

CHAPTER 1

Clinical examination and history taking

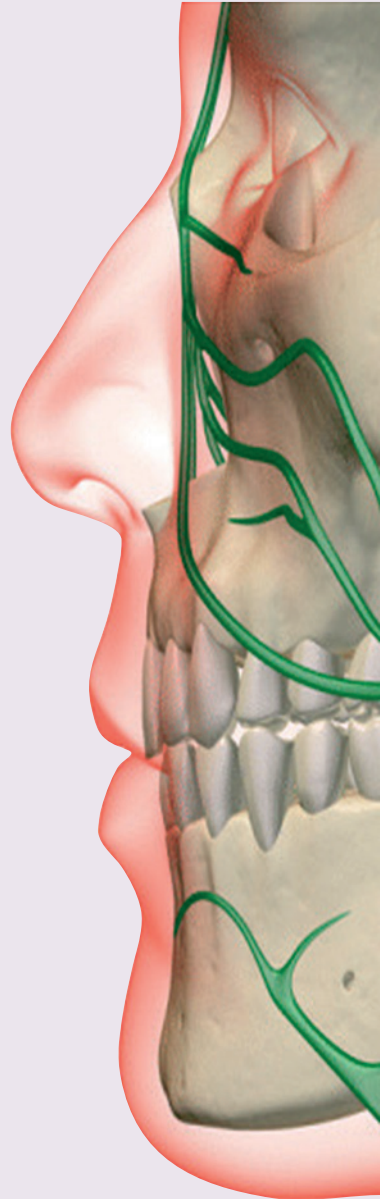
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Key topics

- Essential components of a medical history
- Key issues that may arise from the medical history

Learning objectives

- To be familiar with the main components of a medical history.
- To be aware of the medical terms used in taking a medical history, and their meaning.
- To be aware of the normal vital signs.



Components of a medical history

The medical history aims to:

- Enable the formulation of a differential diagnosis or diagnosis
- Put the patient's disease process into the correct medical and social context.
- Establish a rapport with the patient.

Clinicians engaged in obtaining medical histories should introduce themselves to the patients and give their designations. The taking of the history may then commence and should follow a scheme similar to that shown in Table 1.1.

Presenting complaint

The presenting complaint can be recorded in medical terms, but often is better expressed in the patient's own words. When recording the history in writing, quotation marks should be placed around the patient's words. In a verbal case presentation, it should be stated that the patient's own words are being used. It is important to avoid presumptive diagnoses in the presenting complaint. For example, patients do not *present* with iron deficiency anaemia; they may present with symptoms that arise *from* it. It should be remembered that symptoms are the features of the illness that the patient describes; signs are physical findings obtained by the clinician.

History of the presenting complaint

The history of the presenting complaint should be a chronological but succinct account of the patient's problem. It is important to start at the onset of the problem and describe its progression. Symptoms should be similarly described.

Points to include when asking patients about pain are as follows:

- Site
- Character – for example, tight/band-like (in the chest, suggestive of cardiac origin)
- Does the pain radiate anywhere?
- Onset – sudden or gradual

Table 1.1 Areas to be covered in a medical history.

Presenting complaint
History of presenting complaint
Past medical history
Allergies
Past dental history
Drugs
Social history
Family history
Psychiatric history

- Severity (ask the patient to rate on a scale of 1–10, with 10 being the most severe)
- Duration
- Exacerbating/relieving factors (including the use and efficacy of medication)
- Preceding events or associated features
- Has the pain occurred before? / Is it getting better or worse?

Past medical history

It is worth asking a generic set of opening questions – for example, 'Do you have any heart or chest problems?' Questioning should then focus on specific disorders – for example, asthma, diabetes, epilepsy, hypertension, hepatitis, jaundice or tuberculosis. It is also worth specifically asking about any previous problems with the arrest of haemorrhage. Past problems with intravenous sedation or general anaesthesia should be noted. It is worth asking about any previous history of rheumatic fever, which may have led to cardiac valve damage. In 2008, the National Institute for Health and Care Excellence (NICE) discontinued the regular use of antibiotic prophylaxis for bacteraemia-producing dental procedures in patients with cardiac damage. There were some concerns about this, however, such as the lack of an evidence base for prophylaxis and the fact that Europe and the USA differed in their practices.

