Glue Ear, Grommets and Adenoidectomy

"Glue ear" (or Middle Ear Effusion) is a condition in which fluid accumulates in the middle ear behind the ear drum. It is the commonest cause of partial deafness in children and it is estimated that one in three to four children are affected with glue ear at some stage of their lives.

The build up of fluid in the middle ear is due to a problem of blockage of the tube that connects the middle ear to the back of the nose (Eustachian tube)

The Eustachian tube normally plays an important role in maintaining equal air pressure between the outside and inside of the middle ear. When the tube becomes obstructed, often due to adenoid overgrowth, the air in the middle ear becomes absorbed and the resulting vacuum draws fluid into the middle ear cavity from the lining of the ear (the mucosa).

Initially the fluid is thin and watery but eventually it becomes thick and sticky, hence the name 'glue ear'. Because the middle ear is now filled with fluid rather than air, the hearing is muffled. Children often don't complain about hearing loss, as an adult may. Obstruction of the tube may be due to repeated bacterial and viral upper respiratory tract infections, enlarged adenoids or nasal allergy.

It is important to note that in children, the Eustachian tube is more horizontal and smaller than in adults and this is one of the reasons why glue ear is relatively more common in children.

Because of the change in size of the Eustachian tube as you get older, and because you tend to be less prone to infections as you get older, children may grow out of glue ear. However, it can take a long time, although it usually resolves by the age of 12. Glue ear may lead to delayed speech development, behavioural or educational problems. It can also cause irreversible eardrum damage.

Flying whilst Eustachian tube dysfunction or middle ear effusion is present is likely to cause severe earache on ascent or (particularly) descent. Eardrum rupture can occur. Grommet insertion resolves this possibility.

Treatment

There is some debate about how effective medical treatments are and the mainstay of treating children with glue ear is with ventilation tubes (grommets). When this has failed, a surgical option must be considered.

The decision to operate and insert a grommet in the eardrum is dependent on many factors such as the patient's age, whether there are recurrent middle ear infections, pain, speech delay, learning or behavioural difficulties. Recurrent middle ear infection on its own is sufficient indication to consider grommet insertion where medical treatment fails to stop it happening.

It can also depend on the appearance of the eardrum (for instance whether there is a retraction pocket, which is a localised area of scarring that may lead to problems).

Young children with poor language development, pain or recurrent ear infections may need to have grommets inserted as sooner, rather than later. Older children with few symptoms can be treated conservatively, with regular follow-up visits in the outpatient clinic, to monitor their hearing and the appearance of the ear drum.

The main objective of grommet insertion is to get rid of the fluid in the middle ear by allowing air to enter through the grommet, so temporarily bypassing the problem. Normal hearing is restored once this objective is accomplished.

Grommets are about half the size of a match head. On average, a grommet will stay in place between six to 18 months and will then fall out, as the healing eardrum pushes it out into the ear canal. The drum nearly always heals by itself at this stage.

If the child redevelops glue ear, it may be necessary to re-insert another grommet. The operation to insert a grommet is usually performed as day-case surgery under general anaesthesia and it is one of the most common operations in the world.

Complications

The main complication associated with grommets is infection, but this can be treated with oral antibiotics or ear drops. In order to prevent infection, children with grommets are usually advised to use ear plugs and a bathing cap when going swimming and also to avoid diving, although opinions among surgeons do vary. This is particularly important in children with sinusitis or rhinitis. Ear protection, (water-proof earplugs, or Vaseline-coated cotton-wool) against water in the bath , shower or washing hair is important. However, infection can also arise from the nose via the Eustachian tube, even when the ears are well protected. Repeated infections may necessitate grommet removal. Grommets blocked with wax or secretions may need to be replaced, under anaesthetic. Grommets may fall out too early, and middle ear secretions can return – sometimes requiring repeat grommets. Other complications include permanent eardrum perforation. This may cause few problems, but may be associated with repeated infection. Damage to middle ear structures and permanent hearing loss are possible, but extremely rare complications. Very narrow ear canals make it difficult to insert grommets, and there may be some temporary bleeding. *Failure* to insert grommets when they are indicated may result in educational deficit or permanent eardrum damage.

Adenoidectomy usually causes a mild to moderate sore throat for a few days. Calpol and/or Nurofen is adequate if given regularly. There may also be a slight foetid odour (bad breath) for a few days post-op. Bleeding is a rare complication. *Urgent* admission at Northwick Park A&E Dept is needed, should this arise. Recurrent adenoid growth may occur, and this may be caused by allergic tendency.

Links

- The National Deaf Children's Society has produced a downloadable leaflet on glue ear in children

  www.ndcs.org.uk/information/childhood_deafness/glue_ear/index.html