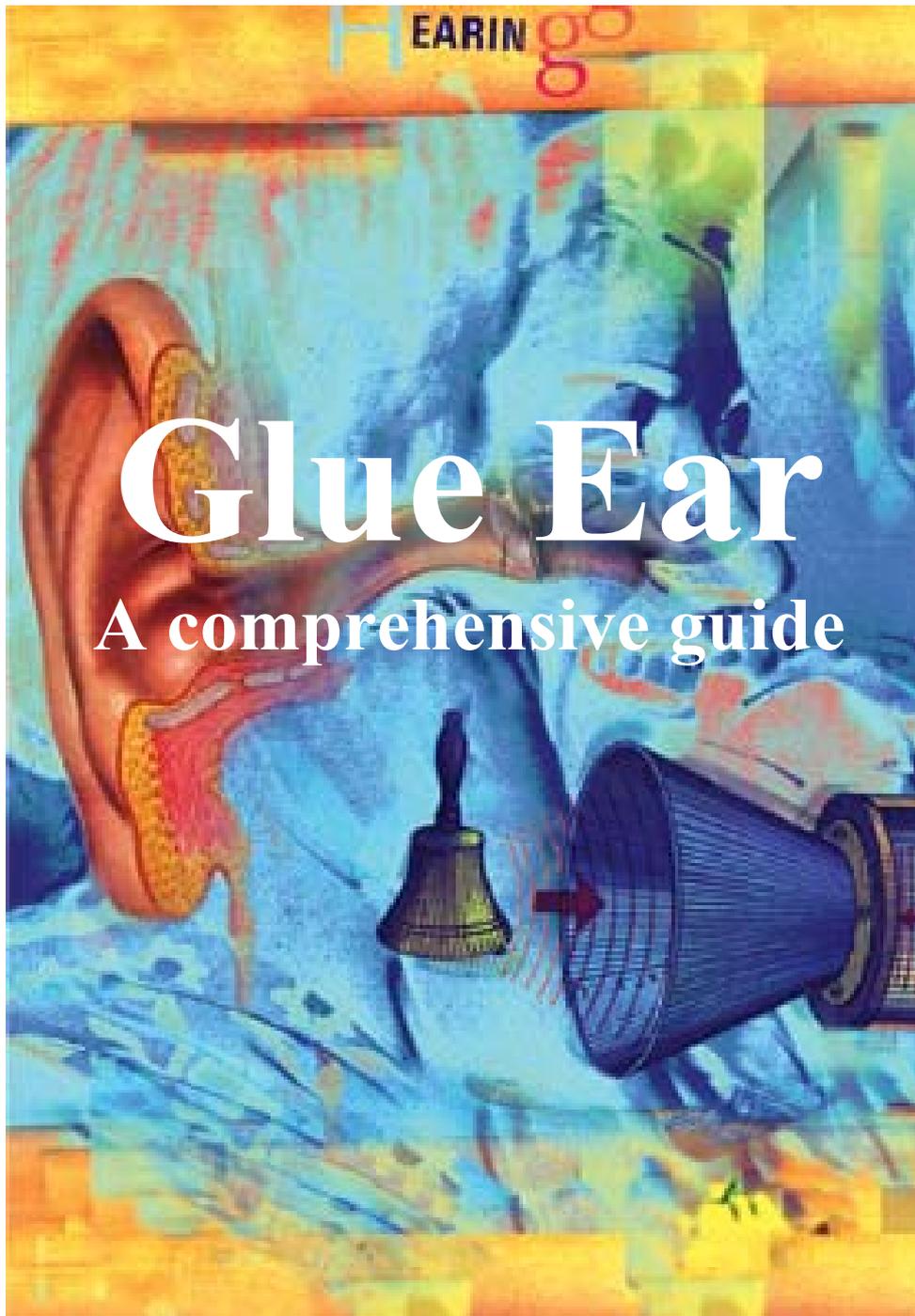


Glue Ear

A comprehensive guide



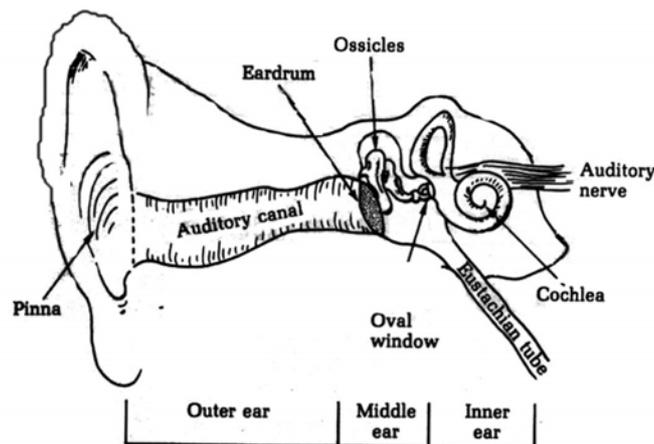
What is glue ear?

Glue ear is a condition in which sticky fluid builds up behind the eardrum, results in decreased hearing.

How does the ear work?

The ear is divided up into three areas, the outer, middle and inner ear (see diagram below). Sound waves enter your ear and hit the eardrum causing it to vibrate. Three little bones in the middle ear – Malleus, Incus and Stapes (Hammer, Anvil and Stirrup) pass on the vibrations from the eardrum to the cochlea. The cochlea (inner ear) transmits the vibrations to the hearing nerve (the auditory nerve) which then conveys the sound signals to the brain.

Figure 1 The diagram below shows the structures in the ear



What is the Eustachian tube?

The middle ear (which contains the three little bones) is usually full of air. This air space is connected to the back of your nose via a tube; the Eustachian tube. The Eustachian tube is normally closed but opens when you yawn or swallow.

When the Eustachian tube is working correctly it has three functions;

1. Equalises the pressure on both sides of your eardrum.
2. Allows fluid to drain away from your middle ear.
3. Stops the bugs from your nose and mouth entering your ear.

So how is the gluey fluid involved?

The gluey fluid fills the air space between the eardrum and the cochlea (the middle ear). This stops the eardrum and the three bones from vibrating freely and so the sound waves are dampened, as if someone has turned down the volume.

Who gets glue ear?

It is the most common cause of temporary hearing loss in childhood. 5% of 2-4 year olds will have persistent glue ear at any one time. By the time a child reaches 8 years old, the chances of getting glue ear fall, although occasionally adults will also get glue ear.

It is not really known why some children are more susceptible to glue ear. There are some risk factors, which increase the child's chances of getting glue ear.

