1 The ENT history and examination

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THE HISTORY

The history in ENT, as with all other branches of medicine and surgery, is of the utmost importance. The information gleaned during this part of the consultation will guide one towards particular areas during the examination and indicate which investigations may be appropriate; this is essential if the doctor is to come to the correct diagnosis. The interactions during history-taking form the foundation of a strong doctor-patient relationship. This is vital if any effective treatment plan offered by the doctor is to be acted upon by the patient.

Structure of the history

The structure of the history is similar to medical school teaching across the world.

The history of the presenting complaint

This will include details of the main symptoms, their exact nature and duration, and any other associated or predisposing factors. Specific questions related to the system or systems in question should also be asked at this point. In general, unilateral symptoms should raise the level of suspicion since most conditions that have serious consequences, such as tumours and malignancies, are unilateral, at least initially.

The past medical history

Previous or concurrent medical conditions that are relevant to the current problem, or those that may affect the patient’s treatment or fitness for anaesthesia, must be determined and noted appropriately.

The drug history

The doctor must enquire about drugs that may be directly relevant to the present ENT complaint, e.g. anticoagulants in a patient with a nosebleed or the use of aminoglycosides in a patient with hearing loss. Also the doctor should determine whether the patient takes any other regular medication, prescribed or otherwise. A history of adverse drug reactions and allergies should also be taken.

The social history

Details of the patient’s employment should be noted. In some cases, details of the patient’s home environment may also be relevant. Alcohol intake and smoking history should also be determined.

The nose

Many patients complain of nasal obstruction. Try to determine whether this is uni- or bilateral. Is it constant or intermittent? Are there associated features such as sneezing, nasal itch or hayfever? If the patient complains of rhinorrhoea or postnasal drip, what is its quality? Features that may indicate sinus involvement in nasal pathology are pressure or pain in the cheeks, in the forehead or across the bridge of the nose; this is often associated with a ‘muzzy head’. Unilateral epistaxis or blood-stained nasal discharge, nasal obstruction and facial pain or swelling must be recognized as the common presenting features of nasal tumours. One should enquire about defects in the sense of smell, such as loss of smell (anosmia) and unpleasant odours (cachosmia).

The ear

Hearing loss is the most common presenting complaint in diseases of the ear. Once again, a unilateral
loss should raise the level of suspicion. Any history of previous noise exposure or family history of hearing problems may be relevant. In children with hearing problems, one should enquire about other congenital conditions, a history of birth or neonatal trauma and anoxia, and other serious childhood infections such as meningitis.

Pain in the ear (otalgia) and/or discharge from the ear (otorrhoea) are also common symptoms, as is itch in the ears. The nature of any discharge from the ears should be determined. For example, is it simple wax, purulent, blood-stained or watery? Each of these may suggest a differing pathology. Foul-smelling otorrhoea is characteristic of cholesteatoma. Patients often complain of noises in the ears (tinnitus) and will often go into long and detailed descriptions of what they hear. Much of this is unhelpful in making the diagnosis; it is, however, important to recognize pulsatile tinnitus, which may occur with serious vascular tumours or malformations. Popping and cracking noises in the ears are suggestive of eustachian tube dysfunction, as is a feeling of pressure within the ear.

Dizziness is another frequently encountered complaint. Here it is important to take a detailed history of its exact nature, any predisposing factors, associated symptoms and a general medical history. If after taking the history you do not have a suspected diagnosis, the examination and investigations are unlikely to give it to you.

The facial nerve and chorda tympani are intimate relations of the ear; as a result, pathology may involve these structures and lead to an alteration in the sense of taste or facial weakness. These are symptoms that must be enquired about directly, since the patient, not unreasonably, may fail to connect them with the ear and therefore may fail to volunteer this vital information.

Pain in the ear (otalgia) may be due to ear problems that are usually evident on examination. However, the ear is also a common site for referred pain from many other sites within the head and neck, due to their shared innervation (branches of the same nerve supply different structures and hence irritation in one area may be perceived as pain in another), e.g. sinuses and teeth, temporomandibular joint, cervical spine, oropharynx and throat (Figure 1.1).

**Figure 1.1** Causes of referred otalgia.
The throat

When taking a history from a patient who complains of a hoarse voice, it is important to determine the duration and circumstances that preceded this symptom. For example, did it occur following a common upper respiratory tract infection or as a result of shouting at a football match, or (more worryingly) is it of gradual onset in a smoker? The professional history is important since it will determine whether the patient is a professional or amateur voice user. Smoking and alcohol intake are also important facts to document.

