# Signs and symptoms 4

**KEY POINTS**

- Listen
- Look

This chapter alphabetically summarizes a range of the more important medical conditions.

## ABDOMINAL PAIN

Abdominal pain is common and often due to gastroenteritis. Acute and severe pain may be a symptom of more serious intra-abdominal disease, from inflammatory bowel disease to various 'surgical emergencies' ('acute abdomen'); this includes appendicitis, intestinal obstruction, perforated peptic ulcer, perforated diverticulitis, ectopic pregnancy, twisted ovarian cyst, dissecting abdominal aneurysm, mesenteric embolism or thrombosis, biliary tract disease, pancreatitis and renal stone. A leaking abdominal aneurysm is an emergency.

Gangrene and intestinal perforation can follow as little as 6 hours after interruption of the intestinal blood supply from appendicitis, a strangulating obstruction or arterial embolism – and can lead to potentially fatal peritonitis.

## ALOPECIA

Alopecia (hair loss) may be temporary and caused, for example, by radiotherapy, cytotoxic chemotherapy, other drugs (e.g. anticoagulants, retinoids, beta-blockers and oral contraceptives) or tinea capitis (ringworm). More permanent alopecia may be:

- *involutional alopecia* – the gradual progressive normal thinning of the hair seen in ageing in both sexes
- *androgenic alopecia* – a genetically predisposed condition that affects both sexes, earlier in men than women, with the hairline receding and hair from the crown gradually and permanently disappearing (male-pattern baldness)
- *alopecia areata* – patchy hair loss in children and young adults of uncertain cause, often sudden in onset and sometimes causing complete baldness, though the hair regrows within a few years in 90%
- *alopecia universalis* – loss of all body hair of uncertain cause, with a low chance of regrowth, especially when in children.

Autoimmune diseases, particularly lupus erythematosus, may also cause hair loss, as may factitious (self-induced) hair-pulling.

## AMENORRHOEA

Amenorrhoea – absence of menstruation (menses) – is pathological, except before puberty, during pregnancy or early lactation, and after the menopause. Amenorrhoea may be caused by anatomical abnormalities, endocrine dysfunction (hypothalamic, pituitary, adrenal, thyroid, anorexia nervosa or other), cirrhosis, chemo- or radio-therapy, ovarian failure or genetic defects.

Amenorrhoea is either primary (menarche has not occurred by age 16) or secondary (menses have not occurred for 3 or more months in women who have had menses).

## ANAEMIA

Anaemia is a reduction in the haemoglobin level for an individual's age and sex. Anaemia may be normocytic, microcytic or macrocytic, according to the cause (Ch. 8).

## ANGINA PECTORIS

See 'Chest pain' and Chapter 5.

## ANOREXIA

Anorexia, or loss of appetite, is a non-specific symptom seen in many conditions, but notably in malignant disease (Ch. 22), chronic infections and eating disorders (Ch. 27).

## ANOSMIA

Anosmia (loss of the sense of smell) is usually due to nasal occlusion from the common cold, rhinitis, hay fever or nasal polyps. Some loss of smell may be normal with ageing but medications may change or impair the ability to detect odours. Anosmia can also arise from damage to olfactory nerves after head injury, radiotherapy or viral infections. Systemic causes include cerebrovascular events, Alzheimer dementia, tabes (syphilis), brain tumours, and many endocrine, nutritional and nervous disorders.

## ANXIETY

Anxiety is common, and may be normal or part of a psychiatric disorder (Ch. 10), but it may also be caused by stimulant drugs such as amphetamines, caffeine, cocaine, ecstasy and many others – or by their withdrawal; neurological disorders (brain trauma, infections, inner ear disorders); cardiovascular disorders (cardiac failure, arrhythmias); endocrine diseases (adrenal or thyroid hyperfunction, hypoglycaemia, phaeochromocytoma); or respiratory diseases (asthma, chronic obstructive pulmonary disease).

## APHASIA

Aphasia is a language disorder that impairs both expression and understanding of language, as well as reading and writing. Aphasia results from damage to the left cerebral hemisphere, often as the result

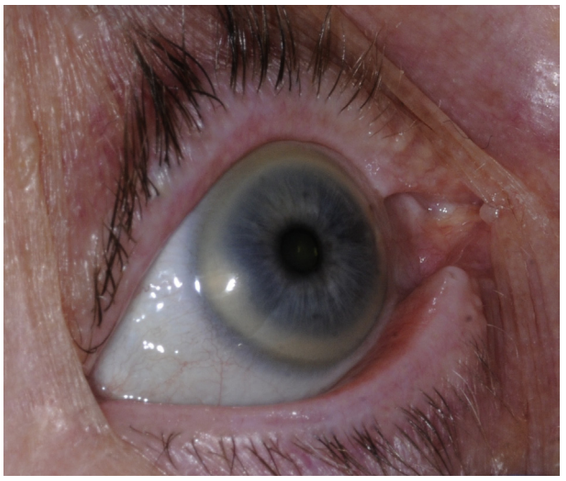

**Fig. 4.1** Corneal arcus.

of a stroke, injury or tumour. Speech disorders such as dysarthria or apraxia of speech, which also result from brain damage, may be associated.

## ARCUS (CORNEAL ARCUS)

Corneal arcus (arcus senilis) is a white or grey ring in the eyes due to cholesterol deposits in the cornea (Fig. 4.1); it is seen mainly in older age groups. These rings cause no visual problems but can indicate a problem with cholesterol metabolism – and an increased risk of ischaemic heart disease. Corneal arcus not only is associated with high cholesterol levels, but also can be seen in people with diabetes or hypertension, or those who smoke tobacco.

