Ear Disorders and Problems

Introduction

Your ear has three main parts: outer, middle and inner. You use all of them to hear. There are many disorders and problems that can affect the ear. The symptoms of ear disorders and problems can vary. Treatment may include medicine, surgery or other therapies.

This reference summary explains ear disorders and problems. It discusses common ear disorders, ear problems and their treatments.

The Ear

The ears are specialized organs that allow us to hear and to keep our balance.

Each ear has three sections:
1. The outer ear, which includes the auricle and the ear canal. The ear canal leads inside the ear to the eardrum, or tympanic membrane.
2. The middle ear, which is formed of three small bones known as the ossicles.
3. The inner ear.

Cartilage covered with skin forms the auricle. Unlike bone, ear cartilage may continue to grow throughout life, which is why older people usually have bigger ears than younger people. The auricle acts like a satellite dish to collect sound waves, which are vibrations in the air.
The sound waves enter through the ear canal to the eardrum. The eardrum vibrates and causes the three small bones of the middle ear to vibrate and send the vibration to the inner ear. The vibrations sent to the inner ear are then relayed to a special organ inside the inner ear, known as the “cochlea.” The cochlea has a snail-like shape.

Inside the cochlea, the vibration is changed into electrical signals. A nerve called the eighth nerve carries the electrical signals to the brain, where they are understood as sounds. The eighth nerve is also called the auditory nerve.

Another part of the inner ear is responsible for balance. The eighth nerve also carries information to the part of the brain that is responsible for balance. This is why many times hearing problems and balance problems happen together.

Having two ears helps us figure out where a sound is coming from. Sound waves reach the ear closest to them before reaching the other ear. Even though the difference is less than one second, it is enough for the brain to identify where the sound came from.

The Eustachian tube is a small passage way that connects the middle ear to the upper part of the throat. Though the Eustachian tube is usually closed, it opens regularly to allow fresh air into the middle ear. It also equalizes middle ear air pressure in response to air pressure changes in the environment. A Eustachian tube that is blocked by swelling or mucus cannot open to ventilate the middle ear. Without ventilation, fluid from the tissue that lines the middle ear may accumulate. If the Eustachian tube remains plugged, the fluid cannot drain and begins to collect in the middle ear.

**General Symptoms**

Symptoms of ear disorders and problems can vary and depend on the problem. The most common symptoms are hearing loss and balance problems.

Common symptoms of ear disorders and problems include:

- Dizziness.
- Ear pain.
- Fluid draining from the ear.
Some ear disorders and problems may cause:
- A feeling that your ears are stuffed.
- Fever.
- Ringing in the ears.
- Severe ear pain.

In children who are too young to speak, signs of an ear disorder or problem can include:
- Crying more than usual.
- Trouble sleeping.
- Tugging or pulling at one or both ears.
- Unusual irritability.

**Tinnitus**
Tinnitus causes a person to hear a persistent sound in the ear when no sound exists. The sound is usually described as a:
- Ringing.
- Clicking.
- Roaring.
- Hissing.

Tinnitus may be heard in one or both ears. It can affect a person’s daily life. Many diseases can cause tinnitus. The most common cause of tinnitus is damage to the auditory cells in the inner ear. This is due to age-related hearing loss or exposure to loud noises.

Other causes of tinnitus include:
- Certain medicines.
- Injury to the head or neck.
- Stiffening of the bones in the middle ear.
- Tumor in the brain or ears.
Hearing loss can make tinnitus worse. The following conditions can cause tinnitus and hearing loss:

- A ruptured eardrum.
- An ear infection.
- Build-up of wax in the ear.
- Tumors in the eighth nerve.

Treatment of tinnitus depends on its cause. Treatment may include:

- Draining ear wax.
- Stopping medicine.
- Treating an ear infection.
- Treating underlying conditions, such as tumors or blood vessel problems.

