In this tutorial you will learn about the anatomy of the outer ear. We will look at the middle and inner ears at a later date. The information in this tutorial should be very familiar to you because you use it every day when you examine patients. Nonetheless it is important that you can accurately describe what you see when you examine the patients so that a clear record can be made in the case notes.

**ANATOMICAL OVERVIEW**

The ear consists of three parts: the outer ear, the middle ear and the inner ear. Each of these has a number of structures within it.

The outer ear – this consists of the pinna, the external ear canal and the eardrum. The diagrams below show these in more detail.

**The pinna**

Anatomical terms in English usually come from much older languages called Latin and Greek. To an English speaker the words are very descriptive – they have a meaning. For example Concha means a shell like you might find on a beach, scaphoid means boat shaped, tragus means goat (the tragus is hairy in men like a goat’s chin). The word anti usually means ‘opposite’.

**The ear canal**

The ear canal (also called the external auditory canal, EAM, external ear canal) is a skin-lined tube that passes medially towards the eardrum. It is not straight and
usually has a sigmoid shape. Sigmoid is a name used to describe an ‘S’ shaped structure and comes from the Greek letter σ - called sigma.

1. This is the cartilaginous portion of the external ear canal. It is where the hairs grow and where wax is made.

The skin is quite thick. This portion of the EAM is mobile.

2. This is the bony part of the ear canal. The skin is thin here and bleeds easily if touched.

The narrower area between the bony and cartilaginous parts is known as the isthmus.

The picture above makes the ear canal look quite straight but it is usually curved or sigmoid.

This picture shows a model of the ear canal made with ear moulding plastic. The canal curls as it passes medially.

Can you see the impression of the tympanic membrane at the medial end of the cast?

An important part of the ear canal is the anterior recess.

This eardrum cannot be seen completely because the bony anterior canal wall hides part of its antero-inferior quadrant.

The anterior recess can sometimes be very deep and this prevents you from seeing pathology there.
The eardrum

At the medial end of the external ear canal we find the eardrum. This is a very familiar structure. Its job is to collect sound and pass it into the ossicular chain. Below I have put a series of images that describe its anatomy in more detail.

A normal looking left eardrum (also known as the tympanic membrane).

It is possible to see middle ear structures through a normal eardrum

1. The Eustachian tube orifice lies anteriorly in the middle ear and can sometimes be seen as a shadow through the drum.

2. The round window niche lies postero-inferiorly in the middle ear and can also sometimes be seen.

Surrounding the eardrum is the annulus. This is a thickening in the middle layer of the eardrum. The annulus does not go around the upper part of the eardrum (the pars flaccida).
The eardrum has two parts:

1. The **pars tensa** – which is strong and collects sound. The pars tensa has annulus around its edge.

2. The **pars flaccida** – which is weak. There is no annulus around it.

Even though the pars tensa is the strong part of the eardrum it is not strong in all of its areas.

1. This area of the pars tensa is not as strong as the rest of the pars tensa (2).

   Both area 1 and 2 are stronger than the pars flaccida (3).

   Area 3 is sometimes called the **attic**.

The attic (pars flaccida) and the posterior-superior part of the pars tensa are the places where cholesteatoma commonly start.

And what about the ossicles? These are middle ear structures but the malleus is attached to the drum and the incus can sometimes be seen through a normal drum.

1 is the **umbo**

2 is the handle of the malleus (also called the manubrium)

3 is the lateral process of the malleus

4 is the neck of the malleus (but is not always visible)

5 is the long process of the incus