Other common symptoms are a feeling of a lump in the throat, mucus in the throat and discomfort. Often these symptoms are features of innocent pathology. However, they may also be the presenting features of neoplasia. Acid reflux may also contribute to or cause throat problems, and therefore other features suggestive of this must also be sought.

The mouth and neck

Sore throat and tonsillitis along with intra-oral lesions such as ulcers on the tongue are the most common conditions of the mouth seen in ENT practice. It is important to ascertain a good general medical history, since a wide variety of systemic conditions such as anaemia and human immunodeficiency virus (HIV) infection can present with oral manifestations. In the case of swellings within the mouth, an increase in size or pain with eating is suggestive of salivary gland disease.

Patients with lumps in the neck must be referred to an ENT specialist, since only the ENT specialist has the adequate equipment and expertise to examine the likely primary sites from which secondary neoplastic neck node deposits may originate. When taking a history from such a patient, one must enquire about any symptoms from the likely primary sites such as the tongue, mouth, nose and throat.

A history of a preceding infection is suggestive of a ‘reactive’ node. Symptoms of weight loss, night sweats and malaise may suggest a systemic disease such as lymphoma or acquired immunodeficiency syndrome (AIDS) or tuberculosis. Features of thyroid over- or underactivity should also be sought.

KEY POINTS

Danger Signs in ENT History

- Hoarse voice for more than 3 weeks (tumour)
- Foul-smelling otorrhoea (cholesteatoma)
- Unilateral foul nasal discharge in a child (foreign body)
- Unilateral nasal polyp/blood-stained rhinorrhoea (tumour)
- Unilateral deafness (tumour)
- Persistent lump in the throat (tumour).

EQUIPMENT REQUIRED

Figure 1.2 shows the equipment commonly used in ENT practice.

The head-light

Good illumination is essential when examining all areas in ENT. Most ENT surgeons now use a battery-powered or fibre-optic head-light. This has

![Common ENT equipment: (A) tongue depressor; (B) wax hook; (C) Jobson–Horne probe; (D) Tilley’s nasal forceps; (E) crocodile ear forceps; (F) thudicum nasal speculum; (G) tuning fork; (H) laryngeal mirror; (I) auroscope.](image-url)
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The advantage that it allows hands-free illumination. The traditional method is the head-mirror. Use of the head-mirror is a valuable skill that is easy and quick to learn.

The basic principle of the head-mirror is that light is reflected from the mirror on to the patient. The mirror is concave and thus the light is focused to a point. Also, it has a hole through which the examiner can look, thus allowing binocular vision. Correct positioning of the patient, the examiner and the light source is important (Figure 1.3).

How to use a head-mirror

Place the mirror over the right eye, close the left eye, and adjust the mirror so that you can look through the hole directly at the patient's nose. Now adjust the light and mirror until the maximum amount of light is reflected on to the patient. When the left eye is opened, you should have binocular vision and the reflected light should be shining to the patient's nose. The focal length of the mirror is approximately 60 cm; this means that the reflected light will be brightest and sharpest when the examiner and the patient are this distance apart.

EXAMINATION OF THE EAR

The external ear

The size, shape and position of the pinnae should be observed. When examining the external ear, one should also note the presence of surgical scars around the ear (Figures 1.4 and 1.5). Also, the presence of scars can be difficult to see (Figures 1.4 and 1.5).

Figure 1.3 Correct positioning for ENT examination.

Figure 1.4 Surgical scars around the ear. (Look carefully – they are often difficult to see.)

Figure 1.5 Nomenclature of the pinna.
Examination of the ear

of congenital abnormalities such as accessory auricles, skin tags and pre-auricular sinuses should be noted.

The auroscope

The auroscope should be held in the left hand when examining the left ear and in the right hand when examining the right ear. The external auditory meatus (EAM; ear canal) should be straightened by gently lifting the pinna upwards and backwards (Figure 1.6). Choose the largest speculum that will comfortably fit into the ear canal, since this will give the best view and admit the most light. Then the auroscope is gently inserted along the line of the ear canal. As with all examinations, try to be methodical. Note, in turn, the skin of the ear canal, the pars tensa with the handle and lateral process of the malleus, and the light reflex. It is important to pay particular attention to the tiny strip at the top of the ear drum known as the pars flaccida, since it is in this area that cholesteatomas are first seen (Figures 1.7 and 1.8.) Some aurosopes have a pneumatic bulb that can be attached. This allows air to be puffed in and out of the ear canal, and with experience the examiner can learn to assess the mobility of the drum.