## ARRHYTHMIAS

See Chapter 5.

## ASCITES

Ascites is the accumulation of fluid in the peritoneal cavity, either from peritoneal sources (bacterial, fungal or parasitic disease; cancer [malignant ascites]; endometriosis or starch peritonitis) or from extraperitoneal sources (cirrhosis, congestive heart failure, hypoalbuminaemia, myxoedema or ovarian disease, e.g. Meig syndrome).

## ATAXIA

Ataxia is incoordination or clumsiness of movement that has a cerebellar, vestibular or sensory (proprioceptive) origin rather than being the result of muscle weakness. In ataxia, movement is uncoordinated – defined as an inability to coordinate movements finely. Causes include: drugs (e.g. alcohol, aminoglutethimide, anticholinergics, phenytoin, carbamazepine, phenobarbital and tricyclic antidepressants); stroke or transient ischaemic attack (TIA); multiple sclerosis; head trauma; poisoning; and hereditary conditions (congenital cerebellar ataxia, Friedreich ataxia, ataxia telangiectasia). Ataxia may also follow infection (typically chickenpox or encephalitis).

*Cerebellar ataxia* is produced by lesions of the cerebellum or its afferent or efferent connections in cerebellar peduncles, pons or red nucleus.

*Vestibular ataxia* is produced by lesions anywhere along the eighth nerve pathway from labyrinth to brainstem or in the vestibular nuclei. Viral labyrinthitis is a typical cause. Nystagmus is frequently present, typically unilateral, and most pronounced on gaze away from the side of vestibular involvement. Vestibular ataxia is also gravity-dependent – incoordination of limb movements cannot be demonstrated when the patient is examined lying down but only when the patient attempts to stand or walk.

*Sensory ataxia* can result from abnormalities anywhere along the afferent pathway from peripheral nerve to the parietal cortex. Clinical findings include defective joint position and vibration sense in the leg and sometimes the arms, unstable stance with Romberg sign (sways with eyes shut), and a gait of slapping quality.

## BACK PAIN

Back pain is a very common complaint; nearly four out of five people experience it at some time. Most cases do not have a definable cause but sedentary jobs and lifestyles predispose, as can obesity, or strenuous sports such as football and gymnastics. Women who have been pregnant, smokers, and workers who repetitively lift heavy objects are all at greater risk of back pain.

Back pain can develop from:

- spinal causes – muscular disorders or strain, back overuse or injury, pressure on a nerve root or ruptured intervertebral/vertebral disc ('slipped disc'), spinal arthritis, fractures or metastases
- non-spinal causes – menstruation or premenstrual syndrome (PMS), endometriosis or ovarian cysts.

## BLEEDING TENDENCIES

Prolonged bleeding usually has a local cause such as excessive operative trauma (Ch. 5). Other causes include: haemorrhagic disease; anticoagulants; uncontrolled hypertension; and aspirin or other drugs that interfere with platelet function.

## BLINDNESS

See 'Visual impairment'.

## BRADYCARDIA

Bradycardia (slow pulse rate) may have intrinsic or extrinsic causes (Ch. 5).

*Intrinsic causes* include: myocardial infarction, ischaemia or idiopathic degeneration; infiltrative diseases (sarcoidosis, amyloidosis or haemochromatosis); collagen diseases; myotonic muscular dystrophy; surgical trauma; and endocarditis.

*Extrinsic causes* include: autonomically mediated syndromes (vomiting, coughing, micturition, defecation, etc.); carotid-sinus hypersensitivity from vagal hypertonicity; drugs (beta-adrenergic blockers, calcium-channel blockers, clonidine, digoxin, antiarrhythmic agents); hypothyroidism; hypothermia; neurological disorders (affecting the autonomic nervous system); and electrolyte imbalances (hypokalaemia, hyperkalaemia).

**Table 4.1** *Main causes of acute chest pain*

| Cause of pain | Features | Predisposing factors |
|---|---|---|
| Myocardial infarction | Severe persistent crushing retrosternal pain, possibly radiating to left arm. Unrelieved by glyceryl trinitrate. May be accompanied by nausea or vomiting | Coronary heart disease<br>Hypertension |
| Angina pectoris | Retrosternal pain, possibly radiating to left arm. Often previously experienced. Relieved in 3 min by glyceryl trinitrate | Coronary heart disease<br>Hypertension |
| Acute abdominal pain | Pain location is of particular importance. Depending on cause, there may be concomitant symptoms such as gastro-oesophageal reflux, nausea, vomiting, diarrhoea, constipation, jaundice, melaena, haematuria, haematemesis, weight loss, and mucus or blood in stool | Serious causes: ruptured abdominal aortic aneurysm, perforated viscus, mesenteric ischaemia, ruptured ectopic pregnancy, intestinal obstruction, appendicitis, pancreatitis |
| Dissecting aneurysm | Sudden severe chest or upper back pain, often described as tearing, ripping or shearing sensation that radiates down back, loss of consciousness, shortness of breath | Men between 40 and 70 y |
| Oesophagitis | Low retrosternal pain on lying down or stooping. Improved by antacids | Hiatus hernia |
| Anxiety (hyperventilation) | Anxious patients with precordial pain. Overbreathing, panic and precordial pain | Stress |
| Trauma | Obvious history | – |
| Lung infection or tumour | Pain on inspiration. May be accompanied by dyspnoea or cough | Pneumonia<br>Pleurisy<br>Bronchogenic carcinoma |

**Table 4.2** *Causes of finger clubbing*

| Hereditary | Respiratory | Cardiovascular | Gastrointestinal | Metabolic |
|---|---|---|---|---|
| | Lung cancer | Endocarditis | Ulcerative colitis | Thyrotoxicosis |
| | Bronchiolitis | Cyanotic congenital heart disease | Crohn disease | Acromegaly |
| | Fibrosing alveolitis | | Coeliac disease | |
| | Asbestosis | | Liver disease | |
| | HIV, fungal and mycoplasmal infections | | | |
| | Mesothelioma | | | |

## CERVICAL LYMPH NODE ENLARGEMENT

See ‘Lymphadenopathy’.