Glue ear is more common in;

- Boys
- Wintertime
- Children who are allergic to pets, pollen or dust
- Children exposed to passive smoking
- Children that are bottle-fed rather than breastfed
- Children in childcare facilities who spend a lot of time with other children
- Children with genetic conditions such as cleft palate or Down's syndrome

Why are children more likely to get glue ear?

Babies and toddlers have shorter horizontal Eustachian tubes, which are more likely to block.

A child's immune system is not very good at fighting germs so they are more likely to get infections.

Children have adenoids, which are like little tonsils that sit near the opening of the Eustachian tube; if these are too big they can block the opening of the tube.

How will I recognise the symptoms of glue ear?

Glue ear can be difficult to spot as it usually affects both ears.

Poor hearing

This is the most common complaint. The level of hearing loss may vary from day to day and may be very mild or severe. A baby may be less responsive to sounds. Young children may turn up the volume on the TV or radio, they may not respond when spoken to or need things repeated. Older children may complain of impaired hearing.

Education and behaviour

Glue ear is like trying to hear the world around you when you have your fingers in your ears. If young children are unable to hear very well it is more likely that speech will take longer to develop. If the dulled hearing is severe and is not picked up the child may have difficulties following the teacher and may not learn so well at school. The same issue may cause problems with friends. The child may be frustrated leading to behavioural problems or isolation and withdrawal.

A high temperature, a very painful ear or feeling tired are not features of glue ear. If these symptoms are present then the diagnosis is unlikely to be glue ear.

How is glue ear diagnosed?