Before 2008, a consistent upward trend was apparent in the population-corrected incidence of infective endocarditis in England. Soon after the implementation of the NICE guidelines, the slope of the trend line increased further, although there is no direct evidence that this was due to the discontinuation of antibiotic prophylaxis in dentistry. In 2016, NICE modified the guidance slightly to state that: 'Antibiotic prophylaxis against infective endocarditis is not recommended *routinely* [my emphasis] for people undergoing dental procedures'. This addition emphasises NICE's standard advice on healthcare professionals' responsibilities. Doctors and dentists should offer the most appropriate treatment options, in consultation with their patients and/or their carers or guardians. In doing so, they should take into account the recommendations of NICE guidance and the values and preferences of patients, and also apply their clinical judgement.

To guide decision-making, NICE has provided information regarding which might be considered high-risk and moderate-risk groups for the development of infective endocarditis – see Table 1.2.

It is clearly important that positive findings be recorded. Some important negative findings too are worth recording.

Allergies

Any known allergies should be recorded. This is one aspect of the medical history that should be recorded even if there are no known allergies. Any allergies that are identified should be highlighted in the clinical record.

Table 1.2 Stratification of the risk of infective endocarditis.**High-risk categories**

- Patients with a previous history of infective endocarditis
- Patients with any form of prosthetic heart valves (including a transcatheter valves)
- Those in whom prosthetic material was used for cardiac valve repair
- Patients with any type of cyanotic congenital heart disease
- Patients with any type of congenital heart disease repaired with prosthetic material, whether placed surgically or by percutaneous techniques, for the first 6 months after the procedure or lifelong if a residual shunt or valvular regurgitation remains

Moderate-risk categories

- Patients with a previous history of rheumatic fever
- Patients with any other form of native valve disease (including the most commonly identified conditions: bicuspid aortic valve, mitral valve prolapse or calcific aortic stenosis)
- Patients with unrepaired congenital anomalies of the heart valves

Past dental history

In a general history, the dental history should be relatively brief. It can include details of the regularity or otherwise of dental attendance and the use of local anaesthesia or sedation. Any adverse events, including post-extraction haemorrhage, could also be included here.

Drugs

Any medication taken by the patient should be recorded. The use of recreational drugs can be included in this section or in the social history.

'Recreational' drugs

Dentists should have a working knowledge about the implications of patients using recreational drugs, as the use of such drugs is relatively common. Cannabis has a sympathomimetic action that could potentially exacerbate the systemic effects of adrenaline in dental local anaesthetics. Heroin and methadone are both opioid drugs, with methadone being used in drug rehabilitation programmes. Oral methadone has a high sugar content and can lead to rampant caries. Heroin can lead to addicts having a low threshold for pain and can cause thrombocytopaenia, in addition to interfering with drugs that dentists may prescribe. Other details regarding recreational drugs are given in Chapter 19 (titled 'Psychiatric disorders').

Complementary therapies

Complementary therapies are often used by patients. Many patients do not deem it important to tell dental practitioners that they are using such preparations, as they do not feel that it may be of any relevance. It is important to remember, however, that some of the drugs that dental practitioners prescribe can be affected by some complementary therapies. A summary of some of the more common potential interactions is given in Table 1.3.

Table 1.3 Complementary medicines and their interactions with conventional medicines with potential consequences.

Herb	Conventional drug	Potential problem
St. John's wort	Monoamine oxidase inhibitors and serotonin reuptake inhibitors Antidepressants Iron	Mechanism of herbal effect uncertain Insufficient evidence of safety with concomitant use – therefore not advised May limit iron absorption
Karela, ginseng	Insulin, sulfonylureas, biguanides	Altered glucose concentrations
Feverfew, garlic ginseng, ginger	Warfarin	Altered prothrombin time/INR
Echinacea used for >8 weeks	Anabolic steroids, methotrexate, amiodarone, ketoconazole	Hepatotoxicity
Feverfew	Non-steroidal anti-inflammatory drugs (NSAID)	Inhibition of herbal effects
Ginseng	Oestrogens, corticosteroids	Additive effects
Evening primrose oil	Anticonvulsants	Lowered seizure threshold
Kava	Benzodiazepines	Additive sedative effects, coma
Echinacea, zinc (immunostimulants)	Immunosuppressants (such as corticosteroids, cyclosporine)	Antagonistic effects

Implanted cardiac devices

Some ultrasonic scalers and ultrasonic baths produce electromagnetic interference and may therefore be a risk to patients with implanted cardiac devices such as pacemakers and implanted defibrillators. Other such devices include electronic apex locators and electrocautery devices. There is a degree of confusion in the current literature regarding what devices are and are not considered safe to use, and consultation with the appropriate authorities is therefore important.