## CHEST PAIN

Angina and myocardial infarction (acute coronary syndromes) are the main causes of acute chest pain (Table 4.1; Ch. 5).

## CLUBBING OF FINGERS

Finger-clubbing is enlargement of the end of the digits. The cause is uncertain but might be hypoxia and circulating hormones such as erythropoietin. Clubbing can be hereditary but is usually acquired (Table 4.2).

## COMA

A coma is profound unconsciousness in which the person is alive but unable to react or respond to stimuli. Coma results from central nervous system (CNS) diseases and conditions that affect CNS function, especially brain trauma, stroke, tumour, epilepsy, infection (e.g. meningitis), metabolic abnormalities (diabetic coma, ketoacidosis or electrolyte abnormality – hypernatraemia, hypercalcaemia), intoxication (e.g. alcohol, drugs of abuse, analgesics, anticonvulsants, antihistamines, benzodiazepines, digoxin, heavy metals, hydrocarbons, barbiturates, insulin, lithium, organophosphates, phencyclidine, phenothiazines, salicylates or tricyclic antidepressants), shock, hypoxia or hypotension (arrhythmia, heart failure).

Persistent coma is termed the vegetative state. Level of consciousness is assessed by the Glasgow Coma Scale (Ch. 24).

## CONFUSION

The confused patient has fluctuating consciousness and impaired orientation and short-term memory, and is usually more confused at night. Causes are multiple and include old age, dementia and most of the causes of coma. See also “delirium”. Delusions or hallucinations can cause severe agitation. The confused patient should receive immediate medical attention since brain damage may result from many of the causes (see ‘Coma’). Confusional states need to be differentiated from dementia, in which there are similar disturbances of orientation and memory, with unimpaired consciousness.

## CONSTIPATION

Constipation is the passage of small amounts of hard, dry faeces, usually fewer than three times a week. If they do not have a bowel movement every day, some people believe they are constipated or irregular – but

there are no criteria for 'normal'. Constipation is the most common gastrointestinal complaint.

Common causes include: lifestyle habits; inadequate dietary fibre, liquids or exercise; changes in life or routine, such as pregnancy, older age and travel; abuse of laxatives; or ignoring the urge to have a bowel movement. Codeine, opioids, antacids that contain aluminium, antispasmodics, antidepressants, iron supplements, diuretics and anticonvulsants may be implicated. More important but less common causes include colorectal disease (obstruction, scar tissue [adhesions]), diverticulosis, tumours, strictures, irritable bowel syndrome and Hirschsprung disease. Constipation may also be caused by systemic disease, such as neurological disorders (multiple sclerosis, Parkinson disease, chronic idiopathic intestinal pseudo-obstruction, stroke, spinal cord injuries), metabolic and endocrine conditions (diabetes, thyroid dysfunction, uraemia), or immunological disorders (amyloidosis, lupus, scleroderma).

## COUGH

A cough is a sudden, voluntary or involuntary, explosive expiratory manœuvre that intends to clear material (sputum) from the airways. Transient cough may simply be a mechanism to expel mucus or an inhaled foreign body. Cough is typical of respiratory, and sometimes of cardiac, disorders. Angiotensin-converting enzyme inhibitors (ACEIs) may also produce a cough.

A morning cough persisting until sputum is expectorated typifies chronic bronchitis. A cough that is provoked by exposure to cold air or during exercise may suggest asthma. Cough associated with rhinitis or wheezing or that is seasonal may be allergic. Cough induced by postural change may suggest chronic lung abscess, tuberculosis, bronchiectasis or a tumour. Cough associated with eating suggests a swallowing disturbance, or possibly pharyngeal pouch or tracheo-oesophageal fistula. A persistent cough should be taken seriously and tumours and infections excluded. See also "haemoptysis"

## CYANOSIS

Cyanosis is a bluish or purplish tinge to the skin due to very low oxygen saturation ($Sa O_2$) and thus excess reduced (deoxygenated) haemoglobin. Approximately 5 g/dL of reduced haemoglobin has to be present in the capillaries to generate the dark blue colour of cyanosis. For this reason, patients who are anaemic may be hypoxaemic without showing any cyanosis.

*Peripheral cyanosis* is a dusky or bluish tinge to the fingers and toes. When unaccompanied by hypoxaemia, it is caused by peripheral vasoconstriction as in the cold, especially in Raynaud disease.

*Central cyanosis* (where the colour is also seen in the lips or the mouth) is more serious and is usually an indication of hypoxaemia because of cardiac failure or respiratory disease, or both in cor pulmonale. Many factors, from natural skin pigment to room lighting, can affect detection of cyanosis and, if hypoxaemia is suspected, measurement of the oxygen level is necessary (arterial blood gas determination, pulse oximetry). Central cyanosis is an indication of gross hypoxia; such patients needing conscious sedation must be dealt with in hospital.

