

## ENT Conditions and Procedures

Hole in the Eardrum & Myringoplasty -  
UPDATE

## ABOUT THE CONDITION

## How does the ear work?

The ear consists of the outer, middle and inner ear. Sound travels through the outer ear and reaches the eardrum, causing it to vibrate. The vibration is transmitted through three tiny bones (the malleus, incus and stapes) in the middle ear. The vibration then enters the inner ear, where nerve cells produce signals that are carried to the brain, where they are interpreted as sound. See figure 1 for the anatomy of the ear.

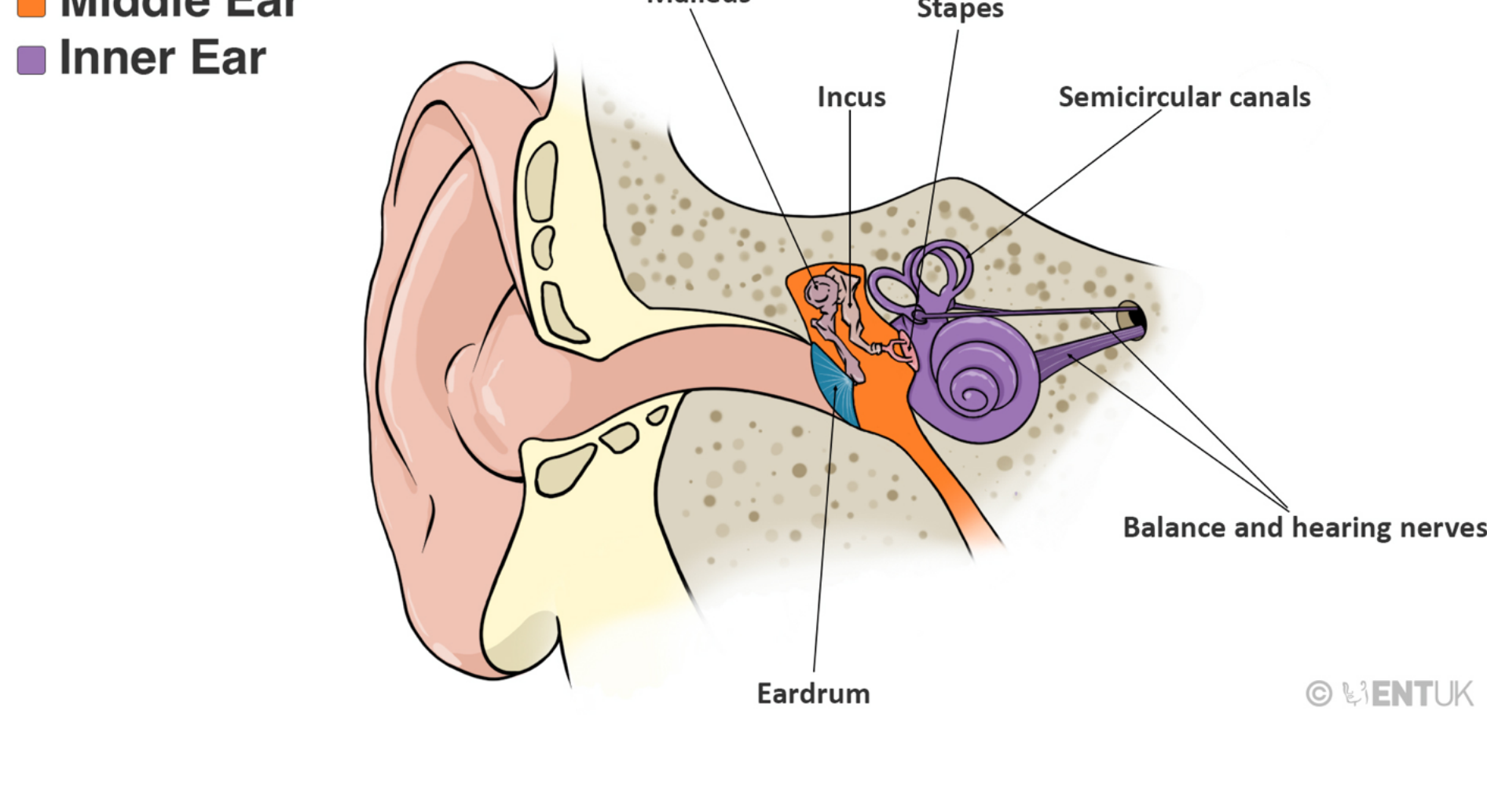


Figure 1. Anatomy of the ear (\*)

