

Tympanoplasty

Surgical Information



ENT Bowling Green

Tympanoplasty

Purpose:

Tympanoplasty is a surgical procedure to reconstruct a hole (perforation) in the eardrum (tympanic membrane). This may be performed in conjunction with reconstruction of the ossicular chain (middle ear bones) to improve hearing loss resulting from loss of connection between the eardrum and inner ear. The primary goal of surgery is to provide a safe, dry, healthy ear. The secondary goal is to improve hearing, if possible.

General Information:

The eardrum is a thin membrane deep in the ear canal that vibrates when sound waves hit it. Vibration of the membrane transfers sound energy through the ossicular chain into the inner ear, which allows us to hear. A perforation of the membrane can result from a bad ear infection; a surgical procedure such as ear tube placement, or trauma such as a Q-tip jabbed deep into the ear canal. Typically, a perforation will close all by itself without the need for surgery. If a perforation has been present for more than 3 months without infection or drainage, it is unlikely to close by itself. A tympanic membrane perforation can result in hearing loss, recurring or chronic middle ear infection with a draining ear, or cholesteatoma formation.

The hearing loss resulting from a tympanic membrane perforation varies depending on size and location of the hole. They never cause complete deafness and the hearing usually returns to normal (or very close to normal) when the perforation is repaired.

Tympanic membrane perforation creates an increased potential for middle ear infection resulting in pus-like drainage from the ear. Bacteria from the ear canal or from dirty water can be carried into the middle ear through the perforation. The infection and drainage may be intermittent or chronic. Typically, the infection can be cleared with the use of antibacterial eardrops. The ear should be completely dry and free of infection prior to performing a tympanoplasty. If the infection cannot be cleared, then an additional procedure, called a mastoidectomy, may also need to be performed to clear the chronically infected tissue from the middle ear and mastoid cavities. Please notify your physician if the ear starts draining prior to undergoing a tympanoplasty.

Cholesteatoma is a benign tumor of the middle ear that can result from migration of skin into the middle ear space from the margins of a tympanic membrane perforation. As old skin flakes off and new skin cells are produced, a cyst filled with dead skin is formed which progressively enlarges within the middle ear, eroding and destroying everything in its path including the ossicular chain and/or the walls of the middle ear space.

Description of Procedure:

There are two ways to repair a tympanic membrane perforation: myringoplasty and tympanoplasty. Both procedures are typically performed under a general anesthesia, although myringoplasty can sometimes be performed on adults in the clinic setting with a local a local anesthesia.

Patch myringoplasty is a procedure in which some material is used to cover the perforation in an effort to encourage the body's normal healing process to close the hole. Various materials including cigarette paper, gel film, or fat from the lobule of the ear can be used for the patch. This procedure only takes 10 to 15 minutes to perform. However, it is only useful for very small perforations.

Tympanoplasty is a longer procedure performed through an incision behind the ear (postauricular incision). A patch of tissue, called fascia, is harvested from a muscle above the ear to repair the perforation. The eardrum is elevated like a trap door and the fascia patch is slipped behind the eardrum to cover the hole. The eardrum is then laid back in its natural position over the patch. Absorbable packing material is placed on both sides of the reconstructed membrane to secure the patch. As healing occurs the fascia patch becomes integrated into the tympanic membrane.

Ossicular chain reconstruction may be performed in conjunction with tympanoplasty to repair the middle ear bones (ossicles) if they have been disrupted or destroyed by infection, cholesteatoma, or trauma. One of the native ossicles can be removed and modified to reconstruct a connection between the eardrum and the inner ear. Alternatively, a fabricated prosthesis made from hydroxyapatite or titanium can be implanted to reconstruct the connection.

Potential Complications of Tympanoplasty:

Although tympanoplasty is rarely associated with complications, there are several potential complications that can arise. Description of these risks is provided so that you can make an informed decision about proceeding with surgery. Your surgeon feels that the potential benefits of surgery outweigh the potential risks.

Infection and bleeding

Infection and bleeding are risks of most any surgical procedure but rarely occur following tympanoplasty. Postoperative infections usually resolve with appropriate antibiotic treatment. Bleeding usually easily controlled with pressure applied to the bleeding site.

Tympanic membrane perforation

Failure of the fascia patch to heal to the eardrum can result in a persistent perforation postoperatively. The success rate of tympanoplasty is 90 – 95%. The presence of infection at the time of surgery dramatically increases the incidence of failure. Therefore, you should notify your physician about any drainage noted from the ear prior to surgery. The surgery may need to be postponed until the infection has cleared. The success rate decrease in patients who have had previous failed attempts to repair the perforation.

