












Ears - patient information guide

The ear is made up of intricately folded cartilage covered by a thin skin. It is a delicate structure whose main components are hard to replicate. The absence, loss or deformation of an ear can cause psychological distress leading to emotional educational and occupational difficulties.

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1. Introduction

With the advancement of modern surgical techniques, patients requiring ear reconstruction, or any other corrective ear surgery, can now expect good outcomes, with aesthetically satisfying results. As with all surgery, however, there are no guarantees of success, and patients are advised to consult NHS ear specialists via the national centres of excellence when thinking about ear surgery of any kind.

The goal of corrective ear surgery is to restore balance to the face and shift unwanted attention away from prominent or misshapen ears. With fears about teasing at school, parents are often keen to have their children's ears operated on at an early age. However, a child's opinion, consent and cooperation are essential to a successful and satisfying cosmetic outcome. For this reason, many surgeons prefer to wait until a child is older to perform ear surgery.

2. What conditions might affect a patient in this area?

Conditions that affect people's ears can be divided into two areas: congenital, meaning those conditions that people are born with, and 'acquired', meaning those that develop later in life due to accident or infection.

The main congenital conditions that affect people's ears are:

- Microtia
- Prominent ear
- Other ear deformations
- Cryptotia

The main acquired conditions are:

- Trauma
- Ear thickening or 'cauliflower' ears
- Infection of the ears
- Skin cancer of the ear

3. Microtia

Microtia, translated from the Greek, means 'little ear', and is the medical word used to describe a small or absent ear in newborn babies. Affecting one in 6,000 live births worldwide, microtia can appear in isolation or as a feature of other syndromes, such as hemifacial microsomia or Treacher-Collins syndrome.

Microtia usually affects one ear only (unilateral microtia), although in 10% of cases both ears are involved (bilateral microtia). The root cause of the problem is thought to relate to an interruption of the blood supply to the affected area about eight weeks after a baby's conception. Hearing is often impaired on the affected side due to the ear canal being underdeveloped, although a hearing aid is only usually needed in cases of bilateral microtia.

What surgery is available, and what techniques are involved?

There are three main reconstructive options available to patients with microtia. The first is autologous ear reconstruction, which means reconstruction using the patient's own tissue. The second option involves utilising a prosthetic framework covered or buried under the patient's own skin. The third option is to use an external prosthesis crafted to match the opposite ear and fitted to the side of the head.

1. Autologous reconstruction

The gold standard technique for autologous ear reconstruction is a rib cartilage graft; a surgical intervention that is usually carried out in two or three stages. The first stage of surgery is conducted when a child is between the ages of eight and ten, when there is sufficient volume of cartilage in the chest area. With the patient under general anaesthetic, rib cartilage is harvested via a small incision at the side of the chest in an operation lasting between five to six hours.

Once removed, the pieces of cartilage are then carved and joined together to create a framework replicating a new ear. Based on a map of the patient's other ear the framework is as close as possible to a mirror image of the opposite ear. Once complete, the new ear structure is buried under the skin at the side of the head. Occasionally if the skin is scarred or the hairline is very low the ear maybe covered by a flap of fascia from under the scalp and a split skin graft. (A flap is a piece of living tissue that is transferred from one part of the body to another, along with the blood vessels that keeps it alive.)

Patients and families should note that in the past surgeons have attempted to use cartilage from mothers and from human donors. The cartilage gradually disappeared and the results were poor. More recently scientists have created ears made of engineered cartilage in laboratory mice. Although promising this technology does not work in humans as the cartilage is too soft.

The newly constructed ear initially lies flush against the patient's head. Six months later at the second stage the ear is lifted to achieve a normal projection. This procedure takes from 3 to 5 hours and involves inserting a wedge of cartilage behind the ear with fascial flaps and skin grafts used to cover the exposed surfaces.

Sometimes a third operation is required to refine the results or to perform additional procedures such as piercing the lobe or correcting prominence of the opposite ear. Occasionally a course of laser treatment maybe required if there are a few hairs growing on the ear.

What should I expect as a patient?

Patients undergoing the first stage of autologous ear reconstruction will need to be kept in hospital for four to seven days. Very small suction drains left in

at the time of surgery and are used to suck the skin onto the new ear. These are removed after four or five days. Skin stitches are removed after a week. It takes several months for the swelling to settle but the shape of the new ear will be apparent to all at an early stage. A week after the second operation, the skin graft will need to be checked. Patients should avoid all sporting activity for three months, but should rest assured that long-term satisfactory outcomes can be expected following autologous ear reconstruction.

