

Patulous Eustachian tube

Patient information leaflet

If you require a translation or an alternative format of this leaflet please call Patient Advice & Liaison Service on 01296 316042

How can I help reduce healthcare associated infections?

Infection control is important to the well-being of our patients and for that reason we have infection control procedures in place. Keeping your hands clean is an effective way of preventing the spread of infections. We ask that you, and anyone visiting you, use the hand sanitiser available at the entrance to every ward before coming in to or after leaving the ward. In some situations hands may need to be washed at the sink using soap and water rather than using the hand sanitiser. Staff will let you know if this is the case.

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Patulous Eustachian tube

Patulous comes from the word 'patent' or 'open'. The Eustachian tube is normally closed in the resting position and prevents air and fluid as well as sound from passing from the back of the nose and throat up into the ear. The Eustachian tube is supposed to open to regulate air pressure inside the middle ear and typically does this during a strong swallow or a yawn. When patulous, the Eustachian tube becomes stuck in the open position and causes voice and breathing noises from the nose and throat to travel up the tube and be heard loudly in the ear. It can also cause a sensation of pressure changes in the ear with breathing. It is often difficult for doctors and even specialists to make an accurate diagnosis of this condition.

Most patients with a patulous Eustachian tube experience a symptom called autophony. This refers to hearing your own internal noises amplified excessively. The most disturbing and loudest sounds are usually your own voice and nasal breathing and it sounds as if you are talking and breathing into a wind tunnel or echo chamber. The symptoms can usually be at least temporarily relieved by sniffing in or by lying down or placing your head down between your knees. This causes some temporary tissue swelling in the head and Eustachian tube that can force the tube to close. Some patients can gently sniff inward and get lasting relief of symptoms as the vacuum can at least temporarily close the Eustachian tube. However, excessive sniffing can cause negative pressure within the middle ear that can lead to a sucked-in eardrum and fluid in the middle ear. This creates confusion as patients and doctors will be led to believe that the Eustachian tube is blocked (Eustachian tube dilatory dysfunction), causing glue ear.

It is a day surgical procedure and does not require an overnight stay in the hospital. If patients wish to fly home after the procedure we place a grommet in the eardrum during the operation so they can comfortably fly home and the grommet will fall out within a few months. The Eustachian tube would be blocked due to the swelling of the surgery on a temporary basis making it uncomfortable to fly without a ventilating grommet.

Risks of surgery

Although the surgery is a relatively simple procedure, there are potential complications:

1. Nosebleeds on the day of surgery – usually very mild and stop without any further treatment.
2. Tooth damage from the instrument used to hold the mouth open during the operation.
3. Failure to stop the autophony requiring a top up procedure
4. Fluid build up behind the ear drum which may clear on its own, but if it doesn't, a grommet can be placed in the drum.
5. A feeling of pressure in the head which usually clears after surgery but occasionally can be permanent.

Please contact the ENT office if there are any additional questions and we will be happy to help.

Patulous Eustachian Tube reconstruction (PETR) with grafts or implants

Reconstruction of the patulous defect can be accomplished by removing most of the lining of the Eustachian tube to make a raw surface inside the tube. The intention is to narrow the tube down without completely blocking it. Most commonly, fat implant is packed into the raw channel of the Eustachian tube and the opening is closed with sutures. This procedure temporarily causes complete blockage of the channel and necessitates placing a grommet into the eardrum, which will stay in place until there is evidence that the Eustachian tube is functioning again, usually after a few months.

Obliteration of the Eustachian tube will relieve the patulous Eustachian tubes usually on a permanent basis. A grommet in the eardrum will usually be required permanently to prevent ear blockage, deafness due to fluid build-up in the ear, and other complications. Grommets can sometimes become blocked with mucus, so obliteration is not a first choice.

It would be reasonable to offer a surgical repair if you have failed medical efforts for treatment of your patulous Eustachian tube condition and your Otolaryngologist (ear specialist) is certain you have a patulous Eustachian tube after seeing the eardrum move.

Treatment is often directed to try to open up the Eustachian tube in such cases which is contrary to resolving the actual patulous problem.

Another condition called Superior Semicircular Canal Dehiscence syndrome (SSCD) is an inner ear problem that can cause autophony similar to a patulous Eustachian tube with amplification or echoing of a person's voice in their ear, but they usually do not have autophony of their nasal breathing. A doctor will have to differentiate between these two.

The most conclusive method for diagnosing a patulous Eustachian tube is for an ear doctor to actually see the eardrum moving in and outward while the patient does strong nasal breathing through the same side as their symptoms and holding the opposite nostril closed. This usually needs to be done while sitting up. The pressure changes will go right up the Eustachian tube and move the eardrum and the doctor can see this. This examination should be done while the autophony symptoms are present. If the patient cannot make the symptoms active during the clinic visit then some brief exercise such as deep knee bends, running up and down some stairs, or jogging around the block can usually recreate symptoms as adrenaline levels will shrink the Eustachian tube to a more open position.

Medical treatment

There are some useful medical treatments for patulous Eustachian tubes. Increasing fluid intake generally, nasal saline drops or rinses/irrigations can be very helpful in wetting the mucous membrane of the Eustachian tube that becomes dried out.

For a more potent irritation effect that can stimulate more swelling of the mucous membrane and more secretions, extra strength nasal drops can be made by mixing four teaspoons of table salt into a cup of water. Some irritants have been found to effectively swell the Eustachian tube to a closed position. A commonly used weak acidic solution can be purchased on the internet without prescription ('PatulEND'). Patients find it of varying benefit, but the irritation usually improves within the first few days. If there is evidence of any beneficial effect within the first two weeks it can be continued for two months to try to gain a lasting benefit. It is not intended for extended use, but it might be used on occasion if symptoms arise in the future.

Drops need to reach the Eustachian tube opening in order to be effective. They should be applied laying on your back with the head rotated to face the ceiling, nose straight up in the air. Apply the drops first to one side and as you feel them moving toward the back of your nose, rotate your head 45 degrees toward that side. You should feel a tickle in the back of your nose and throat that extends toward your ear when the drops contact the Eustachian tube opening. After a few seconds you can repeat the procedure on the opposite side, if indicated. Hormone nasal drops (estradiol or Premarin – prescription required) induce swelling of the mucous membranes of the Eustachian tube and are usually tried for six weeks to see if they will give lasting benefit.

Surgical treatment

An Otolaryngologist (ear, nose and throat surgeon) will sometimes place a grommet (ventilating tube) such as are used in children's ears to drain fluid. The grommet will sometimes relieve the patulous Eustachian tube symptoms but it is mostly effective in preventing the pressure changes that make the eardrum move. It is less effective for treating the autophony.

The patulous Eustachian tube is due to a defect in the wall of the Eustachian tube in which the wall becomes excessively thin and the valve can no longer close reliably. The defect in the valve is visible by placing an endoscope through the nostril to view the Eustachian tube opening in the back of the nose at the nasopharynx.

We perform two different types of nasal endoscopic minimally invasive surgery to correct the patulous defect. Patients are asleep (using general anaesthesia) and they can be discharged after adequate recovery (day surgery). The procedures use materials that are not approved for use in the Eustachian tube, but many treatments in medical care have not been approved.

Injection of Bioplastique (more commonly used to help bulk vocal cords) can be done for small defects in favourable locations. Larger defects may require more than one treatment.