1 Clinical examination and history taking

M. Greenwood

Components of a medical history

There are various ways of taking a medical history. Most methods follow a scheme similar to the one described below. The 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.

Any clinician obtaining a medical history should introduce themselves and give their designation. The taking of a history may then commence and should follow a scheme similar to that shown in Table 1.1.

Presenting complaint

The presenting complaint can be expressed 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 a presumptive diagnosis in the presenting complaint. For example, patients do not *present* with iron deficiency anaemia, they may present with symptoms which 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, e.g. tight/band-like (in the chest suggestive of cardiac origin)
- Does the pain radiate anywhere?
- Onset – sudden or gradual
- 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, e.g. 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 still worth bearing in mind a previous history of rheumatic fever which may have led to cardiac valve damage. Since the NICE (National Institute for Health and Clinical Excellence) guidelines of 2008, the use of antibiotic prophylaxis in patients with valvular lesions has been discontinued. Severe damage, however, could rarely lead to valvular damage, producing clinically relevant cardiac dysfunction.

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

It is clearly important that positive findings are recorded. Some important negative findings 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.

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.

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
- Occupation (or previous occupation if retired)
- Home circumstances – a brief description of the residence, e.g. 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.

In hospital practice, after the history comes the systems review. Specific questions are asked to refine the patient's overall medical condition further. Many schemes are described. 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 wide-ranging possibilities in terms of the underlying medical problem. 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 19)
- 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 stairs climbed before dyspnoea occurs
- Paroxysmal nocturnal dyspnoea (waking up in the night feeling breathless – Chapter 5)
- Orthopnoea (breathlessness on lying flat – Chapter 5)
- Ankle oedema – beware of other possible causes of lower limb swelling
- Palpitations (an awareness of the beating of the heart)
- Calf claudication (distance walked until pain occurs in the 'calf' muscles of the leg is referred to as the claudication distance).

Respiratory system

- The presence of a cough and its duration
- Whether the cough is productive of sputum or not
- Haemoptysis (coughing up blood)
- Wheeze.

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 habit
- Change in bowel motion, e.g. pale stool and dark urine is pathognomonic of obstructive jaundice (Chapter 7)
- Melaena is a 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 in so far as the patient may be undergoing antibiotic treatment of which the dental practitioner should be aware. For the dental patient in a general hospital setting, 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 which is used to describe difficulty in initiating the urine stream, and terminal dribbling is difficulty in stopping. Frequency of passing water and nocturia (passing urine at night) should all be included.

Clinical observations in the clothed patient

Whilst 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 are they cachectic or obese? It is important to note whether the patient is alert or appears to be confused (Table 1.2 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 a normal complexion? Are they breathless?

Table 1.2 Potential causes of confusion in a patient

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

Table 1.3 The vital signs

- Pulse rate
- Blood pressure
- Temperature
- Respiratory rate

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

It is important that in hospitalised patients the vital signs are recorded (Table 1.3). This is discussed further in the section on 'Vital signs'.

Examination of the hands

There are several signs which can be observed in the hands which are 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 suggests rheumatoid arthritis together with ulnar deviation of the hands (Fig. 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.

Clubbing of the fingers should always be looked for and can represent disease processes in diverse systems

Figure 1.1 Rheumatoid hands. Note the ulnar deviation which can cause significant limitation with activities of daily living.

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.

Figure 1.3 Xanthelasma.

Table 1.4 Causes of finger clubbing

Cardiothoracic causes
■ Infective endocarditis
■ Cyanotic congenital cardiac disease
■ Intrathoracic pus, e.g. lung abscess, bronchiectasis
■ Bronchial carcinoma
■ Fibrosing alveolitis
Gastrointestinal causes
■ Inflammatory bowel disease
■ Cirrhosis of the liver
Other causes
■ Familial
■ Secondary to thyrotoxicosis
■ Idiopathic

(Fig. 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 1.4.

The fingernails may also show splinter haemorrhages which can result from mild trauma but are also a sign of endocarditis (Chapter 5). 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 they 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 renal failure known as uraemia may also impart a yellowish tinge to the skin. The eyelids may exhibit xanthelasma – deposits in the eyelids which signify hyperlipidaemia (Fig. 1.3). Corneal arcus (Fig. 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 in systemic lupus erythematosus (SLE; Chapter 11).

Central cyanosis may be seen by asking the patient to protrude the tongue – a bluish hue is indicative. Peripheral cyanosis (seen in the nail beds) is caused by

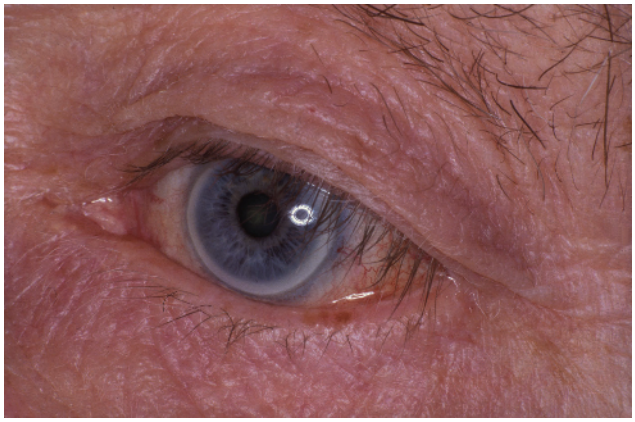

Figure 1.4 A patient with corneal arcus. Arcus senilis is a term sometimes applied to this finding.

peripheral vasoconstriction which may be normal, seen in cold conditions or in shock, but may signify peripheral vascular insufficiency.