Holes in the eardrum are known as 'perforations' (see figure 2).

They can be caused by an infection or injury to the eardrum, and can be small, medium-sized or large enough to affect the entire eardrum.

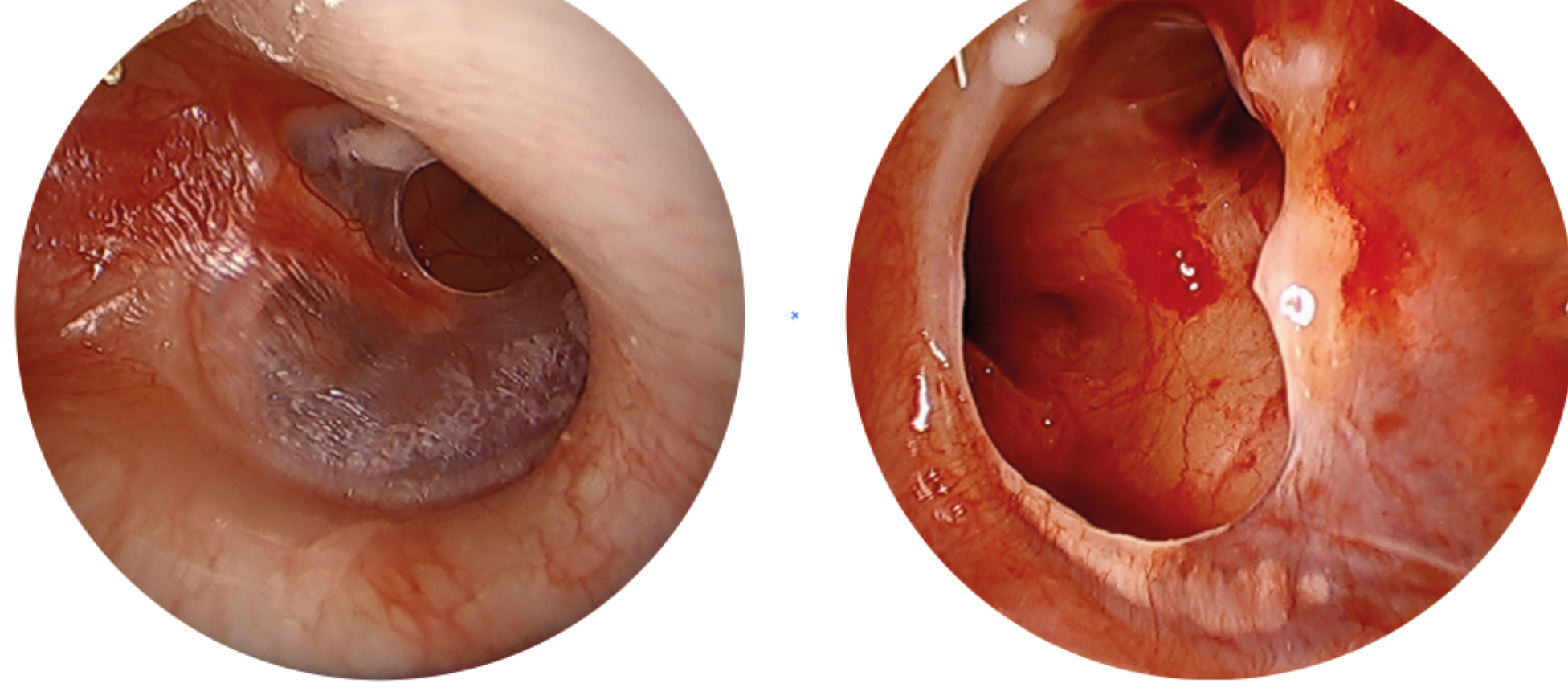


Figure 2 - Left: a small hole in the eardrum; Right: a large hole in the eardrum;

What problems can develop with a hole in the  
eardrum?