2. A buried prosthesis

Patients also have the choice of prosthetic ear reconstruction. Rather than using cartilage from the chest some surgeons utilise frameworks made of hard porous plastic material or even silicone. This is buried under the skin or a fascial flap and skin graft in much the same way as the cartilage framework. The reconstruction can be completed in one stage.

3. External prosthesis

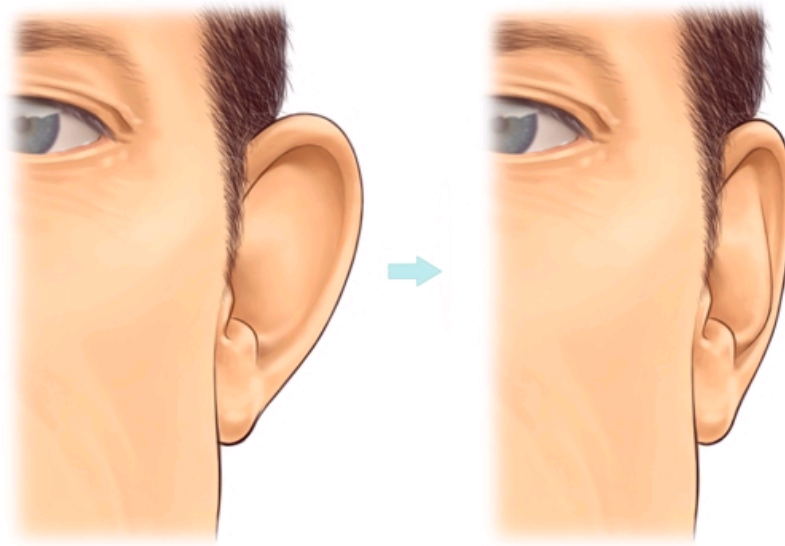
The final option is to wear an external prosthesis on top of the skin. A skilled prosthetist can create a very realistic ear using silicone. Pigments are used to give a realistic skin colouration. Patients may even be provided with a false ear for the summer and one for the winter. These external prosthesis maybe secured with special glue or alternatively, patients can opt for a more permanent bone-anchored prosthesis. This type of false ear is secured via two or three small titanium implants which are embedded into the bone at the side of the head over the course of two operations

What should I expect as a patient?

Of the reconstructive surgical options, autogenous reconstruction is widely regarded as the gold standard. Since the patient's own tissue is used the new reconstructed ear is very much part of them. It is robust and will heal if injured and there is minimal chance of infection or ulceration in later life. Ear reconstruction using rib is however regarded as a highly skilled procedure and patients are advised only to have this surgery in a centre of excellence. The main advantage of ear reconstruction using a buried plastic or silicone prosthesis is that there is no chest donor site. Thus one avoids a cut on the chest and the use of rib cartilage. This also means that the surgery can be performed at a younger age. However the long term risk of the plastic ulcerating though the skin makes this technique less popular worldwide. In a large series of such operations from China 13.5% of patients had problems with extrusion of the plastic through the skin. If the plastic becomes exposed it is likely to become infected and becomes a difficult problem. The use of an external prosthetic ear is relatively safe although the small titanium anchors can become infected. There can be difficulties finding a good skin-colour match and patients often report a sense of being incomplete arising from the daily removal of a false ear. Significant psychological adjustments are often required as patients incorporate the prosthesis into their lives.

4. Prominent ears

The ears are one of the first parts of the body to reach adult size. When the ear projects excessively it can be regarded as prominent. Around 2% of the population feel that their ears stick out too far. The problem is often inherited, and is caused by a lack of the usual cartilage folds in the ear.



In prominent ears the usual folds of cartilage that give the ear its shape are missing or underdeveloped. Prominent ear correction (otoplasty) recreates these folds in order to pin the ear back.

Most cases of prominent ears, become a problem in early childhood, often relating to teasing at school. Most surgeons advise that surgery for prominent ears is not undertaken until the child is old enough to understand what the surgery involves. At this stage the child is more likely to be cooperative and happy with the outcome. In addition one must consider that not all adults with prominent ears wish them to be corrected. Therefore if one operates on children prior to the acquisition of understanding a proportion will have been subjected to unnecessary surgery. For this reason, and because ear cartilage is often soft in the early years, operations for prominent ears are rarely performed on children under the age of five.