## DELIRIUM

Delirium is a state of mental confusion, caused by a disturbance in normal brain functioning, which develops quickly and usually fluctuates in intensity. More frequent in older people, delirium affects 1 in 10 hospitalized patients and is common in many terminal illnesses.

In contrast to dementia, delirium appears quickly, in hours or days, with a fluctuating level of consciousness. There may be limited awareness of the environment; confusion or disorientation (especially of time); memory impairment, especially of recent events; hallucinations, illusions and misinterpreted stimuli; mood disturbance, possibly including anxiety, euphoria or depression; and language or speech impairment. There are many possible causes of delirium, including:

- metabolic encephalopathy – hepatic or renal failure, diabetes, hyperthyroidism or hypothyroidism, vitamin deficiencies, fluid and electrolytes imbalance or severe dehydration
- drug intoxication – alcohol, anticholinergics (including atropine, hyoscine [scopolamine], chlorpromazine and diphenhydramine), sedatives (including barbiturates and benzodiazepines), antidepressants (including lithium, anticonvulsant drugs, corticosteroids), anticancer drugs (including methotrexate, procarbazine, cimetidine) and street drugs (e.g. marijuana, lysergic acid diethylamide [LSD], amphetamines, cocaine, opioids, phenylcyclidine, inhalants, legal highs)
- poisons – e.g. carbon monoxide, heavy metals, insecticides (e.g. parathion and carbaryl), mushrooms (such as *Amanita* spp.) and plants (jimsonweed [*Datura*] and morning glory [*Ipomoea* spp.])
- fever, cerebral disorders (infection, head trauma, epilepsy, cerebrovascular events, brain tumour), blood gas changes (hypoxaemia, hypercapnia) or following surgery.

## DEMENTIA

Dementia is a progressive loss of mental ability, including the ability to remember, think and reason (Ch. 10). The most common features include changes in memory, behaviour, mood and personality, and difficulty in communicating or understanding. Alzheimer disease is the most common form and responsible for about 50% of cases. Vascular dementia is the second leading cause and is a result of several TIAs. Other causes include parkinsonism, Huntington disease, human immunodeficiency virus (HIV) infection and Creutzfeldt–Jakob disease. Dementia may be reversible if caused by brain diseases or conditions such as tumours, depression or alcoholism.

## DIARRHOEA

Diarrhoea is defined as loose, watery stools passed more than three times in a day. Diarrhoea may be temporary, such as from an infection; this is common, usually lasts a day or two and resolves spontaneously. Prolonged diarrhoea can be a sign of other disorders, particularly intestinal disease such as infections: bacterial infections or toxins, such as preformed staphylococcal enterotoxin (from *S. aureus*) in contaminated food or water; viral infections; parasites; food intolerances (e.g. to lactose); drug reactions (such as to antibiotics like clindamycin, and antacids containing magnesium); intestinal diseases (inflammatory bowel disease, coeliac disease or irritable bowel syndrome); or after surgery (e.g. gastric surgery or cholecystectomy).

Where food hygiene is poor, diarrhoea can be life-threatening, especially if due to infections such as shigellosis (bacillary dysentery), *Escherichia coli* or cholera. The passing of blood in the stools is typical of severe diarrhoea – termed dysentery.

## DIPLOPIA

Double vision (diplopia) is the simultaneous perception of two images of a single object displaced horizontally, vertically or diagonally (i.e. both

**Table 4.3** *Causes of diplopia*

| Structure involved | Site | Causes | Features that may be associated |
|---|---|---|---|
| Extraocular muscles | Orbit | Trauma | Middle-third facial fracture |
| | | Exophthalmos | Thyrotoxicosis |
| | | Myasthenia gravis | Myopathy |
| Cranial nerves III, IV and VI | Orbit | Trauma, tumour, sarcoid | Middle-third facial fracture |
| | Superior orbital fissure | Trauma, tumour, sarcoid | Often several muscles paralysed. Involvement of ophthalmic division of trigeminal. Pupil often normal |
| | Cavernous sinus | Aneurysms, infection, fistula, trauma | Similar to superior orbital fissure syndrome |
| | Skull base | Aneurysms, tumours, meningitis, fractures | May be involvement of single nerves; may be pupil dilatation |
| Cranial nerve nuclei | Brainstem | Vascular lesions, tumours, multiple sclerosis | May be involvement of trigeminal or facial nerves or complex neurological disorders |

vertically and horizontally) in relation to each other. Diplopia is caused by misalignment of the eyes due to visual functional defects, mainly stemming from eye muscle or neurological disorders; by a structural defect in the eye's optical system; or by drugs (e.g. alcohol, phenytoin, carbamazepine or lamotrigine). Diplopia may be an occasional transient complication of dental LA injections, presumably because anaesthetic tracks to the inferior orbital fissure, where it can block orbital nerves. Diplopia is not uncommon after maxillofacial or head trauma (from assault, accident and/or alcohol or drugs) but usually resolves spontaneously within a few days or weeks. Persistent diplopia after trauma can be caused by blow-out fractures of the floor of the orbit, entrapment of (or damage to) the orbital muscles or damage to the suspensory ligament to the frontal process or the zygomatic bone. Later fibrous adhesions between the orbital periosteum and coverings of the eye may cause permanent limitation of movement, as may injury to cranial nerves III, IV and VI (Table 4.3). Paralytic strabismus is characterized by variable deviation of the ocular axes according to the position of gaze and is the usual type of strabismus that follows maxillofacial injuries.