Examination of the cardiovascular system in the clothed patient

All clinical examinations should follow the 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 are they only short of breath after exertion (SOBOE)? If the upper part of the thorax is exposed there may be evidence of the upper end of a median thoracotomy scar. Most commonly this will 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).

The radial pulse (thumb side of the wrist) should be taken (Fig. 1.5). This is discussed further in the section on 'Vital signs'. It is important that the dental practitioner is 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 (Chapter 5E).

Jugular venous pressure

The jugular venous pressure (JVP) is a difficult thing to assess. The internal jugular vein acts as a manometer

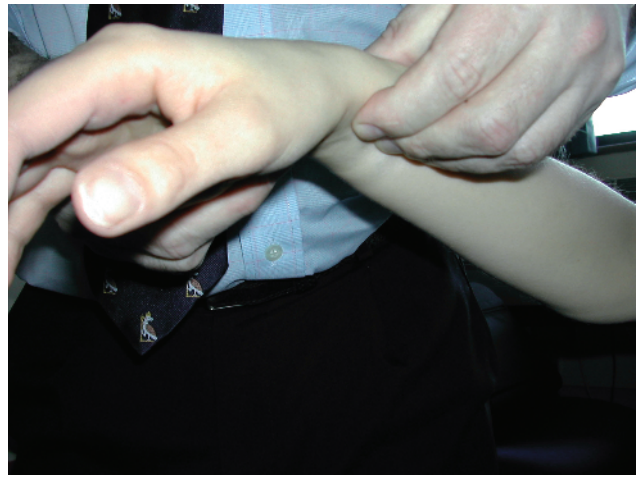

Figure 1.5 Taking the radial pulse. The radial artery is roughly lying along a straight line in this area and therefore two or three examining fingers can be used for palpation.

which reflects right atrial pressure. The JVP is measured with the patient sitting at 45° with the head turned slightly to the left. The 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.

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 in bed-ridden patients the oedema may be seen in the sacral region.

Respiratory system

On inspection, the patient may be breathless, cyanosed or demonstrate finger clubbing (Table 1.4). There may be tar stains on the fingers from smoking – often incorrectly referred to 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 an increased forward spinal curvature and scoliosis refers to an 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

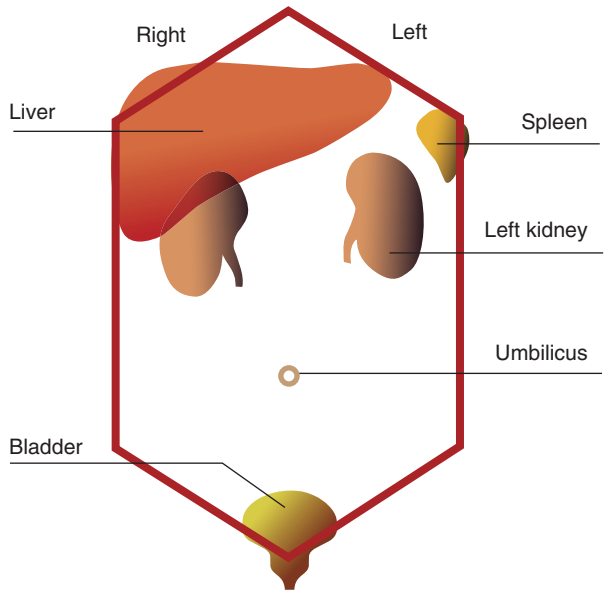

Figure 1.6 A schematic diagram of the abdomen (not to scale).

Table 1.5 Causes of tachycardia and bradycardia

Tachycardia (pulse rate >100/min)
- Physiological, e.g. exercise, emotion
- Related to fever
- Secondary to drugs, e.g. adrenaline, atropine
- Hyperthyroidism
- Smoking
- Excess caffeine

Bradycardia (pulse rate <60/min)
- Physiological, e.g. in athletes
- Immediately post-vaso-vagal attack
- Sick sinus syndrome
- Hypothyroidism

Table 1.6 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'

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.

The 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.

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

Vital signs

All hospital patients should have their vital signs measured. The vital signs are summarised in Table 1.3.

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). 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 >100 beats/min is described as a tachycardia, and a pulse rate <60 beats/min is described as a bradycardia (causes given in Table 1.5). Other abnormalities of the pulse are listed in Table 1.6.

Blood pressure

The method for measuring blood pressure is given in Chapter 5E. 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.

Temperature

The normal body temperature, measured orally, is 35.5–37.5°C. Many automated digital devices are now available for measuring body temperature and often take 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 alteration in the respiratory rate and are discussed in the relevant

Table 1.7 Generic features to be considered in the assessment of any lump

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 1.8 Features to be considered in the assessment of an ulcer

History
Where/how was it noticed?
Symptoms
Changes since noticed
History of previous similar ulcers?

Examination
Site, size, shape
Base – slough, granulation tissue, deeper anatomy visible
Edge – sloping, suggesting healing
Punched out (square edge)
Undermined edge, e.g. TB
Rolled – basal cell cancer (Chapter 11)
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?

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 or ulcers. These can be applied to any clinical situation with minor modification if required. These are summarised in Table 1.7 (lump) and Table 1.8 (ulcer).

Summary

Most of the assessment of any patient is made on the basis of a thorough history. Examination findings usually serve to confirm suspicions and refine findings.