Social history

This should be a succinct but comprehensive assessment of the patient's social circumstances. It should include the following details:

- Smoking behaviour
- Alcohol consumption – type and quantity – recommended not to exceed 14 units per week (female) and 21 units per week (male)
- Occupation (or previous occupation if retired)
- Home circumstances – a brief description of the residence – for example, a house, flat or sheltered accommodation. Who else lives in the household?

Family history

Any disorders with a genetic origin should be recorded.

Psychiatric history

This will only need to be included in specific cases. More detail is given in Chapter 18 (titled 'Medicine for the elderly').

In hospital practice, after the history comes the systems review. Specific questions are asked to further refine the available knowledge on the patient's overall medical condition. Many schemes are described, and the following scheme has been adapted for the dental clinician.

General questions

As with the history, a series of general questions can help to encompass the wide-ranging possibilities in terms of the underlying medical problems. Questions cover the following topics:

- Appetite
- Weight loss
- Fevers
- The presence of lumps or bumps
- Any rashes or itchy rashes
- Lethargy or fatigue

Cardiovascular system

- Chest pain (a differential diagnosis is given in Chapter 21, titled 'Medical emergencies')
- Dyspnoea – difficult or disordered breathing (beware of co-existing/alternative respiratory causes)

- If dyspnoea on exertion, try and quantify in terms of metres walked or number of stairs climbed before dyspnoea occurs
- Paroxysmal nocturnal dyspnoea (waking up in the night feeling breathless – see Chapter 5, titled 'Cardiovascular disorders')
- Orthopnoea (breathlessness on lying flat – see Chapter 5)
- Ankle oedema – beware of other possible causes of lower limb swelling
- Palpitations (awareness of the beating of the heart)
- Calf claudication (distance walked until pain occurs in the 'calf' muscles of the leg, referred to as the 'claudication distance')

Respiratory system

- The presence of cough, and its duration
- Whether the cough produces sputum
- Haemoptysis (coughing up blood)
- Wheezing

Gastrointestinal system

- Indigestion
- Nausea or vomiting
- Dysphagia (difficulty swallowing)
- Odynophagia (pain on swallowing)
- Haematemesis (vomiting of blood), described as looking like 'coffee grounds'
- Change in bowel habits
- Change in bowel motion – for example, pale stool and dark urine is virtually pathognomonic of obstructive jaundice (see Chapter 7, titled 'Gastrointestinal disorders')
- Melaena is the production of black stool containing blood altered by gastric acid; fresh blood indicates bleeding from further down the gastrointestinal tract

Neurological system

A brief overview is required, in particular:

- Any history of fits or faints
- Disturbance in sensation – particularly in the orofacial region
- Headache or facial pain

Musculoskeletal system

- Gait (overlaps with neurological system)
- Pain/swelling/stiffness of joints
- Impairment of function

Genitourinary system

This is usually of little relevance to the dental practitioner. Repeated urinary tract infections may be relevant insofar as the patient may be undergoing antibiotic treatment – of which the dental practitioner should be aware. For dental patients in general hospital settings, enquiry is useful regarding symptoms of prostatism. Some patients who require significant surgical

procedures may require catheterisation, and an enlarged prostate gland can lead to difficulties with catheter insertion. 'Hesitancy' is the term that is used to describe difficulty in initiating the urine stream, and 'terminal dribbling' is difficulty in stopping. Frequency of urination and nocturia (passing urine at night) should all be included.

Clinical observations in the clothed patient

While it is evident that clinical examination is important, much of the background to a patient's medical condition is gained from the history. Physical examination often serves to confirm what is suspected from the history.

Overall view of the patient

Does the patient look generally well? Is the patient of normal weight, or is he or she cachectic or obese? It is important to note whether the patient is alert or appears to be confused (Table 1.4 lists potential causes of confusion in a patient). As soon as the patient enters the surgery, note should be taken of the gait. Is the patient pale or flushed or of normal complexion? Is he or she breathless?