## DIZZINESS

Dizziness (vertigo) is a sensation of feeling unsteady or giddy, sometimes with a sensation of movement, spinning or floating. It is often due to disorders of the labyrinth. Movement of fluid in the semicircular canals signals the direction and speed of rotation of the head. Dizziness can also be due to central vestibular disorders (a problem in the brain or its connecting nerves); Ménière disease – an inner-ear fluid balance disorder that also causes fluctuating hearing loss and tinnitus (ringing in the ears); or perilymph fistula – a leakage of inner ear fluid to the middle ear. Dizziness can follow head injury or physical exertion; rarely, it has no known cause. Benign paroxysmal positional vertigo (a brief intense sensation of vertigo caused by a specific positional change of the head), labyrinthitis (inner ear infection) and vestibular neuronitis (a viral infection of the vestibular nerve) are other causes. Systemic disorders (vascular disorders) may occasionally be implicated.

## DROOLING

See 'Sialorrhoea'.

## DRY MOUTH

Important causes of dry mouth (hyposalivation) are drugs, irradiation of major salivary glands, Sjögren syndrome and infections (Box 4.1).

**Box 4.1** *Causes of dry mouth*

***Iatrogenic***

- Drugs (antimuscarinics, sympathomimetics)
- Cancer therapy (irradiation of salivary glands, radioactive iodine, cytotoxic drugs)
- Graft-versus-host disease

***Salivary gland disease***

- Aplasia
- Sjögren syndrome
- Sarcoidosis
- Infection with HIV, human T-lymphotropic virus 1 (HTLV-1), hepatitis C or other viruses
- Infiltrates (amyloidosis; haemochromatosis)
- Cystic fibrosis
- Others

***Dehydration***

- Diabetes mellitus
- Diabetes insipidus
- Renal failure
- Haemorrhage
- Other causes of fluid loss or deprivation

If dry mouth occurs when salivary flow is normal, it may be psychogenic. Smoking and alcohol use aggravate the complaint of dry mouth – xerostomia.

## DUPUYTREN CONTRACTURE

Dupuytren contracture affects the hands and fingers, cause one or more finger, on one or both hands, to bend into the palm (Fig. 4.2). Apart from familial cases, diabetes, epilepsy, heavy smoking and heavy alcohol consumption have also been linked to the contracture.

## DYSPHAGIA

Swallowing is a process by which food and liquid move from the mouth, through the pharynx and then the oesophagus, and into the stomach. Each individual swallows 500–2000 times per day and swallowing also occurs during sleep. It is divided into three phases:

- Oral – food is reduced to a bolus, chewed, mixed with saliva and then transported from the anterior to the posterior oral cavity.

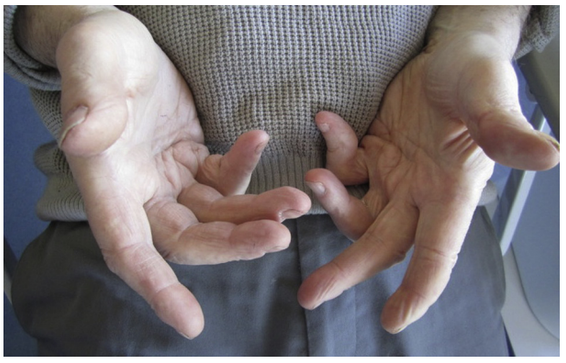

**Fig. 4.2** Dupuytren contracture affecting both hands.

- Pharyngeal – the velopharyngeal opening completely closes, the hyoid and larynx ascend and the epiglottis folds down. The tongue base makes contact with the pharyngeal wall to form a seal and the pharyngeal muscles start to contract. The laryngeal inlet closes and the vocal cords adduct. The cricopharyngeus then relaxes, the upper oesophageal inlet opens and apnoea prevents food from entering the airway.
- Oesophageal – the upper oesophageal sphincter opens and peristalsis carries the bolus through the oesophagus to the stomach. This phase may take 10–12 seconds.

Cranial nerves IX to XII, and the pharyngeal muscles in particular, are essential to swallowing (Box 4.2). Dysphagia is 'difficulty in swallowing' (from the Greek *dys* meaning difficulty or disordered, and *phagia* 'to eat') and has many causes; older people in particular may develop swallowing dysfunction. This is due mainly to conditions such as cerebrovascular events or Parkinson's disease. People with mental impairment often have cognitive and physiological impairments that may result in dysphagia.

Dysphagia may be secondary to defects in any stage of the swallowing process:

- *Neurological causes* – may be fixed or progressive (Table 4.4)
- *Mechanical and obstructive causes*:
  - Infections, e.g. tonsillitis, dental abscess, tuberculosis
  - Traumatic injuries to the face/neck
  - Reduced muscle compliance
  - Zenker diverticulum (pharyngeal pouch)
  - Thyromegaly
  - Oesophageal strictures
  - Oesophageal malignancies
  - Lung malignancies/lymphomas
  - Head/neck malignancies
  - Cervical osteophytes.
- *Drug-induced, caused by*:
  - medications affecting the oesophageal muscles, e.g. oxybutynin, tolterodine
  - combinations of medications that produce a dry mouth, e.g. diuretics, calcium-channel blockers, antihistamines; antipsychotic/neuroleptic drugs may cause a dry mouth and, additionally, some can cause movement disorders that may affect the muscles of the face and tongue used in swallowing (e.g. haloperidol, risperidone, clozapine)
  - local anaesthetics used for dental treatment, which may cause a temporary loss of sensation and ability to swallow
  - drugs affecting the CNS and swallowing (antiepileptic medication, benzodiazepines, narcotics and smooth muscle relaxants).