Quite often, holes in the eardrum heal by themselves, and some do not cause any problems. However, they can cause a discharge from the ear, and large holes may reduce your hearing.

## What symptoms may I develop?

Often, small holes do not cause any problems. But you can develop infections that keep coming back, discharge from the ear (especially if you get water in your ear), and hearing loss.

## Will I need any tests?

You will need an examination by an otolaryngologist (ear, nose and throat specialist) to rule out an infection. They will look at the hole using a special instrument called an otoscope, which has a magnifying lens and a light. An examination with an otoscope does not usually hurt. Sometimes you will need a more detailed examination using a microscope and suction tool (a small vacuum cleaner). Some surgeons may use a small telescope with a camera attached, called an endoscope. If your hearing is affected, you will need to have a hearing test (called an audiogram) to measure the level of hearing loss. If you have severe hearing loss this usually means that the tiny bones in the middle ear are not working properly or the inner ear is damaged.

## ABOUT THE PROCEDURE

## Non-surgical management

If the hole was caused by a recent injury or infection, the condition is usually monitored for a period, as some holes can heal on their own without treatment. Many smaller holes may not cause any symptoms. But it is important to prevent water from getting into your ear to reduce the chance of infection.

When you are showering or bathing, put a large piece of cotton wool covered in petroleum jelly (for example, Vaseline) in the outer part of your ear to stop water getting in. Once you have finished washing, remove the cotton wool and throw it away.

If you go swimming, swimming earplugs are helpful but they may not completely stop water getting into your ear. A swimming cap may also be useful.

## What is the benefit of having surgery?

The benefits of surgery to close a hole in the eardrum include preventing water from getting in the middle ear (the part of the ear behind the eardrum). This reduces the chance of infection and stops the ear from leaking discharge. This surgery can be done as part of a mastoid operation (see our separate leaflet on mastoid surgery). Repairing the eardrum alone does not usually lead to a great improvement in hearing.

## What does surgery involve?

The operation to close a hole in the eardrum is called a myringoplasty. Most myringoplasties in the UK are done under general anaesthetic. Some surgeons prefer to do them under local anaesthetic.

A cut is made behind the ear or above the opening in the ear. Some surgeons may perform the operation through the ear canal with the help of an endoscope or microscope. Occasionally, your surgeon may need to use a drill to widen the ear canal so they can get to the hole in order to repair it.

The material used to patch the hole (called a graft) is taken from under the skin or the lining and cartilage in front of the ear canal. Some surgeons prefer to use manmade eardrum grafts. The eardrum graft is placed against the eardrum.

Dressings are placed in the ear canal. These can be a removable pack or absorbent sponge dressings. You may have a dressing on the outside of your ear and a bandage on your head for a few hours.