There are certain hearing tests and ear tests that can be performed to confirm the diagnosis and to see how bad the hearing loss is.

Otoscopy

Otoscopy involves looking at the eardrum with an instrument called an otoscope. With the otoscope the doctor is able to see if there is any fluid trapped behind the eardrum or whether the eardrum is moving normally.

Audiometry

Audiometry measures the level of hearing across a range of frequencies. The test usually performed in the ear, nose and throat (ENT) department by an audiologist. This involves assessing the response to sounds played through headphones, a vibrating pad on their head or through loudspeakers.

Tympanometry

Tympanometry looks at the eardrum to ensure it is moving correctly and also tests the function of the middle ear. This is also carried out by an audiologist in the ENT department. It is not painful and takes less than one minute for each ear.

Is glue ear treated?

In most cases glue ear is not treated and the outlook is good.

'Wait and see'

Most GPs will take a '*wait and see*' approach with a review after three months. The majority of children will only have the symptoms for a few weeks before the fluid drains away and hearing returns to normal.

In 50% of cases hearing is back to normal in three months and in 75% of cases hearing is back to normal in 24 weeks. For 10% the hearing loss will persist for a year or more.

During this period you can help by reducing any factors which make glue ear worse, for example exposure to passive smoking, avoiding allergens such as house dust mites and if possible breast feeding babies. Also blowing your nose can help open up the Eustachian tube.

If the glue ear is recurrent, the hearing loss is severe or it occurs in a baby the GP will normally refer the child to an ENT specialist. This is to rule out any serious cause of hearing loss in babies.

What treatment will the GP/ENT specialist offer?

Autoinflation

This involves blowing up a balloon with your nose. The concept is the same as that of pinching your nostrils and blowing air out of your nose when on an aeroplane to make your ears 'pop'. By blowing air into a balloon you are increasing the pressure in your nose and opening the Eustachian tube. This will help the fluid drain out of the middle ear.

Autoinflation is usually reserved for older children as it can be a difficult technique to master. The effectiveness of autoinflation is debated amongst doctors. The balloon is not currently available on the NHS so you would have to buy it.

Hearing aids

Hearing aids boost hearing and avoid the need for an operation. Research shows that most children adapt well to hearing aids and show a significant improvement in hearing and speech development.

There are some disadvantages;

- Hearing aids take a long time to fit.
- They require some maintenance for example new moulds as the child's ear grows, battery replacement and turning them on and off /volume adjustment.

- Hearing aids advertise the hearing loss and may stigmatise the child. Children under the age of 7 respond well and friends do not take any notice of the hearing aid.

Surgical Treatments

If the fluid in the middle ear is still there after several months and is interfering with speech development, surgery may be recommended.

1. Grommets

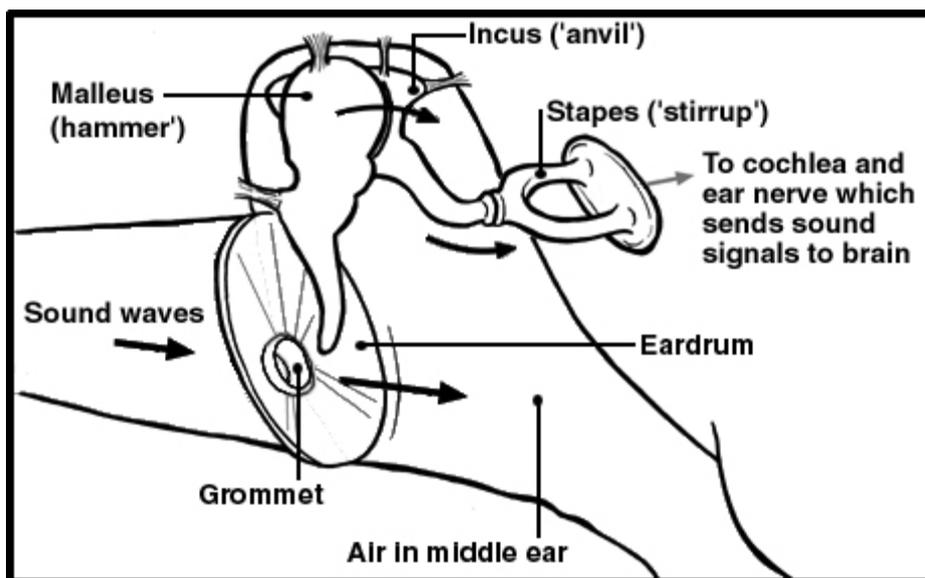
The insertion of grommets is the most commonly performed operation on children in the UK. It takes about 15 minutes and is performed under general anaesthetic, as a day case. Usually enabling the child to go home the same day.