**Box 4.2** *Causes of dysphagia*

***Psychogenic***
- Globus hystericus

***Organic***

***Mouth***
- Dry mouth
- Inflammatory or neoplastic lesions

***Pharynx***
- Inflammatory or neoplastic lesions
- Foreign bodies
- Sideropenic dysphagia (Paterson–Brown-Kelly syndrome)
- Pouch

***Oesophagus***
- Benign stricture
- Inflammatory or neoplastic lesions
- Scleroderma
- External pressure from mediastinal lymph nodes

***Neurological and neuromuscular causes***
- Achalasia
- Cerebellar disease
- Cerebral palsy
- Cerebrovascular accidents
- Cerebrovascular disease (pseudobulbar palsy)
- Dermatomyositis
- Diphtheria
- Guillain–Barré syndrome
- Motor neuron disease
- Muscular dystrophies
- Myasthenia gravis
- Myopathies
- Parkinsonism
- Poliomyelitis
- Syringobulbia

**Table 4.4** *Neurological causes of dysphagia*

| Non-progressive | Progressive |
|---|---|
| Cerebral palsy | Amyotrophic lateral sclerosis |
| Cerebrovascular events | Cerebrovascular events |
| Post-surgery | Dementia |
| Traumatic brain injury | Head and neck malignancies |
| | Huntington disease |
| | Multiple sclerosis |
| | Muscular/myotonic dystrophy |
| | Myasthenia gravis |
| | Parkinson disease |
| | Supranuclear palsy |

Swallowing may be assessed by watching for signs of leakage from the mouth, facial weakness, poor muscular coordination, delayed pharyngeal/laryngeal elevation, choking, breathlessness and changes in voice quality after swallowing. The 'gold standard' is videofluoroscopy

(VFS; modified barium swallow), in which radio-opaque barium liquid is swallowed by the patient and moving images of swallowing are captured. Fibreoptic endoscopic evaluation of swallowing (FEES) with nasoendoscopy has an advantage over VFS in that it is a bedside procedure with no radiation exposure.

Swallowing problems may lead to inhalation of either oropharyngeal or gastric contents into the airway. Aspiration may lead to chest infections, which are the leading cause of death in such people. The main risk of dysphagia is choking if the passage of air to the lungs is blocked by a foreign body; this is a precursor to asphyxiation. Signs of choking include coughing, gagging, inability to speak, breathe or cry, loss of consciousness and cyanosis. If the obstruction is not successfully removed, the patient is at risk from asphyxiation and ultimately death.

The major dental concern when treating patients with dysphagia is the risk of aspiration during treatment, which may lead to choking or aspiration pneumonia.

## DYSPNOEA

Dyspnoea is difficulty in breathing. Functional causes include anxiety, panic disorders and hyperventilation. Organic causes include cardiac and respiratory disorders and anaemia. Dyspnoea is typically exacerbated by exercise, but may occur at rest and persist or worsen when lying down (orthopnoea). Paroxysmal nocturnal dyspnoea (cardiac asthma) is a sudden attack of severe dyspnoea due to pulmonary oedema that wakes the patient from sleep with a terrifying sensation of suffocation.

## DYSRHYTHMIAS

See Chapter 5.

## DYSURIA

Dysuria is the sensation of pain or burning on urination. It is more common in women than in men, and then bacterial cystitis (usually after intercourse) is the commonest cause. In men too, dysuria is usually a result of urinary tract infection – in younger patients most often caused by a sexually transmitted organism such as *Chlamydia trachomatis*. In those over 35 years, coliform bacteria predominate and infection typically results from urinary stasis secondary to prostatic hyperplasia.

Dysuria in either sex may occasionally be caused by renal calculus, genitourinary malignancy, spondyloarthropathy and medications.

## EARACHE

As aircraft descend, pressure rises even in the normal middle ear, and this can cause excruciating pain. Earache (otalgia) is commonly due to middle ear infection (otitis media) and is especially common in children, often following a sore throat or cold. There is severe pain and often a temporary loss of hearing; with severe infections, the ear drum may perforate, causing a leakage of pus from the ear. Tumours in the middle ear are uncommon but include cholesteatoma. Pain may be referred to the ear from elsewhere, such as tongue cancer, the antra, dental abscesses and temporomandibular disorders.

## ENCOPRESIS

Encopresis is the soiling of underwear with stool by children who are past the age of toilet training, but it is not considered a medical condition unless the child is at least 4 years old. A large amount of hard stool is in the intestine, and stool leaks around this mass and out through the anus. The best way to prevent encopresis is to avoid constipation by eating a varied diet with plenty of fruits and vegetables and wholegrain bread and cereals.

## EPILEPSY

See Chapter 13.

## EPISTAXIS (NOSEBLEEDS)

Most nosebleeds are caused by nose-picking, minor nose injuries, the common cold, or vigorous nose-blowing or sneezing. Rarely, they may be caused by a foreign body lodged in the nose, barotrauma, chemical irritants, drugs (e.g. anticoagulants, anti-platelet agents, non-steroidal anti-inflammatory drugs [NSAIDs] or vitamin E), maxillofacial or nasal surgery, hereditary telangiectasia or thrombocytopenia.

