

## **Treatment with Grommets (middle ear ventilation tube)**

Grommets are small tubes that are used to treat patients with middle ear and Eustachian tube problems. They may be used for patients with acute otitis media, recurrent acute otitis media, chronic otitis media with effusion (glue ear) or for patients who have a Eustachian tube which is not functioning adequately.

### **Acute otitis media**

Acute otitis media is an acute infection of the middle ear that can cause pain, fever and an inflamed eardrum. Occasionally the eardrum can burst, resulting in an ear discharge. Often this infection settles down quickly and requires not treatment, but sometimes antibiotic treatment is required. Fluid in the middle ear that remains after the infection may take weeks or months to resolve. They most commonly occur in children but can occur in adults.

### **Recurrent otitis media**

Otitis media is ‘recurrent’ when the infection occurs three or more times in six months or four times in twelve months. Recurrent ear infections can cause permanent inner ear hearing loss and interfere with speech and language development.

### **Chronic otitis media with effusion (glue ear)**

When fluid is present behind the ear drum for three months the condition is called glue ear. The term “glue” is used because the fluid is often very thick and sticky at this point and prevents the transmission of sound. It can occur in children or adults. Common causes are –

- a poorly functioning Eustachian tube – this can be due to many causes including childhood age, immune problems, structural problems such as a cleft palate.
- a recent middle ear infection

Normally fluid from the middle ear drains down the Eustachian tube into the nose. If this tube is not functioning properly it can take many months for this to occur. During that time hearing is generally reduced and there may be a delay in speech development, learning difficulties, behavioural problems, earache and balance problems.

Most cases will settle down without medical treatment. If the glue is present for more than three months treatment is usually indicated.

### **Complications of persistent glue ear**

If glue ear is not treated the eardrum can gradually be pulled inwards causing thinning and occasionally a condition called a “cholesteatoma”. This occurs when skin cells become trapped within the retracted eardrum. Cholesteatomas can grow into the brain or inner ear. They require surgical removal.

### **Grommets (ventilating tubes)**

Grommets are small tubes placed in the ear drum to treat recurrent acute otitis media and glue ear. that are placed in the eardrum to help treat recurrent otitis media and glue ear. Grommets allow air to flow into the middle ear and glue to drain out.

### **Benefits**

- Hearing – when grommets are inserted all the glue is suctioned away. Hearing should return to normal levels as long as there has been no inner ear damage from ear infections.
- Behaviour of children – it has been observed that when glue is removed children’s behaviour often improves.

- Prevention of retraction pockets and cholesteatoma – grommets prevent further damage to the eardrum, middle ear bones and reduce the risk of cholesteatoma formation.
- Decrease the frequency of ear infections – grommets help to decrease the frequency and severity of ear infections.

### **Anaesthesia**

Children are given a very short acting general anaesthetic usually without intubation. In some adults the procedure can be performed under local anaesthesia.

### **Surgical placement of a grommet**

1. Incision of the eardrum - Looking through a microscope, a small incision 2-3mm in size is made in the ear drum (a myringotomy).
2. Suction of fluid – any fluid sitting behind the eardrum is gently suctioned away.
3. Insertion of the grommet - The grommet is gently levered into the ear drum incision with one flange sitting on either side of the eardrum.

The procedure takes around 20 to 30 minutes and the patient will go home the same day.

### **Adenoidectomy**

In some patients it is necessary to remove the adenoids at the same time as inserting grommets. This can help to prevent glue ear or recurrent ear infections. Adenoid tissue is lymphoid tissue similar to that in the tonsils. They are located at the back of the nose and can block or infect the area around the Eustachian tube.

### **Recovery and care after surgery**

Most patients go home shortly after waking from their anaesthetic. The procedure is usually painless or only mild painful. Some yellow or blood-stained fluid may leak from the ear for one or two days. This can be gently wiped with cotton wool but cotton buds should never be used.

Children can usually return to school the day after surgery. If adenoids are removed, the patient should stay at home for longer but usually no more than a week.

Traditionally once grommets were inserted it was necessary to prevent any water entering the ear until the grommets fell out. In recent years this recommendation has been modified and some water exposure is permitted. Soapy water can be problematic and you may need to block the ears while showering. Swimming on the water of a pool is safe but diving should be avoided. Some people still need to avoid all water entering the ear. There are many ways to achieve this including –

- Soft silicone or putty ear plugs, Blu tac or similar pliable substance
- Cotton wool coated with petroleum jelly
- Made to measure moulded earplugs (especially for swimming)
- An ear wrap or swimming cap in addition to ear plugs

There is not problem with air travel after surgery.

A hearing test is usually performed after grommets are inserted to ensure that hearing is now within the normal range. Follow up visits are required until the grommet falls out (which they are designed to do). Generally as grommets fall out the eardrum heals itself behind. This usually occurs after six to twelve months but it can take as long as two years.

### **Risks of treatment with a grommet**

- Post-operative infection. Generally ear drops are used after surgery to help prevent persistent ear infection. If the ears continue to discharge after a day or so after surgery further treatment may be necessary to treat the infection.
- Perforation of the eardrum. There is a 2% risk of the grommet leaving a non-healing hole in the eardrum. Often this will eventually heal but occasionally an operation to repair the hole (myringoplasty) is necessary.
- Infection. The ears may begin discharging after a cold or after water exposure. This can usually be treated with antibiotic drops. Rarely the grommets need to be removed.
- Recurrence of glue ear or otitis media. After the grommet comes out, the condition may recur because the cause has not resolved. About 20% of patients who need grommets may require a second set.
- Blocked grommet. The grommet has a small hole in the centre. This can become blocked with dried infection or blood. Usually this can be cleared with drops but occasionally the grommet needs to be replaced.
- Retention of the grommet. Occasionally the grommet does not fall out and needs to be removed surgically. This is usually not done until a few years after insertion.
- Early displacement of the grommet. This occasionally occurs and may require reinsertion of the grommet.
- Thinning of the eardrum at the site of the grommet insertion can occur but usually does not cause a problem.
- Small calcium deposits (tympanosclerosis) can occur on the ear drum at the site where grommets have been inserted. This does not affect hearing.
- Rarely the grommet may fall into the middle ear. If the hole in the eardrum heals and the patient has no symptoms, there may be no need to remove the grommet. In rare cases the surgeon may need to operate and remove the grommet.

### **Risks of not having treatment**

Talk to your surgeon regarding your case if you wish to know the risks of choosing not to have treatment. Due to persistent fluid in the middle ear, the consequences could be:

- ongoing conductive hearing loss
- damage to the eardrum
- damage to the bones of hearing (hammer, anvil and stirrup)

A few children with frequent recurrent ear infections can develop partial high frequency hearing loss caused by spread of inflammation to the inner ear. Such damage is permanent.

### **Report to your surgeon**

Tell your surgeon at once if your child develops any of the following:

- fever higher than 38 degrees C or chills
- headache and loss of appetite
- pus draining from the ear or any discharge that continues for longer than one week after the grommet placement
- any troublesome ear symptoms, especially severe headache
- after adenoidectomy, any delayed bleeding from the adenoid area
- any concerns you have regarding the surgery