Alteration of sense of taste

Injury (stretching or cutting) to the chorda tympani nerve is not uncommon in tympanoplasty procedures because the nerve travels along the undersurface of the eardrum. This nerve is one of four nerves that provide the sense of taste to the tongue. Typically, injury to the nerve does not cause a noticeable alteration in the sense of taste because the other nerves provide adequate compensation. However, some people may experience an alteration in the sense of taste that usually resolves within 3 – 4 weeks. The altered sense of taste may be permanent in less than 5% of patients.

Cholesteatoma formation

Cholesteatoma can form from skin that gets trapped in the middle ear space behind the reconstructed eardrum. This is extremely uncommon following a tympanoplasty but requires additional surgery for management.

Facial weakness or paralysis

Injury to the facial nerve is a risk of any type of middle ear surgery because the nerve travels along the inside wall of the middle ear space. In some patients, the bony canal through which the nerve travels has been destroyed by chronic infection or cholesteatoma, leaving the nerve exposed and at risk for injury. The incidence of facial nerve injury during ear surgery is extremely low, occurring in less than 1% of patients. However, injury to the nerve can be very disfiguring resulting in complete paralysis of one side of the face with loss of the ability to raise the eyebrow, close the eye, flare the nostril, and move one side of the mouth. Additional surgical procedures may be required to reanimate the face.

Hearing loss

Hearing loss is a risk of any type of ear surgery. Hearing will actually improve the hearing in most patients undergoing tympanoplasty due to improved amplification of sound energy by the reconstructed eardrum. However, scar tissue can stiffen the eardrum or ossicular chain resulting in decreased hearing.

Dizziness

Dizziness, described as a spinning sensation (vertigo) or loss of balance (disequilibrium), may be experienced after undergoing middle ear surgery. The incidence of postoperative dizziness is extremely low following tympanoplasty, but more common following ossicular chain reconstruction or mastoidectomy. The dizziness usually resolves within 24 hours after surgery but may persist up to several weeks in some patients. Physical therapy is rarely required to help recover a sense of balance.

Anesthesia risks

Risks of general anesthesia are uncommon but should be discussed with your anesthesia provider.

Alternatives to surgery:

Not all tympanic membrane perforations have to be repaired. As long as the middle ear space is dry without infection or drainage, then a conservative approach of observation with repeat examinations every 6 months can be considered. There is a risk of developing recurrent or chronic middle ear infection with draining ear or developing a cholesteatoma, which can lead to hearing loss, facial paralysis, dizziness, meningitis, or brain abscess. Water should be kept out of an ear with tympanic membrane perforation by using an earplug when bathing, showering, or swimming to help prevent infection.

Postoperative Instructions:

What can I expect after surgery?

Tympanoplasty usually requires 1 - 2 hours depending on the difficulty of the procedure. After completion of the procedure, you will be transferred to the recovery room under the care of the anesthesia staff for 45 - 60 minutes to recover from the general anesthesia. Once cleared by the anesthesiologist, you will be transferred to outpatient surgery for continued observation until discharge criteria are met. Discharge criteria include ability to breath without difficulty, maintain adequate oxygen in the blood, tolerate liquids by mouth, urinate, and walk with assistance. The observation period is usually approximately 2 hours. Most patients can be discharged home on the same day of surgery. Some patients may require overnight observation in the hospital if discharge criteria are not met or if the surgery is completed too late in the evening to anticipate discharge home at a reasonable time.

Will I experience much pain?

Postoperative pain is usually mild to moderate and easily controlled with pain medications. The worst pain is usually on the day of surgery and then fairly quickly improves to mild pain. Most of the pain has typically resolved by the time of your one-week postoperative visit.

Your surgeon will most likely provide a prescription for a narcotic pain medication combined with acetaminophen (Tylenol). Children may receive Tylenol with codeine liquid. Adults typically receive Tylenol #3, Lortab, or Percocet tablets. Please do not use these medications more than the dosage prescribed because these medications can be very sedating and the Tylenol can be toxic to the liver in excessive doses. You should not drive or operate heavy machinery when taking these medications because they significantly impair judgment and may lead to accidents. If your pain is mild, Tylenol can be used as an alternative to the narcotic medications.

