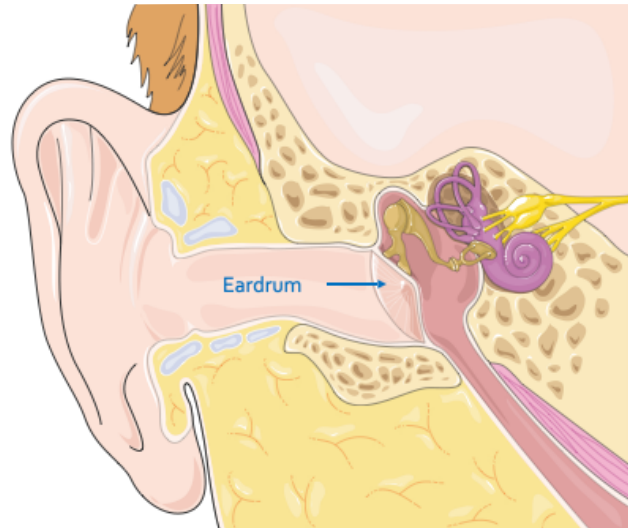


## Repair of the eardrum - Myringoplasty

Myringoplasty is an operation designed to repair a hole in an eardrum. Holes can range in size from a few millimetres to occupy the entire ear drum. The aim of an ear drum repair procedure is to produce an ear that is able to withstand water from bathing and showering, whilst also improving hearing.

Ear drum perforations occur in a variety of settings including childhood ear infections, trauma from foreign objects like cotton buds and from blunt trauma such as a slap or blow to the ear. Occasionally other procedures like grommets can result in unwanted perforations that can need surgical correction.

In some patients recurrent infections can occur in the setting of water exposure with a perforation. Occasionally the ear drum is perforated in association with a skin-like cyst in the middle ear (cholesteatoma). Nearly all perforations cause some degree of hearing loss.



### Why is surgery needed?

Ear drum repair should be considered if the ear is leaking after water exposure or associated with recurrent infections. It should also be considered if a perforation is associated with a deeper disease process like cholesteatoma.

### Diagnosis

Most perforations can be diagnosed with simple examination. Occasionally, a microscope and a tiny vacuum is used to clean the ear and document the state of the ear drum. Hearing tests and measurement of ear pressure are important tools in measuring the impact of a hole on hearing. Occasionally other tests such as CT scans are used to examine the ear and its surrounding structures.

### Before surgery

If surgery is planned it is important to convey to the Surgeon and anaesthetist if you have any pre-existing health conditions or if you are taking certain medicines that increase the risk of bleeding (Aspirin, Xarelto, Plavix, Warfarin, Vitamin E, or any herbal medications).

Smoking greatly increases the risk of complications related to ear surgery and it is recommended you cease smoking at least 4 weeks prior to surgery.

Some tablets for diabetes can also cause anaesthetic issues and need to be discussed well before surgery.

## Preparation of the ear before surgery

It is important to keep the affected ear strictly dry in the lead up to surgery. Your surgeon may advise to apply antibiotic ear drops in the week before surgery to prevent infection.

## How is the operation done?

The operation is performed under general anaesthesia (fully asleep). Depending on the size and location of the perforation, your surgery may be conducted down the ear canal (transcanal) or from behind the ear (post-auricular). Occasionally there is a small incision made above the ear canal opening (end aural).

Some patients have very narrow ear canals and access to the ear drum can be challenging. In these patients some of the ear canal bone or cartilage may need to be removed at the time of surgery (canalplasty).

If the incision is made behind the ear, a small amount of hair (approx 1cm) will need to be shaved. This is rarely visible in the post operative period. During the surgery a small amount of graft material will be obtained and used to repair the drum. Grafts may be made of muscle lining from behind the ear (temporalis fascia) or cartilage (usually from the front of the ear canal (tragus)).

The surgery can take from between 30 and 90 minutes depending on the approach and the nature of the perforation. Other structures in the ear such as hearing bones will also be checked during the procedure. If these are damaged they may need to be repaired at a later stage.

Once the graft has been placed, some dissolvable packing is placed in the ear canal and the skin is closed (if done behind the ear) with dissolvable stitches. A head bandage will be placed and this is generally removed the following day.

If the procedure is done down the canal the patient will generally go home the same day. Those having surgery from behind the ear will often stay overnight in hospital.

## Dressings

Surgery performed only down the ear canal requires some cotton wool and a small bandaid. Repairs done from behind the ear will have a 5-6cm wound hidden just behind the ear and dressed with white steri-strips. These may be changed by a nurse before you go home. In the first week the ear will be kept dry and drops applied regularly. Once you have seen the specialist at 1-2 weeks, instructions on hair-washing will be given. Drops may continue for several weeks after the surgery.

## Possible complications

Graft failure - Approximately 85-90% of ear drum grafts will 'take' successfully and the drum will be repaired. For instances where the graft fails to work, additional or revision surgery may be required.

Tinnitus - A ringing noise can occur after surgery and it generally recovers after a few weeks. Rarely it may persist or become permanent.

Hearing loss - It is extremely rare for permanent total hearing loss in the operated ear (less than 1:1000)

Ear numbness - This is common in the first few weeks but can persist for several months as nerve endings in the skin incision recover.

Unightly or keloid scar - Most ear surgery has an excellent cosmetic outcome but occasionally the scar can become thick and raised.

Canal narrowing - After canalplasty (see above), excessive scar tissue may occur deep in the canal leading to blockage and some hearing loss. This may require further surgery and is occasionally difficult to correct.

Jaw pain - This can occur in the setting of ear canal drilling (canalplasty). It rarely lasts more than a few days.