5. Cryptotia

Cryptotia means 'buried ear'. This is a relatively rare deformation in which the groove behind the ear is not fully formed. This is aesthetically displeasing and can cause difficulties in wearing glasses. This condition can occasionally be corrected using splints but more commonly is corrected surgically around the age of 5.

6. Other ear deformations

A variety of other ear deformations such as 'Stahls' bar and constricted ears are well recognise entities which maybe corrected by splintage otoplasty or ear reconstruction.

What surgery is available, and what techniques are involved?

1. Splintage

The cartilage in a baby's ear is very soft and malleable, and can be moulded with the use of splints if prominent ears are obvious from birth. Splints are fitted into the outer groove (scaphoid fossa) of the ear and fixed by strips of tape, with the ear then taped to the side of the head using a broad strip of tape. The pressure of the splint corrects the tendency of the ear to stick out, while maintaining the proper contours of the ear. To be effective, splints can be required for as little as two weeks in newborn babies, or for up to four months in babies aged six months or over. However, parents should be careful with babies over the age of three months, as the splints themselves can present a choking hazard.

What should I expect as a patient?

Splintage is a simple, safe and non-invasive procedure for the correction of prominent ears. However, there is only a limited window of time in which splints can be effectively applied. The decision to use splints is an aesthetic decision that ultimately rests with parents.

2. Otoplasty

Otoplasty is the term used to describe the surgical correction of prominent ears. Most surgeons recommend that this operation is not carried out until a child's ears are fully grown, which is usually around the age of eight. Some doctors will argue that the child should be left to decide for themselves. There is no right or wrong answer to this issue each child should be treated individually.

The surgery involves a general anaesthetic for children, although adults may be operated on under local anaesthetic only. During the operation, a cut is made behind the ear close to the groove between the ear and the side of the head. This incision exposes the cartilage, the ear may be set back by scoring the front surface to weaken the cartilage, removing a small piece of the cartilage bowl (concha) or by inserting some stitches at the back of the ear to reshape or to rotate it closer to the head. Once this is done, the skin is closed with a stitch and a protective bandage or head garment is usually applied.

What should I expect as a patient?

Many centres will perform the procedure as a day case without the need for an overnight stay in hospital. If surgery is late afternoon or evening a one night stay is reasonable.

Bandages are not always necessary although many surgeons use them to provide a little protection. Depending on the patient's age they may be removed between one and 7 days later.

After seven-to-ten days the stitches at the back of the ear are removed if necessary. Some surgeons advise the use of a headband at night and while playing sport for six weeks. Young patients can return to school after a week, and can resume all normal physical activities after six weeks. They will usually have follow-up appointments at one week and about three months after the operation.

There will be some discomfort following an otoplasty, and in some cases, patients may experience bleeding, bruising, infection and scarring. Very occasionally a corrected ear may drift back out, requiring a second operation. However, the operation is usually very successful, with 90-95% of patients happy with the outcome.

7. Trauma, infection, skin cancer, cauliflower ear

The loss or damage of ears through trauma is now more common in UK than ever before and sadly more common than in any other country. Most ear-trauma injuries are caused by biting, but some are also due to sharp lacerations. Attempts to replant ears in an emergency environment often yield poor results. Following a surgical 'tidy up', the damaged area is left to heal, and is then reconstructed using the same surgical methods described above for the treatment of microtia.

Acute swelling of the ear following trauma is usually due to a collection of blood clot (haematoma) under the skin. This should be dealt with as an emergency by surgical drainage through a small skin incision. In neglected cases the blood can become scarred and calcified leading to a thickened so called 'cauliflower ear'. Such deformity is common in boxers and rugby players. Surgeons usually recommend that patients finish their sporting careers before seeking treatment. Treatment usually requires elevating the skin from the front of the ear and thinning the calcified thickened tissue to recreate the ear shape. A compressive dressing is applied.

Infections of the ear, often relating to piercings, are treated on a case-by-case basis.

Unfortunately piercing of the cartilaginous part of the ear can result in late infection and loss of ear structure. This may then necessitate ear reconstruction with rib cartilage.

Skin cancer of the ear is usually treated by surgical excision and reconstruction, as described in the head and neck cancer section of this website.

8. Is ear surgery available on the NHS?

All interventions and procedures outlined in this section, both surgical and non-surgical, are usually available on the NHS – particularly where children are concerned. The correction of prominent ears in adults may need to be assessed on a case-by-case basis.

9. Where should I go for further information or support?

For more information on ear splints, go to the [Ear Buddies website](#)

Department of Health – [Cosmetic surgery](#)

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