Not all the preceding observations are necessarily diagnostic of the precise nature of disease. However, if something does not look normal, then it probably is not, and an explanation needs to be found.

In hospitalised patients, it is important that the vital signs be recorded (Table 1.5). This is discussed further in a following section (titled 'Vital signs').

Examination of the hands

In the hands, there are several observable signs that can be of interest to a dental practitioner. The overall appearance of the

hands should be noted, together with any abnormalities of the nails, skin and muscles.

Palmar erythema can be seen in pregnancy, rheumatoid arthritis and patients with liver problems. Swollen proximal interphalangeal (PIP) joints suggest rheumatoid arthritis together with ulnar deviation of the hands (Figure 1.1). Swollen distal interphalangeal (DIP) joints suggests osteoarthritis. Gout and the skin condition psoriasis can also cause DIP joint swelling. In psoriasis, there may be the additional feature of finger nail pitting.

Dupuytren's contracture may also be seen. In this condition, the palmar fascia contracts, leading to the little finger (particularly of the right hand) being held passively in a flexed position. There is usually a palpable nodular thickening of the connective tissue overlying the ring and little fingers. The aetiology is often unknown, but can be associated with alcoholism.



Figure 1.1 Rheumatoid hands. Note the ulnar deviation, which can cause significant limitations in activities of daily living.

Table 1.4 Potential causes of confusion in a patient.

Hypoxia
Infection
Epilepsy
Hypoglycaemia
Drug or alcohol withdrawal
Stroke, myocardial infarction (MI)
Raised intracranial pressure

Table 1.5 The vital signs.

Pulse rate
Blood pressure
Temperature
Respiratory rate



Figure 1.2 Finger clubbing. There is a loss of angle between the nail surface and the skin of the finger, and the nail bed is 'boggy' to pressure.

Clubbing of the fingers should always be looked for and can represent disease processes in diverse systems (Figure 1.2). There is a loss of the angle between the nail and nail bed, and the fingernail has an exaggerated curvature in the longitudinal plane. The area around the nail fold feels boggy to palpation. Potential causes of finger clubbing are given in Table 1.6.

The fingernails may also show splinter haemorrhages that can result from mild trauma, but these may also be a sign of endocarditis (see Chapter 5, titled 'Cardiovascular disorders'). Leukonychia (white fingernails) may be seen in patients with liver disease. Koilonychia (spoon-shaped fingernails) can be seen in patients with chronic iron deficiency anaemia.

The face

If the patient's complexion is examined, it may display evidence of jaundice. This is rather subjective and unreliable. The best area to look for jaundice is the sclera of the eyes. The clinical and metabolic syndrome seen in chronic kidney disease known as 'uraemia' may also impart a yellowish tinge to the skin. The eyelids may exhibit xanthelasma – deposits in the eyelids, signifying hyperlipidaemia (Figure 1.3). Corneal arcus (Figure 1.4) can be seen in some patients. It is sometimes associated with an increased risk of coronary artery disease. There may also be the malar flush of mitral stenosis or the butterfly rash seen in systemic lupus erythematosus (SLE; see Chapter 11, titled 'Musculoskeletal disorders').

Central cyanosis may be seen by asking the patient to protrude the tongue – a bluish hue is indicative of this. Peripheral cyanosis (seen in the nail beds) is caused by peripheral vasoconstriction, which may be normal, seen in cold conditions or in shock, but may also signify peripheral vascular insufficiency.

Table 1.6 Causes of finger clubbing.

Cardiothoracic causes

- Infective endocarditis
- Cyanotic congenital cardiac disease
- Intrathoracic pus – for example, lung abscess, bronchiectasis
- Bronchial carcinoma
- Fibrosing alveolitis

Gastrointestinal causes

- Inflammatory bowel disease
- Cirrhosis of the liver

Other causes

- Familial
- Secondary to thyrotoxicosis
- Idiopathic



Figure 1.3 Xanthelasma.