Inadequate hearing - Drums may heal properly but hearing may still be affected. Hearing aids are sometimes needed in this setting.

Cholesteatoma formation - Skin can sometimes grow from the edges of a perforation into the middle ear space. If any of this remains after surgery it can occasionally grow under the eardrum. This needs to be removed to prevent further damage to important structures in the middle ear.

## Recovery after Surgery

You can do light duties and walking type exercise usually 24-48 hours after discharge. Strenuous activities such as heavy lifting and straining or gym should be avoided for at 2 weeks. Any wounds should be kept dry at least until your first post operative visit at 1-2 weeks. Most of the sutures we use are dissolvable. At the review appointment the ear will be gently cleaned and advice about water exposure and further ear protection will be given. A second review is usually undertaken at 4-6 weeks after surgery and at that stage the status of the graft is usually able to be determined. A third visit is usually conducted at around 4 months after surgery with a hearing test to determine the final status of the ear.

## Is there any alternative treatment?

Ear drum surgery can be avoided if perforations are tiny or are likely to spontaneously heal. Your surgeon will explain this at your first consultation. Ear perforations that never discharge or are not associated with hearing loss can sometimes be safely observed. Elderly or frail people are often best treated conservatively.

## Surgical Costs

It is important to have a clear picture of all costs related to your procedure well in advance of any surgery. Costs will include those related to the surgery, the anaesthesia and the hospital or day surgery facility. Your surgeon's secretary will be well placed to explain the surgical costs and how the process works with insurance etc. You will be advised in advance who the anaesthetist will be and they will discuss their costs directly with you.

*Whilst every care has been taken to make this information sheet as accurate as possible, individual experiences and outcomes may differ. It is important to discuss any concerns with your surgeon prior to considering surgery.*

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### Myringoplasty (Ear drum repair) with or without Mastoidectomy

#### Post-op Course

You may be discharged on the day of surgery or stay overnight. This will depend on your operation as well as your surgeon's preference. You will generally expect your ear to be blocked, as there will often be dressings packed within your ear canal. The dressings used may be either dissolvable or may need removal by your surgeon 1-3 weeks from your surgery (depending on type of surgery). If your surgery was done via a cut behind the ear, you'll expect to wake up with a head bandage that is removed the following day.

If your surgery is done as a day-procedure, you will be advised to remove the bandage and all dressings down to the white steri-strip band-aids behind the ear the day after the operation.

It is important that you leave the dressings dry and keep your ear dry after your surgery. It is common for some minor blood-stained discharge from your ear canal and occasionally from behind the ear as well.

A cotton wool ball with a layer of Vaseline can be placed over the outside of your ear canal to minimise the discharge running from the ear. This can be changed as necessary. However be very careful **NOT** to dislodge or remove any of the dressings placed inside your ear canal. If the cotton wool gets stuck onto the inner dressing, stop pulling and get someone to help you gently ease it away or snip the end with clean scissors. **The ear canal packing should only be removed by your surgeon.**

Please leave this dry and undisturbed. Occasionally, your ear may be packed again during your post-operative visit. If the plug falls out of the ear on its own, do not worry, just leave the deeper layers of packing alone.

There may be stitches either on top of the ear canal or at the back of your ear. These are generally dissolvable and do not need removing.

## Medications

You will often be discharged with antibiotics after your surgery. If they have been prescribed complete the whole course as instructed. You may also be prescribed ear drops. These usually commence on the first day after surgery once the bandage has been removed.

Pain after this type of surgery is usually mild to moderate and is very well controlled with pain medication. Generally the use of Nurofen and paracetamol/panadeine forte is adequate.

If you had medications such as aspirin, Plavix or warfarin stopped prior to surgery, please check with your surgeon when it is safe to restart these. It is advisable that you check with your surgeon prior to your discharge but occasionally a decision may have to be made only at your first post-operative visit.

You may be prescribed further ear drops during your post-operative visits after removal of packing from your ear. Instructions will be given with regards to use and generally this is to help with clearance of the dissolvable dressing placed within your ear.

## Precautions during your post-operative course

It is important that you don't strain or do any heavy lifting for 4-6 weeks after your surgery. Some pain medications can cause constipation so it is advisable that you get some stool softeners/laxatives from your local chemist within 2 days if you are having problems (Your local chemist will be very familiar with constipation treatment). This is so you can minimise straining which may affect the healing of the graft on your ear drum. You may need to go on light duties if your work involves manual labour and lifting (please discuss this with your surgeon, preferably before the surgery). Patients with young children should also consider getting help from family members or friends as you may not be able to lift your children initially.

Avoid blowing your nose as this can affect the healing of the graft. If you do sneeze, try to do so with the mouth open in order to minimise the pressure through your ears.

You will also not be able to fly for 4-6 weeks after your surgery. **Please consider this prior to your surgery** as it may be advisable to delay your surgery until after planned trips.

Swimming and water exposure to the ear is generally OK after 6 weeks but will be decided during post op visits.

## Hearing

This will generally be quite reduced in the operated ear in the post-operative period. This may last several weeks. Hearing will usually be checked with a formal hearing test about 3 months after surgery. In certain instances repair of hearing bones to maximize hearing will need to be done at a later stage. Your surgeon will explain if this is necessary.

## When to contact your surgeon

If you have free flowing blood from your ear or your wound, either contact your surgeon or present to nearby emergency department. If it is coming from the wound behind the ear, apply pressure to the wound and an ice pack over the wound can help.

If you notice significant redness and swelling behind your ear or pus-like discharge from either the wound or your ear canal, or if you have a fever  $>38$  degrees, contact your surgeon as this may be a sign of infection.

Mild sense of dizziness may be expected in the post-operative course but if you start experiencing significant dizziness or vertigo, contact your surgeon.