A small hole (2-3mm) is made in the eardrum, the gluey fluid is drained and a grommet is inserted. A grommet (ventilation tube) is a small pipe 2mm long, which keeps the hole in the eardrum open. This allows air to enter the middle ear.

Figure 2 A picture of a magnified grommet



Figure 3 Where the grommet is placed



What will happen to the grommet?

As the eardrum grows the grommet is pushed out. Over time it comes away from the eardrum and moves outwards with earwax. It usually falls out of the ear, often unnoticed. The majority of grommets fall out within 9 to 12 months of the operation.

How successful is the operation?

In 50% of children, the insertion of grommets will cure glue ear permanently. The other half will need grommets reinserted within five years.

What are the risks involved?

The risk of complications from the general anaesthetic, if administered by a specialist anaesthetist in a healthy child is extremely low.

Children with grommets are more likely to get ear infections. In 1% of children, this will result in the removal of the grommets.

Rarely the hole in the eardrum does not heal by itself and an operation to patch up the hole when the child is older (8 to 10 years old) may be required.

What do I need to do after the operation?

There may be a small amount blood or discharge after the operation, this is normal and should clear up within two or three days. You can clean the outer ear but do not clean inside the ear, as this may irritate it further.

A mild earache is also common after the operation. Children's strength paracetamol or ibuprofen will relieve the pain.

Although the hole is very small, it is still advisable to take some precautions to avoid water entering the ear.

Swimming – It is fine to swim but avoid diving, which could force water into the ear.

Washing hair – Use earplugs or cotton wool with Vaseline to stop soapy water from entering the ears when washing hair.

Flying

Flying with grommets should be easier as the grommet allows air to pass freely between the outer and middle ear. Children with a history of frequent ear infections or have had grommets in the past but no longer have them are at a slightly increased risk of perforating an eardrum. If you are worried consult your GP before flying.

Discharge

Foul smelling discharge from the ear after the operation usually indicates that the ear is infected. A course of antibiotics from your GP will clear up the infection. This is not the gluey fluid draining out via the grommet.

2. Adenoidectomy

Sometimes the surgeon will suggest removing the adenoids with or without the insertion of grommets. Adenoids are similar to tonsils. They lie at the back of the nose near the opening of the Eustachian tube. As the child grows the adenoids shrink until they eventually disappear (usually at the age of 12). Occasionally the adenoids are too large and block the opening of the Eustachian tube. This can impair the draining of fluid from the middle ear. Removing the adenoids can help glue ear by allowing the Eustachian tube to drain.

How can hearing be made easier for the child?

- Inform relevant people (teachers, grandparents, carers etc).
- Be patient, it is equally frustrating for the child. Do not shout.
- Reduce all background noise when talking.
- Attract their attention before you start talking to them.
- Put your head at their level and face them when talking.
- Speak clearly but do not exaggerate mouth movements.

Further information

There are no support groups for children with glue ear, but the following websites may be useful.

NHS direct

www.nhsdirect.nhs.uk

The Royal national institute for the deaf (RNID) offers a comprehensive fact sheet

www.rnid.org.uk

ENT consent is a website offering information to patients undergoing ENT surgical procedures

www.entconsent.co.uk

Summary

- Glue ear is a common condition that affects young children.
- The most common symptom of glue ear is dulled hearing.
- Most cases resolve within 9 months without treatment.
- The insertion of grommets and/or removal of the adenoids can be an effective treatment of glue ear.