## EROSION OF TEETH

Tooth erosion can result from exposure to dietary acidic sources (carbonated drinks, citrus fruits and juices, pickles, vinegar, wine) or some drugs (e.g. chewable vitamin C); regurgitated gastric contents (anorexia nervosa, bulimia, gastro-oesophageal reflux or alcoholism); industrial sources (various acids); or, rarely, other sources (e.g. swimming-pool water).

## EXOPHTHALMOS

See ‘Proptosis’.

## FAINTING (VASOVAGAL SYNCOPE)

Syncope, commonly called fainting or ‘passing out’, is a temporary loss of consciousness due to a sudden decline of brain blood flow. Syncope can occur in otherwise healthy people and affects all age groups, but does so more often in older people. Vasovagal syncope is a reflex mediated by autonomic nerves in which there is splanchnic and skeletal muscle vasodilatation, bradycardia and thus diminished cerebral blood flow, leading to loss of consciousness. Fainting can be precipitated by psychological factors (e.g. pain, or fear at the sight of a needle or blood); postural changes; hypoxia; or carotid sinus syndrome. The latter is usually seen in older patients in whom mild pressure on the neck causes a vagal reaction, leading to syncope with bradycardia or cardiac arrest. Vasovagal syncope is treated by having the patient lie down with their legs raised (Ch. 1).

Recurrent syncope with complex associated symptoms in so-called neurally mediated syncope (NMS) is associated with any of the following: preceding or succeeding sleepiness, preceding visual disturbance (‘spots before the eyes’), sweating and light-headedness. Other types of syncope include:

- *carotid sinus* – happens because of carotid artery constriction after turning the head, while shaving, or when wearing a tight collar

- *vertebrobasilar* – occurs when arterial disease in the upper spinal cord or lower brain causes syncope if there is a reduction in blood supply, which may occur with extending the neck
- *cardiogenic* – is more common in older patients, and includes arrhythmic, obstructive, ischaemic, drug or cardiomyopathic causes
- *orthostatic (postural)* – is as common as vasovagal syncope but caused by a change in body posture, most often associated with movement from lying or sitting to a standing position; it does not necessarily signal any serious underlying disease. The most susceptible individuals are older frail people, or persons dehydrated from hot environments or inadequate fluid intake
- *neuropathic* – may be seen in neurological disorders such as parkinsonism, postural orthostatic tachycardia syndrome (POTS), and diabetic or other types of neuropathy
- *drug-related* – is caused by diuretics, beta-blockers, calcium antagonists, ACEI, nitrates, antipsychotics, antihistamines, L-dopa, narcotics and alcohol.

## FACIAL PARALYSIS

See Chapter 13.

## FACIAL SENSORY LOSS

See Chapter 13.

## FEVER (PYREXIA)

Normal body temperature (37°C) has a diurnal rhythm, lower in the morning before dawn and higher in the afternoon. Temperature control activities balance heat loss and production. An abnormal rise in body temperature is caused by either hyperthermia or fever. In fever, the body temperature controls are functioning correctly, but the hypothalamic set point is raised by exogenous or endogenous pyrogens; temperature rises as the body responds to cytokines such as interleukin-1, produced by microorganisms or immunocytes.

The main causes of fever include: infections, tumours, drugs (e.g. chemotherapy drugs, biological response modifiers, and antibiotics such as vancomycin and amphotericin), neuroleptic malignant syndrome, blood transfusion reactions, connective tissue disorders, cerebrovascular events and or graft-versus-host disease.

Fever may, in children under 6 years, be complicated by seizures (febrile convulsions) and, in older persons when the hypothalamus temperature-regulating centres may function poorly, by arrhythmias, heart failure, cerebral hypoxia and confusion.

## GASTROINTESTINAL BLEEDING

Bleeding in the digestive tract can be the result of many different conditions, some of which are life-threatening. Bleeding can sometimes be unnoticed (occult or hidden bleeding), but the faecal occult blood test (FOBT) checks stool samples for traces of blood, detecting bleeding from almost anywhere in the digestive tract. Causes of gastrointestinal bleeding, apart from drugs such as NSAIDs, include lesions in: the oesophagus (oesophagitis [hiatus hernia], varices, tears [Mallory–Weiss syndrome, after severe vomiting], cancer); the stomach (ulcers, gastritis, cancer); the small intestine (duodenal ulcer, inflammatory bowel disease); and the large intestine and rectum (haemorrhoids, infections, ulcerative colitis, diverticular disease, polyps or cancer).

The appearance of blood in the faeces depends upon the site and severity of bleeding. Bleeding from the oesophagus, stomach or duodenum can cause black or tarry stools (melaena). The stool may be mixed with darker blood if the bleeding is higher in the colon. Blood originating from the rectum or lower colon is bright red.

Vomited blood may be bright red or have the appearance of coffee grounds.

Endoscopy permits examination of the oesophagus, stomach, duodenum (oesophagoduodenoscopy), colon (colonoscopy) and rectum (sigmoidoscopy), and facilitates biopsies. Magnetic resonance imaging (MRI), computed tomography (CT), barium radiography, angiography, radionuclide scans and ultrasound can also be used to locate sources of chronic occult gastrointestinal bleeding.

## GINGIVAL SWELLING

Gingival swelling may be localized or generalized. It is usually drug-induced gingival overgrowth (DIGO), but occasionally is due to a systemic disease (Box 4.3).