Tinnitus may also be treated with hearing aids or maskers. Wearing a hearing aid makes it easier to hear sounds by making them louder. The better outside noise can be heard, the less a patient will notice tinnitus. Maskers are small electronic devices that use sound to make tinnitus less noticeable. Maskers do not make tinnitus go away. They make the tinnitus sound seem softer. Some medicines may ease tinnitus. Tinnitus retraining therapy may also help. This treatment uses a combination of counseling and maskers.

**Ear Infections**

Ear infections are a common illness in infants and young children. The infection usually affects the middle ear and is called otitis media. Middle ear inflammation often begins when infections that cause sore throats, colds or other respiratory problems spread to the middle ear. Viruses or bacteria can cause the inflammation.
Otitis media causes the Eustachian tubes inside the ears to become clogged with fluid and mucus. As fluid builds up in the middle ear, the person may have trouble hearing. The eardrum and middle ear bones are unable to move like they should. Too much fluid in the ear can put pressure on the eardrum and eventually tear it.

Often, ear infections go away on their own. Your health care provider may recommend pain relievers. Severe infections and infections in young babies may require antibiotics. If severe infections are left untreated, they could lead to permanent hearing loss. The infection could also travel from the middle ear to the brain, causing a life threatening infection.

Children who get infections may need surgery to place small tubes inside their ears. The tubes relieve pressure in the ears so that the child can hear again. The tubes normally stay in the eardrum for 6 to 12 months, after which they usually come out on their own.

Hearing should be fully restored once fluid is removed from the inner ear. Some children may need to have the operation repeated if otitis media returns after the tubes come out.

**Ear Barotrauma**

Ear barotrauma is an injury to your ear because of changes in air or water pressure. Air pressure is called barometric pressure. Ear barotraumas can happen with a change in altitude, such as when you are flying in an airplane, driving in the mountains or scuba diving. A change in altitude may cause your ears to hurt.
Symptoms usually happen only during the change in pressure or for a short time afterwards. Severe cases can last for weeks or months. Treatments for ear barotrauma include measures to relieve pressure in the ears by opening up the Eustachian tubes. This equalizes the pressure between the middle ear, the mouth cavity and the outside. This can be done by:

- Chewing gum.
- Sucking on hard candy.
- Yawning.

Medicines such as decongestants may also help. Rarely, a small incision may be made in the eardrum to drain the fluid that is building up and causing pressure.

**Meniere's Disease**

Meniere's disease is a disorder of the inner ear. It may cause:

- Ear pressure or pain.
- Hearing loss that comes and goes.
- Severe dizziness.
- Tinnitus.

Attacks of dizziness may come on suddenly or after a short period of tinnitus or muffled hearing. Some people have single attacks of dizziness once in a while. Others may have many attacks close together over several days.

Some people with Meniere's disease have "drop attacks." These attacks result in dizziness so severe that a person loses their balance and falls. Meniere’s disease is a common cause of hearing loss. It usually affects just one ear. The cause of Meniere’s disease is not known. It may be caused by the fluid levels or the mixing of fluids in the canals of the inner ear. It can develop at any age, but it is more likely to happen to adults between 40 and 60 years of age.
There is no cure for Meniere’s disease. Treatments include:

- Medicines to control dizziness.
- Limiting salt intake.
- Taking diuretics.

Diuretics are also called “water pills.” They may help relieve fluid pressure in the inner ear. A device that fits into the outer ear and delivers air pulses to the middle ear can help. This is called pressure pulse treatment. Severe cases may require surgery.

Summary

Your ear has three main parts: outer, middle and inner. You use all of them to hear. There are many disorders that can affect the ear. Common ear disorders and problems include:

- Tinnitus.
- Ear infections, such as otitis media.
- Ear barotraumas.
- Meniere’s disease.

The most common symptoms of an ear disorder or problem are hearing loss and balance problems. Symptoms may also include:

- Dizziness.
- Ear pain.
- Fluid draining from the ear.

Treatment depends on the ear disorder or problem. It may include medicine, surgery or other therapies. Talk to your health care provider if you have the symptoms of an ear disorder or problem. Sometimes treatment is needed to prevent further complications.