## What are the alternatives to surgery?

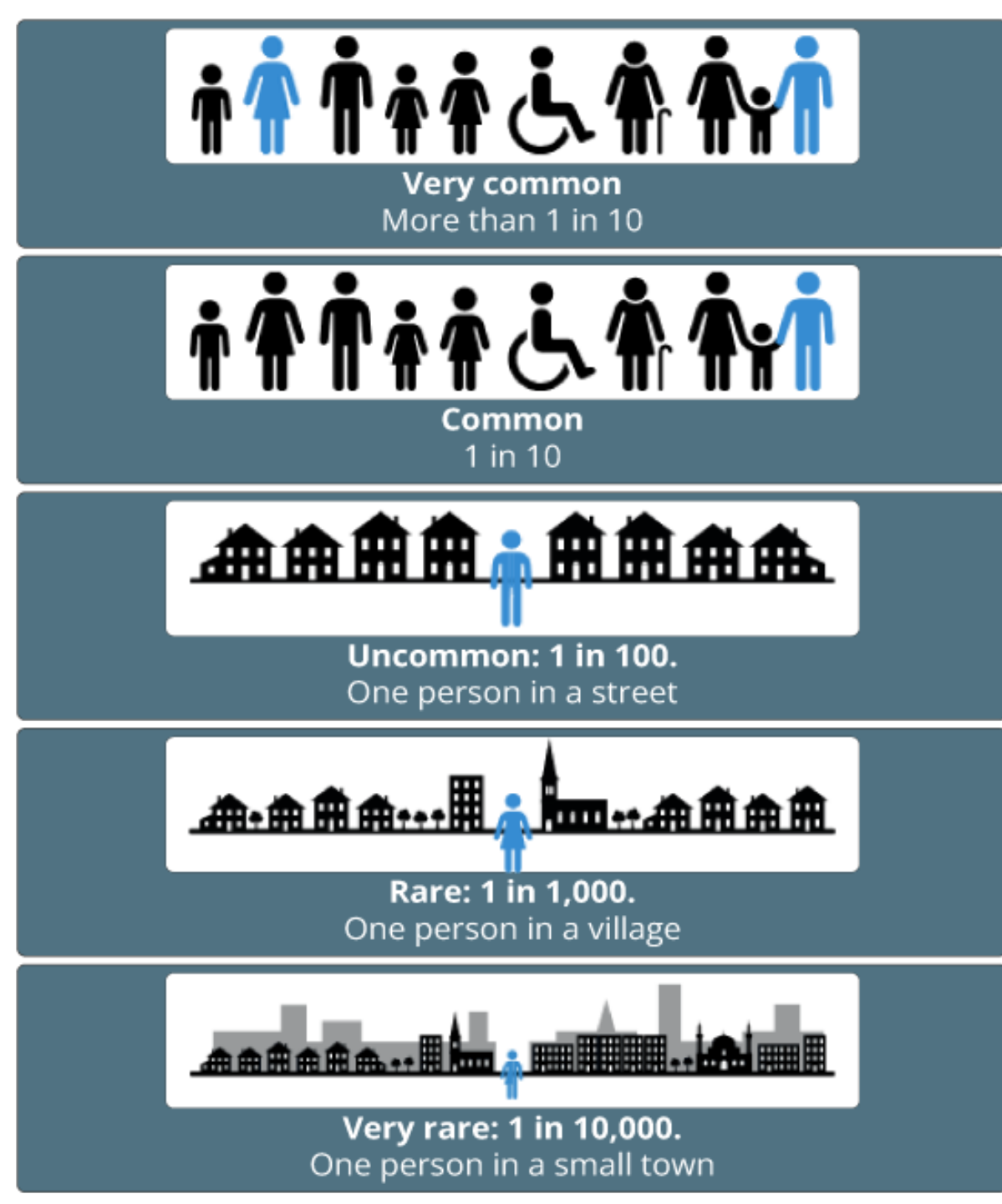
If the hole in your eardrum is not causing any symptoms (such as discharge from the ear, hearing loss or infections), you may decide not to have surgery. You may not be able to go swimming and will have to avoid water getting into your ear, to reduce the risk of infections.

Discharge and infections that keep getting better then coming back may be treated by regularly cleaning the ear under a microscope and using antibiotic drops. You generally have to go to an ear, nose and throat clinic for this procedure. If your hearing is affected and you do not want to have surgery, you could consider using a hearing aid.

## ABOUT THE RISKS

Are there any complications after this  
surgery?

The complications and risks of any surgery are grouped into the following categories.



**Altered taste:** One of the nerves responsible for taste runs close to the eardrum and may occasionally be damaged during surgery. This can cause an abnormal taste on one side of the tongue, which is usually temporary. Permanent taste disturbance is uncommon.

