

EAR AND BALANCE CLINIC

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CHOLESTEATOMA AND CHRONIC MIDDLE EAR DISEASE

Cholesteatoma usually occurs as an extension of chronic middle ear infections due to eustachian tube dysfunction. It is simply a cyst made of skin, that is initially small, but continues to grow and expand. When cholesteatoma grows in the middle ear or mastoid, an operation is needed to remove it.

How Does Cholesteatoma Grow?

Cholesteatoma grows into the middle ear through the eardrum by three routes. In the first, (primary acquired) negative pressure related to poor eustachian tube function causes the top portion of the ear drum to invaginate into the middle ear and mastoid. The second route of cholesteatoma formation occurs when skin grows into an eardrum perforation (secondary acquired). The third way is called “congenital cholesteatoma”, when a small amount of skin is present within the middle ear in fetal development and continues to grow after birth. Each mode of cholesteatoma formation, if left to grow, results in a large skin cyst that fills the middle ear and/or mastoid spaces, eroding the middle ear bones (ossicles), and eventually, the facial nerve, inner ear, or brain.

How is Cholesteatoma Diagnosed?

Most cholesteatomas can be diagnosed by simply examining the eardrum with the otologic microscope. The otolaryngologist observes the top part of the eardrum for evidence of retraction of skin into the mastoid. Sometimes an accumulation of wax or debris at the top of the eardrum is the only sign of cholesteatoma. In more advanced cholesteatoma, purulent drainage from an eardrum perforation indicates cholesteatoma. When the diagnosis is in doubt, the otolaryngologist orders a CT (computed tomographic) scan. Erosion of bone in the middle ear or mastoid by tissue appears on such scans as a result of cholesteatoma. Some degree of hearing loss is usually present with cholesteatoma, although it may be mild if the cholesteatoma is touching the eardrum and transmitting the sound itself.

How is Cholesteatoma Treated?

Surgical treatment is almost always necessary for cholesteatoma. The goals of surgical treatment are: 1) to remove the cholesteatoma and prevent facial nerve paralysis, deafness, and brain infection, 2) to stop the ear from draining, 3) to preserve or improve the hearing, 4) to preserve the normal anatomy of the ear. In cases where the cholesteatoma is large and invasive, the first one or two goals may be all that can be achieved. But in cases where cholesteatoma is diagnosed early, otolaryngologists aim for all four goals.

In general, four operations are performed for cholesteatoma, depending on its severity and the patient’s anatomy. All four operations employ an incision made behind the ear.

Tympanoplasty. This operation opens the middle ear, but not the mastoid. Therefore it is used only when cholesteatoma is very small and occupies the middle ear. The operation exposes the middle ear through the ear canal, and thus provides very little exposure of the cholesteatoma. The operation includes repair of the eardrum perforation. If necessary the surgeon may repair or replace the middle ear ossicles with an artificial prosthesis.

Canal –Wall- Up Mastoidectomy with Tympanoplasty. In this operation, the middle ear is opened by the tympanoplasty technique, but the surgeon also opens the mastoid using a surgical drill. The mastoid is opened to remove cholesteatoma and infected material that cannot be reached using the tympanoplasty technique. The mastoid opening is made behind the ear canal, and the normal ear canal anatomy is maintained. In most cases, when disease is extensive, a second operation is performed 6-12 months after the first, at which time the surgeon removes any persistent cholesteatoma and reconstructs the ossicles.

The Goals of Cholesteatoma Surgery

In most individuals with cholesteatoma, one or two surgeries will be needed, and if the cholesteatoma can be obliterated, a normal-appearing ear with good hearing will be the final result. It is important to remember however, that in other cases, hearing loss, third surgeries, open cavities which need periodic examination and cleaning, may be the end result of cholesteatoma treatment. Fortunately, with careful follow up and modern surgical techniques, the dreaded infectious complications of facial nerve paralysis and brain infection have been essentially eliminated.