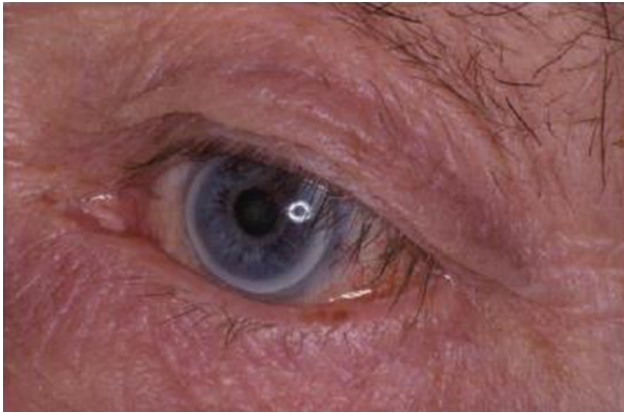


Figure 1.4 A patient with corneal arcus (also sometimes called 'arcus senilis').

Examination of the cardiovascular system in the clothed patient

All clinical examinations should follow the following scheme: inspection, palpation, percussion and auscultation.

Dyspnoea (difficult or disordered breathing) should be noted. It should be borne in mind that there may be a respiratory cause. Is the patient short of breath at rest (SOBAR), or only short of breath on exertion (SOBOE)? If the upper part of the thorax is exposed, there may be evidence of the upper end of a median thoracotomy scar. This will most commonly have facilitated access for a coronary artery bypass graft (CABG) or valve replacement procedure.

In the hands, splinter haemorrhages should be looked for together with finger clubbing and signs of anaemia. Osler's nodes and Janeway lesions may be evident (see Chapter 5, titled 'Cardiovascular disorders').

The radial pulse (thumb side of the wrist) should be taken (Figure 1.5). This is discussed further in a following section (titled 'Vital signs'). Some dental practitioners are proficient in palpating a central pulse in addition to the radial pulse (which is a peripheral pulse). The carotid pulse (a central pulse) is palpated in the neck, along the anterior border of the sternocleidomastoid muscle.

The blood pressure should be taken. The blood pressure cuff is placed around the upper arm, which is placed at rest (see Chapter 5E, titled 'Hypertension').

Jugular venous pressure

Jugular venous pressure (JVP) is a difficult thing to assess. The internal jugular vein acts as a manometer that reflects the right atrial pressure. JVP is measured with the patient sitting at 45° with the head turned slightly to the left. JVP is the vertical height of the column of blood visible in the right internal jugular vein, measured in centimetres from the sternal angle. It is raised if it is >3 cm.



Figure 1.5 Taking the radial pulse. The radial artery is passing roughly along a straight line in this area, and two or three examining fingers can therefore be used for palpation.

Oedema can be seen in some cardiac patients. Pulmonary oedema reflects left ventricular failure, whereas peripheral oedema reflects right ventricular failure. Left- and right-sided failure together constitutes congestive cardiac failure. Due to gravitational effects, peripheral oedema is seen most commonly in the ankles, but it may be seen in the sacral region in bedridden patients.

Respiratory system

On inspection, the patient may demonstrate breathlessness, cyanosis or finger clubbing (Table 1.6). There may be tar stains on the fingers from smoking – often incorrectly regarded as nicotine stains. In the clothed patient, it may be difficult to assess the thoracic shape, but symmetry should be looked for in respiratory movements, together with use of accessory muscles of respiration. Chest deformities may lead to difficulties in respiration either in isolation or together with spinal deformities. 'Kyphosis' refers to increased forward spinal curvature, and 'scoliosis' refers to increased lateral spinal curvature. On palpation, the trachea should be central in the sternal notch.

Gastrointestinal system

On inspection, the patient may show signs of purpura or spider naevi. Spider naevi can be emptied by pressing on the centre, and they refill from this point. They are only seen in the distribution of the superior vena cava. Leukonychia may be seen (a sign of hypoalbuminaemia). Finger clubbing may also be seen. In cases of marked hepatic dysfunction, a liver flap may be observed – when the hands are held outstretched, they demonstrate a marked flapping movement.

A jaundiced patient may show scratch marks on the skin due to the intense itchiness arising from the bile salts deposited within the skin. Palmar erythema may also be noted, signifying an underlying liver disorder.

