Oh, My Aching Ear: The ins and outs of infections

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In the United States, ear infections account for more than 25 millions visits to the doctor per year. Ear pain is the second most common reason children go to a pediatrician after the common cold. About 2/3 of children develop an ear infection during their first year of life.

What exactly is an ear infection? How do I know if my child has an ear infection? Why are some children more likely than others to get an ear infection? How are infections treated? Keep reading for the answers….

In order to understand what an ear infection is we need a quick anatomy lesson. If you take a look at the picture, you will see the outer, or **external ear**, which includes the part we see on the outside as well as the skin covered canal inside leading to the eardrum (or tympanic membrane). This external canal is what gets infected in "Swimmer's ear." This is in contrast to a middle ear infection. **The middle ear** is the part behind the eardrum and contains those three bones you learned about way back when – the hammer, anvil and stirrup. So here's the important part: This middle ear is connected to the back of the nose and throat by the Eustachian tube. Picture fluid from a cold or allergies backing up in to the Eustachian tube. When we look into your child's ear with an otoscope we see the transparent eardrum, and fluid behind it sitting in the middle ear. This is called a **middle ear effusion**. If that fluid sits around long enough, it may become infected with bacteria. Then we see pus behind the eardrum, bulging of the eardrum, and redness of the eardrum. This is **a middle ear infection** (or otitis media) that most likely needs to be treated with antibiotics.

So why is it that some kids seem to get so many of these middle ear infections? Younger children in general are more prone to fluid not draining well from the middle ear because their Eustachian tubes are at a more horizontal angle and are shorter and narrower than older children or adults. Boys have more ear infections than girls. Those with seasonal allergies or reflux are also at higher risk due to constant irritation of the Eustachian tube. Other children at higher risk include those in large day cares, children exposed to tobacco smoke and those who use a pacifier or drink milk from a bottle while laying flat. Breast milk is protective, for up to 3 years after breastfeeding has stopped!

What are the most common symptoms of an ear infection? Infants and young toddlers may have increased irritability, change in sleeping habits, fever or holding or tugging at the ear. These symptoms are variable, however, and fairly non-specific. Older children will more reliably have ear pain and fever. Sometimes they may complain of feeling off balance or having a feeling of fullness in the ear. Occasionally the eardrum will rupture and fluid will drain out. Often the symptoms will be preceded by a viral illness or cold. It is important to see your pediatrician if your child has any of these symptoms in order to get a good ear exam distinguish an effusion from a middle ear infection from other things which can cause ear pain such as swimmer's ear or teething.

What about treatment? If your child is diagnosed with a **middle ear effusion** (clear fluid), the good news is that most of these resolve on their own with no treatment necessary. The main reason to treat is if it has lasted longer than 3 months, because all that fluid can interfere with hearing and speech. If your child is diagnosed with **a middle ear infection** (pus), oral antibiotics will most likely be prescribed. (The exception is if your child is over 2 years of age and it is a mild infection, your pediatrician may ask you to wait to fill your prescription for a few days because about 85% of these will clear on their own). The course of treatment is between 7 to 10 days depending on the age of the child. It is important to finish the course prescribed to achieve a full cure and decrease chance of resistance to antibiotics. It also helps to keep the nose clear with nasal saline drops so that the Eustachian tubes can drain more effectively. Most pediatricians will ask you to return in two days if symptoms are not improved in case the bacteria is resistant to the prescribed antibiotics and a stronger one needs to be prescribed. In addition you may asked to return after two weeks to make sure the infection is fully resolved. Most kids will have clear fluid in the middle ear for many weeks after the infection has cleared, which will most often resolve on its own. So now you know!

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