

Otoscopy...

What to Do? How to Do It?



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The examination of the ear requires the use of an otoscope to assess the deeper portions of the ear canal and to assess the tympanic membrane. In recent years, there has been concern about over treatment of otitis media. Perhaps this is due to the over diagnosis of otitis media, since changes in the drum such as redness, might be misinterpreted as signs of acute infection, which may not be accurate. The subtle changes in the eardrum, secondary to processes in the middle ear, take time to learn. We do not see the eardrum as often as we see the rest of the facial structures and normal variations and variations in the disease, can take time to recognize.

By assessing changes in the tympanic membrane, disease of the middle ear can be inferred. Over the last few years, excellent atlases of ear diseases have become available and these are an invaluable asset to the diagnosis of middle ear disease.

Ear wax removal

Everyone who tries to examine the ear will frequently be foiled in their quest by the presence of ear wax. Even a small piece of wax or dry skin can make it impossible to properly assess the eardrum, particularly in a young child. Methods for clearing wax are well known. In general, syringing is considered the safest for physicians not familiar with using a headlight

and ear instruments. However, for a small amount of wax, the use of a headlight for illumination and the gentle use of a curette, under direct vision, is a quick and very useful technique to learn. Using an ear speculum is important to open the canal and improve depth perception. In general, we suggest not using the curette much deeper than the hair-bearing skin of the canal since the deeper tissues are very tender and friable.

Assessment of the tympanic membrane

An essential requirement in the proper assessment of the tympanic membrane is the use of bright light. Only with bright light can the changes in colour and the contour of the drum be seen. A systematic review of the deeper canal and the entire tympanic membrane can then be done. When we look at the eardrum, we don't see the entire structure at once and thus the examiner must carefully move the otoscope to do that.

A few different methods of holding the otoscope are taught. The method chosen must allow a complete and comfortable examination to be done. I strongly recommend the method of holding the otoscope lightly in the fingers of the dominant hand. Then the fine adjustments in the line of sight can be made without causing any discomfort to the patient.

Examining the ear

It is best to have the patient sitting, with their head turned slightly to the side as each ear is checked. To examine the ear, physicians are frequently taught to grasp the pinna and pull it up and back. In many cases this actually does very little to open the canal and can be quite uncomfortable as there can be a tendency to pinch the ear and pull too hard. Instead, physicians should deflect the tragus forward with the ear speculum while holding the thicker conchal cartilage and gently retracting it backward. In this way, the physician can more directly open the canal and get a good view of the drum.

It is important to use the largest possible speculum that can be inserted just past the hair-bearing skin. For safety, the physician's fingers must always be braced against the skin of the cheek.

Examining the ear drum

The ear speculum must be carefully moved in order for the physician to see the entire eardrum and its peripheral margin. The colour of the drum and the shape of the drum (*e.g.*, retracted or bulging) must be noted. Furthermore, the malleus, an easy landmark to identify, must also be identified. The light reflex appears to be anteroinferior. The light reflex does not provide any diagnostic information. It does, however, show the examiner that he or she is really looking at the drum and not a blunt-ending canal or a dried cast overlying the drum. The short process of the malleus is the key landmark to become familiar with when examining the ear. It separates the pars tensa (the main part of the eardrum) from the pars flaccida (the superior aspect of the drum). It is in this latter location that the inflammatory changes of otitis media are seen first and also where cholesteatoma might begin to

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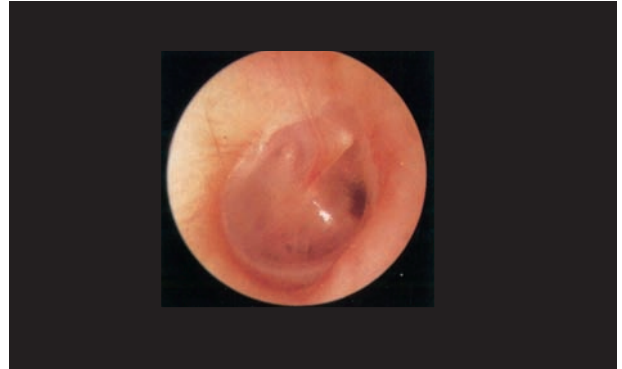


Figure 1. Normal tympanic membrane.¹

develop. A normal eardrum is shown in Figure 1. When examining the ear drum, it is useful to develop a mental image of an air-containing middle ear and how light penetrates through to the medial wall of the ear.

Figure 2 shows early changes of otitis media. Although the drum itself looks fairly normal, superiorly, there is erythema and swelling which is obscuring the short process of the malleus. Redness, superiorly, is generally inflammatory. With otoscopy, if the short process can be seen and it is normal, the likelihood of significant inflammation of the middle ear is very low.



Figure 2. Early otitis media.¹

In the presence of a mucoid effusion, the normal vessels of the drum stand out in contrast to the light coloured mucoid fluid behind it, as seen in Figure 3. The drum can look red when the vessels congested or the fluid darker, but still not be infected. This is seen in Figure 4, where the drum looks



Figure 3. Mucoid otitis media.¹



Figure 5. Serous otitis media showing an air-fluid level in the top left drum.¹

reddened, but there is no swelling of the short process of the malleus. A serous effusion can stand out if it is quite yellow, but it is important to keep in mind that it can also be subtle. A hairline air-fluid level might be seen separating the effusion from air superiorly. Unilateral serous otitis media is concerning, particularly in an adult, since it might be a sign of a nasopharyngeal neoplasm (Figure 5).



Figure 4. Congested mucoid otitis media.¹

Like many techniques we use to assess patients with, otoscopy is a skill that takes time to master. A clear bright view of the eardrum can provide valuable information about the middle ear.

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