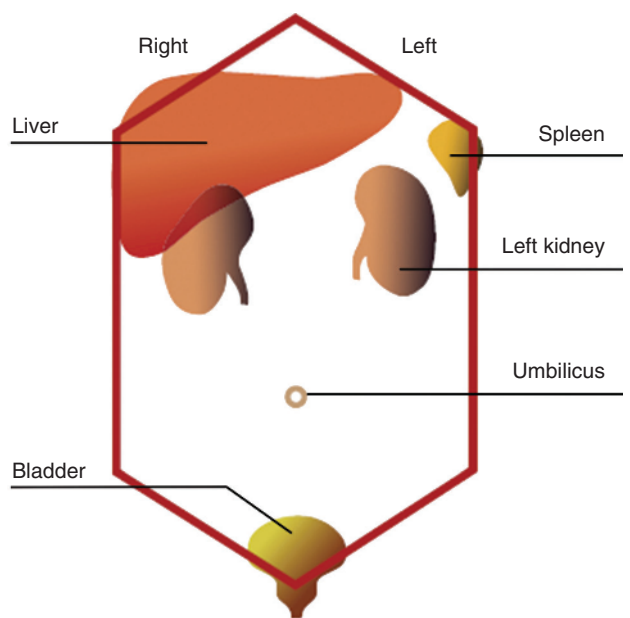


Figure 1.6 A schematic diagram of the abdomen (not to scale).

It is unusual for a dental practitioner to be called upon to examine other systems. A diagram of the abdomen is shown in Figure 1.6.

Vital signs

All hospital patients should have their vital signs measured. Vital signs are summarised in Table 1.5.

In contemporary hospital practice, vital signs are reviewed as part of the National Early Warning Score (NEWS). Any changes (normal score being zero) should prompt a review of the patient.

Pulse

The pulse is usually taken from the radial artery. In very small children and babies, the brachial pulse may be palpated in the antecubital fossa. The pulse should be assessed for its rate (in beats per minute), rhythm and volume. The rhythm of the pulse may be regular or irregular. If the pulse is irregular, this may be in a predictable pattern, in which case it is described as 'regularly irregular'. If the pulse is completely disordered, it is described as 'irregularly irregular'. The most common example of the latter is in patients with atrial fibrillation (see Chapter 5, titled 'Cardiovascular disorders'). It should be ascertained whether the pulse is strong, or weak and 'thready'. A bounding pulse can be a sign of carbon dioxide retention in patients with chronic obstructive pulmonary disease (COPD).

A pulse rate of >100 beats/min is described as 'tachycardia', and a pulse rate of <60 beats/min is described as 'bradycardia' (causes given in Table 1.7). Other abnormalities of the pulse are listed in Table 1.8.

Table 1.7 Causes of tachycardia and bradycardia.

Tachycardia (pulse rate >100 beats/min)

- Physiological – for example, exercise, emotion
- Related to fever
- Secondary to drugs – for example, adrenaline, atropine
- Hyperthyroidism
- Smoking
- Excess caffeine

Bradycardia (pulse rate <60 beats/min)

- Physiological – for example, in athletes
- Immediately post-vaso-vagal attack
- Sick sinus syndrome
- Hypothyroidism

Table 1.8 Commonly seen abnormalities of the radial pulse.

Sinus tachycardia – pulse >100 beats/min

Sinus bradycardia – pulse <60 beats/min

Atrial fibrillation – irregularly irregular pulse

Ventricular extrasystole – 'missed beats'

Blood pressure

The method for measuring blood pressure is given in Chapter 5E (titled 'Hypertension'). The figures quoted are given in millimetres of mercury. The upper figure is the systolic blood pressure (120–140 mmHg), and the lower figure the diastolic blood pressure (60–90 mmHg). Pathological changes in blood pressure are discussed in Chapter 5 (titled 'Cardiovascular disorders').

Temperature

The normal body temperature, measured orally, is 35.5–37.5°C. Many automated digital devices are now available for measuring body temperature, often in the form of a probe inserted into the external auditory meatus. In infants, the thermometer may be inserted into the armpit (axilla).

Respiratory rate

Several disease processes may be manifest by alterations in the respiratory rate and are discussed in the relevant chapters. The normal respiratory rate in a resting adult who is fit and well is 12–18 breaths/min.

Specific lesions

It is useful to have a standard set of parameters to be used in the assessment of lumps and ulcers. These can be applied to any clinical situation with minor modifications if required. These are summarised in Table 1.9 (lumps) and Table 1.10 (ulcers).