Do not take any anti-inflammatory medications, including aspirin, ibuprofen (Motrin, Advil), naprosyn (Alleve), unless approved by your surgeon. These medications may increase bleeding risks.

Is nausea or vomiting expected?

It is very common for patients to have nausea and vomiting following a general anesthetic. This usually resolves within a few hours after the surgery but may persist for 12 – 18 hours. Keeping the stomach empty for 2 hours following an episode of vomiting followed by a clear liquid diet for 6 – 12 hours is usually adequate to control the symptoms. Phenergan may be used at your surgeon's discretion to help alleviate symptoms.

Narcotic pain medications can also commonly cause nausea and vomiting. Eating some food before taking the medicine may help. Alternatively, Tylenol can be used for pain, which should not cause nausea.

Are there any dietary restrictions?

A clear liquid diet should be followed for the first few hours after the surgery until the nausea has resolved. You can advance fairly quickly to a normal diet as tolerated.

Are there any activity restrictions?

NO NOSE BLOWING!!!! Blowing the nose can force air up through the eustachian tube and dislodge the fascia patch used to reconstruct the eardrum. You should keep your mouth open when you sneeze so that the force of the sneeze passes through the mouth rather than the nose.

No jumping or contact sports for four weeks if ossicular reconstruction is performed because there is a risk of dislodging the ossicles before they become fixed.

How do I care for my ear after surgery?

You will have a mastoid dressing cupped over your ear, which is secured by a Velcro strap around the head. The dressing is filled with gauze, which will become partially saturated with bloody drainage on the day of surgery. The mastoid dressing should be completely removed on the first day after surgery. There will be a cotton ball lying over the ear canal, which will probably be soiled with old blood and drainage. This should be removed and replaced with a clean cotton ball. The cotton ball can be changed as needed for soiling after that time.

The gauze behind the ear should also be removed, uncovering the postauricular incision. The incision should be cleaned twice daily with a solution made by mixing equal amounts of hydrogen peroxide and water. A cotton swab dipped in this solution can be used to gently clean old blood and debris from the incision. The incision should be lightly covered with Bacitracin ointment after each cleaning (the ointment may be provided to you at the hospital but can also be purchased over-the-counter at most pharmacies). The incision does not need to be covered with any type of gauze. Continue the incision care until your one-week postoperative follow-up.

Can I wash my hair?

When you take a bath or shower, you should place a cotton ball coated with Vaseline over the ear canal to prevent water from getting into the ear. It is okay to use shampoo and let water run over the ear, but don't let water spray directly on the ear or submerge the ear under water. After completing your bath or shower,

replace the Vaseline coated cotton ball with a fresh dry one and gently blot the postauricular incision dry before applying the Bacitracin ointment.

Is drainage from the ear normal after surgery?

You can expect some mild bloody drainage from the ear for up to a week after the surgery. Just keep a cotton ball over the ear canal to collect the drainage and change it as needed for soiling.

Will I be able to hear after surgery?

The ear canal and middle ear space will be completely filled with absorbable material following surgery, which results in markedly decreased hearing in the operated ear. The packing in the ear canal will gradually dissolve over a 4-week period after surgery. Eardrops will be started at the first postoperative visit to help dissolve the packing. The packing behind the eardrum in the middle ear space takes 2 – 3 months to dissolve. The final postoperative hearing result will not be apparent until that time. We will obtain a postoperative hearing test 2 – 3 months after surgery.

What should I watch for that might indicate a problem?

Fever as demonstrated by temperature over 101.5 degrees Fahrenheit may be a sign of infection. Redness of the skin around the postauricular incision that spreads away from the incision is a sign of infection. Progressive swelling behind the ear that causes the ear to protrude away from the head may be a sign of fluid or blood collecting under the skin, which may need to be drained.

When can I return to work or school?

Usually one week off from work or school is recommended after surgery. You can return sooner as long as duty is light and narcotic pain medications have been discontinued.

When will I see my physician again?

A postoperative visit should be scheduled one week after surgery. It will be a brief visit for evaluation of healing.

Who should I call with any problems?

Office: 782-7768 or Dr. Sims Cell: 270-791-1006

These numbers can be called anytime 24 hours a day. If you call at nighttime or on the weekend, you will get an answering machine. The first option on the machine is to leave a message for the physician on call. Just leave your name and number and a brief description of your problem or question. The on-call physician will return your call as soon as possible. If you think you have an emergency, please go straight to the emergency room at your hospital and ask them to contact your surgeon.