



PERFORATED EARDRUM

A perforated eardrum is a hole in the eardrum or tympanic membrane, the thin membrane that separates the ear canal from the middle ear space. The eardrum functions to collect sound waves entering the ear canal and transmits them to the ear bones of the middle ear space. The middle ear space is connected to the back of the nose by the Eustachian tube, which functions to equalize pressure between the middle ear space and the outside world. A perforated eardrum is usually accompanied by decreased/muffled hearing, and it is occasionally accompanied by drainage from the ear. Pain is usually not present.

What causes an eardrum perforation?

The cause of a perforated eardrum is usually trauma or infection. Examples of traumatic injuries which can lead to a perforated eardrum include the following:

- Direct trauma to the ear
- A skull fracture affecting the bone that houses the middle ear and inner ear structures
- A sudden explosion or other loud noise
- An object such as a Q-tip or Bobby-pin pushed too far into the ear canal
- Scuba diving or other pressure changes

Middle ear infections may also lead to spontaneous rupture of the eardrum, resulting in a perforation. In this circumstance, there may be infected or bloody drainage from the ear. This is called acute otitis media with resulting tympanic membrane perforation.

On rare occasions, a small hole may remain in the eardrum after a previously-placed pressure equalization tube either falls out or is removed by a physician.

What is the natural course of an eardrum perforation?

Most eardrum perforations heal spontaneously within weeks after rupture; however, some may take up to several months to heal, and rarely, a perforation persists unless surgically closed. During the healing process, the ear must be protected from water and further trauma.

What is the effect of a perforated eardrum on hearing?

Usually, the larger the perforation, the greater the loss of hearing. The location of the perforation in the eardrum also affects the degree of hearing loss. If severe trauma (e.g. skull fracture) disrupts the middle ear bones, which function to transmit sound, or causes injury to the inner ear, hearing loss may be severe.

If a perforated eardrum is due to a sudden traumatic or explosive event, hearing loss and associated ringing in the ear (tinnitus) may be severe. In this case, hearing usually improves somewhat and tinnitus diminishes within a few days.

What is the treatment for a perforated eardrum?

Before attempting correction of a perforation, a formal hearing test (audiogram) should be performed. The benefits of closing a perforation include prevention of water entering the middle ear while bathing or swimming (which could cause an ear infection), improved hearing, and diminished tinnitus.

If a perforation is very small, your Ear, Nose, and Throat physician may choose to observe it over time to see if it will close on its own. If the perforation is larger, your Ear, Nose, and Throat physician may discuss the option for surgical repair. There are several surgical approaches that can be employed to repair a perforated eardrum, but each involves placing tissue from another part of the body over the perforation to promote healing. The most common tissue grafts that are used include the covering of muscle called fascia from behind the ear, and thinned cartilage from the ear itself. Fat grafts may also be used. This procedure is called a “tympanoplasty.” Surgery is typically successful in closing the perforation and improving hearing, and it is usually done on an outpatient basis.

Your doctor will advise you regarding the proper management of your perforated eardrum.

(Information adapted from the American Academy of Otolaryngology-Head and Neck Surgery, Alexandria, VA)