38397677** if you have concerns.

POSTOPERATIVE INSTRUCTIONS

Surgical wound site

If an incision is present behind the ear, any head bandage will be removed before discharge from hospital. Keep the wound dry for a week, at which time you will have an appointment to have the sutures removed. The site may be washed thereafter. Normally a degree of swelling may cause the ear to be more prominent. This fades over two weeks.

"Silverton Place"

101 Wickham Terrace
Brisbane Qld 4000

P: 07 38397677 F: 07 38325723

Other Locations

Beenleigh

Sunnybank

Mt Ommaney

Caboolture

External canal site

The ear bowl and canal will have dressings that may become moist from slight bloodstained discharge. Replace the ear bowl dressings as necessary, but leave to canal dressings unmolested until their removal, usually 2-3 weeks after surgery. Until removal of the dressings, avoid heavy exercise, to reduce perspiration moisture within the canal. Removal of dressings is usually brief and pain-free.

Also avoid forced nose blowing or occluded sneezing, as this may dislodge graft material in the ear. Aircraft flight should be avoided for one month.

Antibiotics will be prescribed and provided prior to discharge. Take these as directed on the packet. Sometimes diarrhoea may occur; consult your pharmacist re medicine for this, but continue the antibiotics and take probiotics to help settle matters.

Pain, Discomfort

Analgesics will be given both in hospital and supplied at discharge. Pain after ear surgery is normally limited, but if concerned contact us for advice. If an incision has been performed behind the ear, some intermittent stabbing type pain may be experienced and which fades in a few weeks. Nausea is less common, but advise our staff if you require medicine for this.

Activities

- Rest well after surgery; recovery varies from person to person.
- Return to work when well; this is normally after a few days, unless dizziness or other problems intervene.
- The ear canal dressings are removed at 2-3 weeks after surgery, and the ear reviewed after that. Audiology is undertaken at two months. Subsequent reviews occur on an individual basis.

Our goal in ear reconstruction is to deliver the best results with the greatest certainty and minimal distress. But in surgery there are no guarantees of success. If you have had a lesser result after surgery, we will do our best to treat the problem, hopefully overcoming this.

Please let us know at Queensland Otolaryngology if you have any concerns or questions, whether before or after:

Contact Numbers

Business Hours: (07) 3839 7677

After hours: (07) 3261 9570

"Silverton Place"

101 Wickham Terrace
Brisbane Qld 4000

P: 07 38397677 F: 07 38325723

Other Locations

Beenleigh

Sunnybank

Mt Ommaney

Caboolture