Tuning-fork tests

These tests are used to assess the patient’s hearing. However, it should be appreciated that the pure-tone audiogram is the gold standard investigation. At first, tuning-fork tests may seem complicated, but in fact they are quite simple and very useful. Take a few minutes to read the following descriptions and diagrams to make sure you understand them.

First, be sure that the tuning fork is of the correct frequency for testing hearing, i.e. 512 Hz. The value of these tests lies in determining whether the hearing loss is a conductive type (i.e. some defect in the transmission of sound to the inner ear, e.g. a problem with the ear canal, drum, middle ear and ossicles) or a sensorineural type (i.e. a defect either in the cochlea, auditory nerve or central nervous system).

Weber’s test

In the Weber’s test (Figure 1.9), the tuning fork is struck and placed on the patient’s forehead, nasal bridge or upper teeth (not if dentures are used) and the patient is asked where the sound is best heard. The results can be summarised as follows:

- **Unilateral or asymmetrical hearing loss:**
  - Conductive type: localizes to affected (worse-hearing) ear.
  - Sensorineural type: localizes to non-affected (better-hearing) ear.

- **Bilateral or symmetrical loss of either type:** the sound is heard equally in both ears.

Rinne’s test

Rinne’s test (Figure 1.10, p. 8) determines how sound is best heard, through air (air conduction, AC) or through bone (bone conduction, BC). The tuning fork is held next to the ear for a few seconds and then placed behind the ear on the mastoid process. The patient is asked which sound he or she can hear better. The results of this test can be summarised as follows:

- **Rinne positive** (AC > BC): this is the response in normal ears and in people with a sensorineural hearing loss in the test ear.
- **Rinne negative** (BC > AC): this is the response in people with a conductive hearing loss in the test ear.

The situation is complicated in one important situation, when the patient has a false-negative
Rinne test. This occurs when the patient has a profound sensorineural hearing loss, or ‘dead ear’, in the test ear. In this situation, one would expect the Rinne test to be positive; however, a negative response occurs. This is explained by the fact that when testing hearing through air, nothing is heard in the test ear since it is ‘dead’; however, when the tuning fork is placed on the skull, sound is transmitted through the skull base, not only to the ‘dead’ cochlea but also to the normal cochlea on the opposite side, where it is heard; therefore, the sound is perceived as louder via bone than air conduction (Rinne negative).

To counter this false result, it is important that every time a negative response is achieved, the test is repeated. However, this time a masking noise is applied to the non-test ear using a Barany noise box; this has the effect of ‘occupying’ the cochlea on
Examination of the mouth, larynx and neck

The mouth
Examination of the mouth must be systematic and methodical. A good light is essential. Remember to ask the patient to remove all dentures, since these may hide important pathology. The following areas should be examined in turn. Look first at the upper surface of the tongue, and then the edges and under surface. Pay particular attention to the side of the tongue right at the back; this is known as ‘coffin corner’ since carcinomas of the tongue may easily be missed in this region. Look at the floor of the mouth, the lower teeth and gum line, both on the inner and outer surfaces. Use a tongue depressor to lift the cheek away from the

that side and thus a true positive response will be achieved. A simple way to apply masking is to rub the tragus of the pinna with your finger.

Simple tests of hearing
The hearing can be tested in the clinic or surgery without any equipment. These tests are known as 
whisper tests or free field tests (Figure 1.11). The patient is asked to repeat a series of words or numbers given by the examiner at different volumes. Most people with normal hearing (hearing threshold 0–20 dB) should be able to hear a whisper delivered at arm’s length. If the patient can only hear a normal conversational voice at the same distance, this would indicate there is a hearing threshold of approximately 30–40 dB. Loud conversational voice equates to approximately 40–60 dB and shouting 100–120 dB. The opposite ear should be masked using tragal rubbing and visual clues should be removed by shielding the patient’s eyes.

EXAMINATION OF THE MOUTH, LARYNX AND NECK

Figure 1.8 Attic cholesteatoma of the right ear. Note the extension to the middle ear (the white mass seen through a thin posterior segment of the ear drum).
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Figure 1.9 Weber test. (a) Sound is localized centrally with equivalent hearing in both ears. (b) Unilateral sensorineural deafness localizes sound to the better-hearing side. (c) Unilateral conductive deafness localizes sound to the same side.
upper teeth and look at the parotid duct opening, opposite the upper second molar tooth. Now turn your attention to the upper teeth and gums, and from here look at the hard and soft palates. Note the presence or absence of tonsillar tissue and the surface of the posterior pharyngeal wall. Test the movements of the tongue and also the palate by asking the patient to say ‘Aahh’. Finally, place a gloved finger into the mouth and feel the base of the tongue and the floor of the mouth. Now a second hand placed under the jaw allows the submandibular gland to be palpated.