**Dizziness:** This is common for a few hours following surgery. The dizziness can last for months or even years if the inner ear is damaged during surgery, but this is rare.

**Hearing loss:** In most people, the hearing improves or stays the same after surgery. Rarely, severe deafness can happen if the inner ear is damaged.

**Tinnitus:** Sometimes you may notice an extra noise in your ear after surgery, especially if the surgery causes your hearing loss to worsen. This is called tinnitus and is uncommon.

**Facial weakness:** The nerve which moves the muscles of the face runs through the ear. There is a slight chance of temporary facial weakness after ear surgery. However, permanent weakness of the face following a myringoplasty operation is very rare. Facial weakness affects the movement of muscles in the face, making it difficult to close your eye, smile and raise your eyebrows. The weakness can vary, from mild to total paralysis. It may develop immediately after surgery or there may be a delay. Recovery can be complete or partial.

**Allergic reaction:** The ear dressings contain medication to prevent infection. Some patients may develop a skin reaction to the ear dressings. If your ear becomes itchy or swollen, ask your surgeon for advice.

**Complications of general anaesthetic:** The operation is usually performed under a general anaesthetic. Complications include blood clots in the legs (deep vein thrombosis) or lungs (pulmonary embolism), heart attack, chest infection, stroke and death. The pre-assessment team and anaesthetist will explain to you what happens during a general anaesthetic and the associated risks that are relevant to you. The link below summarises the common events and risks: [https://www.rcoa.ac.uk/sites/default/files/documents/2019-11/Risk-infographics\\_2019web.pdf](https://www.rcoa.ac.uk/sites/default/files/documents/2019-11/Risk-infographics_2019web.pdf)

## AFTER THE PROCEDURE

## What happens after the operation?

After the operation, you will be transferred to the recovery area. When your anaesthetic wears off, you will be taken back to the ward or day-case unit.

## How long will I stay in hospital?

Many hospitals perform myringoplasty as day surgery. You will be able to go home once the operating team is satisfied that you have recovered from the anaesthetic.

If for any reason there is a complication following surgery, you might need to stay in hospital for longer.

## What is the recovery period?

Recovery time is usually only a few days. The exact time needed off work varies between patients, but as a guide you may need to take up to one or two weeks off work.

## What is the success rate?

For small holes, the operation works well nine times out of ten. The success rate is not quite so good for large holes. Other factors, such as whether or not you smoke, can affect the success rate.

## What else should I expect after surgery?

Your ear may ache a little, but you can take painkillers to help with this. You may have a bandage on your head. If you do, you will usually go home after this has been removed. The stitches will be removed at your doctor's surgery one to two weeks after the operation. There may be a small amount of discharge from the ear canal. This usually comes from the antiseptic solutions in the ear dressings.

Some of the ear dressings may fall out. Don't worry if this happens. It is sensible to trim the loose end of the ear dressings with scissors and leave the rest in place. If the dressings in the ear canal are not dissolvable, they will be removed after two or three weeks by your surgeon at the hospital. You should keep your ear dry and avoid blowing your nose too hard. Put a cotton wool ball coated with Vaseline in your outer ear when you are having a shower or washing your hair. If your ear becomes more painful or is swollen, you should call the ear, nose and throat department at your local hospital or your GP for advice.

## Follow up care

Your surgical team will tell you about any follow-up appointments you might need.

## QUICK FACTS

- A hole in the eardrum may not need any treatment.
- It is common to feel dizzy for a few hours after the operation. Rarely, the dizziness can last for months.
- After myringoplasty, your sense of taste may be different on the same side as you had the operation. Permanent damage is uncommon.
- Your hearing may stay the same or improve after the operation. It could also become worse, but this is rare.
- Very rarely, the facial muscles may be **permanently** weakened after the operation. Sometimes the weakness is temporary and recovers.
- Tinnitus can develop after the operation, but this is not common.
- You may have an allergic reaction to the medication in the ear dressings.

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