Table 1.9 Generic features to be considered in the assessment of lumps.

History
When/how was the lump first noticed?
Are there any symptoms?
Has the lump changed since it was noticed?
Does the lump ever disappear?
Are there any other lumps?
Examination
Site
Size
Shape
Surface – smooth or not – fixed to skin/deep structures
Colour of overlying skin/mucosa
Is it tender?
Edge – indistinct or well defined
Consistency – soft, fluctuant, rubbery or hard
Is it compressible?
Is it pulsatile?
Does it transilluminate when the light from a torch is shone through it?
Enlargement of local lymph nodes?
Consider blood and nerve supply to surrounding area
Is this a localised lump, or part of an associated generalised condition?

Table 1.10 Features to be considered in the assessment of ulcers.

History
Where/how was it noticed?
Symptoms
Changes since noticed
Any previous history of similar ulcers?
Examination
Site
Size
Shape
Base – slough, granulation tissue, deeper anatomy visible
Edge – sloping, suggesting healing
Punched out (square edge)
Undermined edge – for example, TB
Rolled – basal cell cancer (see Chapter 11, titled 'Musculoskeletal disorders')
Everted – squamous cell cancer (Chapter 11)
Depth
Discharge – swab for microbiological analysis
Enlargement of local lymph nodes?
Consider blood and nerve supply to surrounding area
Is this a localised ulcer, or part of an associated generalised condition?

Most of the assessments of any patient's medical condition is made on the basis of a thorough history.

Examination findings usually serve to confirm suspicions and refine findings.

FURTHER READING

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Resuscitation Council (UK). Available from: <http://www.resusc.org.uk/pages/medental.htm>.

MULTIPLE CHOICE QUESTIONS

1. Orthopnoea is a possible symptom of:
 - a) Indigestion
 - b) Seizures
 - c) Productive cough
 - d) Left-sided heart failure
 - e) Bowel cancer

Answer = D
2. Which of the following are *not* likely causes of confusion in a patient?
 - a) Hypoxia
 - b) Infection
 - c) Epilepsy
 - d) Prescription of a non-steroidal anti-inflammatory drug (NSAID)
 - e) Raised intracranial pressure

Answer = D
3. Koilonychia (spoon-shaped fingernails) is a potential sign of:
 - a) Vitamin K deficiency
 - b) Albumin deficiency
 - c) Chronic iron deficiency anaemia
 - d) Infective endocarditis
 - e) Patients with liver disease

Answer = C
4. A facially visible sign of hypercholesterolaemia is:
 - a) Malar flush
 - b) Xanthelasma
 - c) Cyanosis
 - d) Jaundice
 - e) Ptosis

Answer = B
5. Which of the following signs is *not* a potential feature of rheumatoid arthritis?
 - a) Dupuytren's contracture
 - b) Ulnar deviation of the hands
 - c) Elbow nodules
 - d) Pulmonary fibrosis
 - e) Enlarged spleen

Answer = A
6. The stated alcohol consumption limit per week for females is:
 - a) 2 units per week
 - b) 6 units per week
 - c) 10 units per week
 - d) 14 units per week
 - e) 20 units per week

Answer = D
7. Which of the following is *not* a recognised cause of finger clubbing?
 - a) Cyanotic congenital heart disease
 - b) Bronchial carcinoma
 - c) Inflammatory bowel disease
 - d) Fibrosing alveolitis
 - e) Myocardial infarction

Answer = E
8. The artery used to take the pulse at the wrist in a patient is the:
 - a) Brachial artery
 - b) Ulnar artery
 - c) Radial artery
 - d) Popliteal artery
 - e) Dorsalis pedis artery

Answer = C
9. 'Tachycardia' is defined as:
 - a) A pulse rate of more than 100 beats per minute
 - b) Another word to describe ventricular extrasystole
 - c) A pulse rate of more than 90 beats per minute
 - d) A pulse rate of more than 110 beats per minute
 - e) A pulse rate of more than 120 beats per minute

Answer = A
10. 'Bradycardia' is defined as:
 - a) A pulse rate of less than 100 beats per minute
 - b) A pulse rate of less than 90 beats per minute
 - c) A pulse rate of less than 80 beats per minute
 - d) A pulse rate of less than 70 beats per minute
 - e) A pulse rate of less than 60 beats per minute

Answer = E