Mastoidectomy + Exostosis

Indications

1. To remove cholesteatoma from the middle ear. Cholesteatoma is the presence of skin within the confines of the middle ear system, which dies and sheds itself (keratin), gets infected, and causes bony erosion. If untreated it may lead to serious complications including hearing loss, tinnitus, meningitis, brain infection, vertigo and facial nerve paralysis (including weakness of the muscle of facial expression).
2. Sometimes, patients have symptoms suggestive of cholesteatoma, but even after examination of the ears under the microscope and CT scan, it is impossible to know for sure whether or not cholesteatoma is present. In such cases it is usually indicated to perform a mastoidectomy to see whether or not a cholesteatoma is present, and to remove it.
3. To provide improved ventilation of the air spaces in the mastoid bone behind the middle ear, this improves the health of the middle ear. This is often done in conjunction with an operation to repair a perforation of the eardrum.
4. In patients who have an actual or threatened complication of an ear infection / cholesteatoma (e.g. brain infection or facial nerve paralysis), mastoidectomy may need to be performed as an emergency.

Options - In cases where an established cholesteatoma is present, there are no alternatives to surgical removal. In cases where a cholesteatoma is no present, the alternative to surgery is to wait and see whether the patient's symptoms and hearing improve or dis-improve with time.

Contraindications of Surgery

Patients taking Warfarin, Aspirin, or Plavix should stop these prior to surgery.

Procedure

The operation is performed under general anaesthetic. Patients will always have had hearing tests performed preoperatively, and often CT scans also.

Some hair is shaved behind the ear. An incision is made behind the ear and bone over the mastoid air cells is drilled away to open the mastoid air cell system. More drilling and bone removal is performed to allow removal of disease. The middle ear and mastoid resembles an elaborate system of nooks and crannies. This set up facilities the ingrowth of skin which subsequently sheds itself and gets infected, leading to further ingrowth of skin.

The object of the surgery is therefore to convert this complex system into a smooth, bowl-shaped cavity with no corners around which skin can grow and cause problems. In creating such a cavity, it is often necessary to make the earhole bigger, so that the ear remains well aerated postoperatively. The entire operation usually takes between 2 and 4 hours.

Usually, a dressing is placed into the ear canal and a head bandage applied after the surgery. The head bandage is removed the next day, and the ear dressing usually removed from the ear in the outpatients department a few weeks later.

Complications

Injury to the facial nerve. This is an uncommon but serious complication which will leave the patient with facial weakness, which may prevent them from closing their eye, and may cause drooling of saliva from the corner of the mouth. Subsequent operations may improve the appearance of the face, and allow the patient to close their eyes and stop drooling; however, some reduced movement on one side of the face may be permanent.

1. Hearing loss. In removing a cholesteatoma, it is frequently necessary to remove the little bones of hearing from the middle ear (the ossicles), and so some reduction in hearing is quite common. Remember the object of the operation is to remove disease, not to improve hearing. Much less commonly, the patient can lose all hearing in the ear being operated on, due to damage to the inner ear.
2. Dizziness may occur postoperatively, and usually resolves in a few weeks, during which time the patient may take anti-dizziness medications.
3. CSF leakage. The plate of bone between the ear and the brain is very thin, and is often eroded by cholesteatoma or infection preoperatively. A tougher layer tissue (the meninges) usually protects the brain, but if this is injured, leakage of CSF (brain fluid) may follow. This puts patients at risk of meningitis. If a defeat in the bone or meninges is recognised intraoperatively, it can usually be repaired at this time. Occasionally, CSF leakage may present postoperatively (as leakage of clear fluid from the ear or sweet/salty taste in the throat). This often necessitates further surgery.
4. Meningitis or brain infection. Mastoidectomy is usually performed to prevent these complications, but rarely, these may occur after surgery, particularly in emergency cases done on actively infected ears where it is possible that infection had spread to the brain or meninges prior to the mastoidectomy and only manifest itself later on.
5. Wound infection can happy after any operation and is treated with antibiotics.
6. Bleeding/Blood clot under the wound can happen after any operation and may require return to theatre for removal of the blood clot and arrest of any bleeding.
7. Recurrent disease may develop in between 10% and 50% of patients post-surgery. Recurrence rates are higher in children, and usually require further surgery.
8. Tinnitus or noises in the ear. They are usually temporary but occasionally permanent.

It should be noted that complications 1 to 5 listed above may also occur in patients who do not understand surgery. In fact, the long-term likelihood of most of these complications is reduced in patients who undergo surgery as opposed to those who don’t.

Other Expected Outcomes

1. After the ear dressing is removed, patients may experience some weeping from the ear. This may last several weeks or even a few months, and usually resolves spontaneously.
2. Because the anatomy of the ear is altered, patients may experience wax build up, and increased risk of outer ear infections, particularly after getting their ears wet. These problems are usually managed by undergoing wax removal in the ENT clinic every 6 to 12 months, and by instilling a few drops of white vinegar + water in a 50:50 mix into the ear after swimming. Most patients can swim normally within 6 to 9 months after mastoidectomy but a minority have persistent problems which prevent this.
3. The operated ear may protrude slightly after the operation, but usually sinks back to its normal position over the following weeks to months.
4. The ear hole is often bigger postoperatively, so some patients with short hair may occasionally feel unsteady in windy conditions. This is preventable by simply wearing a hat.