**The larynx**

Much information can be gained simply by listening to the patient’s voice. They may have a hoarse voice suggestive of a lesion on the vocal fold, or they may have a weak breathy voice with a poor ‘bovine’ cough, suggestive of a vocal fold palsy. To confirm the diagnosis, the larynx must be viewed. The traditional method is to use the head-mirror and an angled laryngeal mirror held at the back of the mouth, against the soft palate (Figure 1.12). Nowadays, however, fibre-optic endoscopes are generally preferred since they give a superior view and are tolerated by most patients (Figure 1.13).

**The neck**

It is important to ensure that the examination is systematic and methodical to avoid missing
a small or second mass. Exactly which system is used does not matter as long as all regions are palpated. The following is a suggested method (Figure 1.14): Start at the mastoid tip, and work forward to feel the post- and pre-auricular lymph nodes; from here, move forward to feel the parotid followed by the submandibular region. The hands meet under the chin in the midline; now move down the midline, feeling in turn each lobe of the thyroid gland and the isthmus. From the suprasternal notch, follow up the anterior border of the sternomastoid muscle back to the mastoid tip once more. Now follow the posterior border of the sternomastoid muscle down to the clavicle; move laterally along the clavicle and to the anterior border of the trapezius muscle, palpating the posterior triangle as you go; follow right round to the midline posteriorly. Feel the cervical spine up to the skull base and note any occipital lymph nodes. Finally move forwards along the skull base to finish once more at the mastoid tip.

EXAMINATION OF THE NOSE
The shape of the nose, its size relative to the rest of the face, and any cosmetic deformity should be noted. Next, the airway on each side of the nose should be tested. This can be done by occluding each nostril in turn and asking the patient to sniff in.

Figure 1.13 (a) View of the larynx obtained at nasendoscopy during (A) quiet respiration and (B) phonation. (b) A nasendoscope can be used to examine the entire upper aerodigestive tract.

At this point, also look for collapse of the soft tissues of the nose during inspiration, so-called alar collapse.
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Occlusion of the nostril should be done by placing the thumb over the nasal aperture rather than pressing on the side of the nose. Another way to test the airway is to hold a cold shiny surface, such as a metal tongue depressor, under the nose and look for the pattern of misting that occurs as the patient breathes.

Next, the nasal tip should be elevated. This gives an opportunity to examine the nasal vestibule for any small lesions that may otherwise be covered up by the blades of a nasal speculum. Examination of the nasal cavity demands a good light source, for example a head-mirror. A thudicum speculum is used to hold open the nasal aperture and then systematic examination of the nasal cavity can follow. If a head-light and thudicum speculum are not available, an auroscope and ear speculum can be used instead. Each area of the nasal cavity should be examined in turn, looking at the septum, floor of the nose and then the lateral wall where the inferior and middle turbinates will often be seen (and are frequently confused with nasal polyps) (Figure 1.15).

One should note the appearance of the nasal mucosa, including its colour, surface and hydration. Examination of the postnasal space requires special equipment, either a small mirror introduced via the mouth or a fibre-optic endoscope via the nose. It must be remembered that the ear and nose are connected by the eustachian tube, and therefore nasal pathology may produce ear problems. Therefore, examination of the nose is incomplete without also examining the ears.

Nasendoscopy

Nasendoscopy (Figure 1.16) is a skill that even the most junior of ENT doctors must master. The patient sits facing the examiner and the procedure is explained. The nose is frequently prepared with either topical decongestant or anaesthetic spray. The tip of the endoscope is passed into the nose and through the nasal cavity, either just below or just above the inferior turbinate. Towards the back of the nose, the eustachian tube will be seen opening into the nasopharynx. The endoscope is then angled downwards and over the superior surface of the soft palate to sit behind the uvula. At this point the tongue base and entire laryngopharynx can easily be seen.

**KEY POINTS**

**Principles of ENT Examination**
- Good illumination
- Practise your technique
- Correct equipment
- Be methodical.
Figure 1.16 Nasendoscopy views during passage through the right nasal cavity.

ET, eustachian tube opening; IT, inferior turbinate; L, larynx; MT, middle turbinate; PF, pyriform fossa; PNS, postnasal space; S, septum; SSSP, superior surface soft palate; TB, tongue base; UV, uvula.