## HAEMATEMESIS

Haematemesis (blood in the vomit) typically results from blood regurgitation from the gastrointestinal tract (mouth, pharynx, oesophagus, stomach and small intestine). Conditions that cause haematemesis include bleeding ulcer(s), neoplasms, angiomas or varices in the stomach, duodenum or oesophagus; prolonged and vigorous retching, which may tear small blood vessels of the throat or oesophagus; drugs; and ingested blood (e.g. swallowed after a nosebleed) or gastroenteritis. It may be difficult to distinguish haematemesis from coughing up blood from the lung (haemoptysis) or a nosebleed (bloody postnasal drainage), but it can also cause blood in the stool.

## HAEMATURIA

Haematuria, blood in the urine, typically originates in the urinary tract (urethra, bladder or ureter) but, in women, vaginal/uterine blood may appear in the urine and, in men, a bloody ejaculate is usually due to a prostate disorder. Causes of haematuria include: haematological disorders (e.g. coagulopathies, sickle cell disease, renal vein thrombosis or thrombocytopenias); renal and urinary tract diseases (calculi, benign familial haematuria, infection, tumours, renal vein thrombosis, systemic lupus erythematosus, haemolytic–uraemic syndrome, anaphylactoid (Henoch–Schönlein) purpura, polycystic kidney disease, glomerulonephritis, congenital anomalies); prostatitis; hypercalciuria (increased calcium in urine); urethral ulceration or meatal stenosis; trauma (fractured pelvis, renal trauma, urethral trauma, surgical procedures, including catheterization, circumcision, surgery and biopsy); or drugs (anticoagulants, cyclophosphamide, metirosine, oxyphenbutazone, phenylbutazone or tiabendazole).

## HAEMOPTYSIS

Haemoptysis is the coughing or expectoration or spitting up of blood or bloody mucus from the lungs. It may be confused with bleeding

**Box 4.3** *Causes of gingival enlargement*

***Generalized***

***Congenital***

- Aspartylglycosaminuria
- Fucosidosis
- Hereditary gingival fibromatosis and related disorders
- Hypoplasminogenaemia
- Infantile systemic hyalinosis
- Leprechaunism (Donohue syndrome)
- Mucopolysaccharidosis I–H
- Pfeiffer syndrome
- Primary amyloidosis

***Acquired***

Haematological

- Acute myeloid leukaemia
- Pre-leukaemic leukaemia(s)
- Aplastic anaemia
- Vitamin C deficiency

Drugs

- Phenytoin
- Ciclosporin
- Calcium-channel blockers

***Localized***

***Congenital***

- Fabry syndrome (angiokeratoma corporis diffusum universale)
- Cowden syndrome (multiple hamartoma and neoplasia syndrome)
- Tuberous sclerosis
- Sturge–Weber angiomatosis
- Congenital gingival granular cell tumour

***Acquired***

Epulides

- Pregnancy epulis
- Fibrous epulis
- Giant-cell epulis (e.g. secondary to primary hyperparathyroidism)

Granulomatous conditions

- Pyogenic granuloma
- Sarcoidosis
- Crohn disease
- Orofacial granulomatosis
- Wegener granulomatosis

Infections with human papillomavirus (HPV)

- Papilloma
- Condyloma
- Warts
- Heck disease

Tumours

- Squamous cell carcinoma
- Lymphomas
- Langerhans cell tumours
- Multiple myeloma
- Kaposi sarcoma
- Plasmacytomas
- Other primary and secondary neoplasms

from the mouth, nose, throat or gastrointestinal tract. Apart from a simple recent nosebleed and irritation of the throat from violent coughing, causes may include diagnostic tests (bronchoscopy, laryngoscopy, biopsy, mediastinoscopy or spirometry), pulmonary infection, bronchitis, bronchiectasis, cancer, embolus, oedema, cystic fibrosis and systemic lupus erythematosus.

## HALITOSIS (ORAL MALODOUR)

Volatile sulphur compounds (VSC) of microbial origin are at least partly responsible for oral malodour (bad breath). Oral malodour is common on awakening (morning breath), and then transient and rarely of any special significance, probably resulting from increased microbial metabolic activity during sleep, aggravated by a physiological reduction in salivary flow, lack of nocturnal physiological oral cleansing (e.g. movement of the facial and oral muscles) and variable oral hygiene procedures prior to sleep. Starvation can lead to a similar malodour.

Malodour at other times may be due to ingestion of certain food and drinks, such as spices, garlic, onion, durian, cabbage, cauliflower and radish, or of habits such as smoking tobacco or drinking alcohol, and is usually transient. It is considered to arise from both intraoral (food debris) and extraoral (respiratory) origins. Halitosis is most frequently due to oral infection (such as the tongue flora or periodontal disease), and rarely stems from systemic causes (Table 4.5).

## HEADACHE

See Chapter 13.

## HEARING IMPAIRMENT

Hearing loss is categorized on which part of the auditory system is damaged. There are three basic types of hearing loss: conductive, sensorineural and mixed.

*Conductive hearing loss* is due to middle or external ear disorders – when sounds that should be carried from the tympanic membrane to the inner ear are blocked by, for example, foreign bodies, wax, fluid, infection or abnormal bone growth.

*Sensorineural hearing loss* is due to defects of the cochlear nerve or its central connections – as in damage to the inner ear or auditory nerve (e.g. in birth defects, head injury, surgery, tumours, certain drugs, hypertension or stroke). Hearing can be lost by exposure to very loud noises, (pop music, explosions, loud machinery, etc.), particularly for long periods.

Deafness is common and, in 30% of cases, is hereditary. It may occasionally be associated with congenital malformations, such as first arch syndromes. Age-related changes include especially *presbycusis* – the most common hearing problem in older people and linked to inner ear changes.

Hearing aids are available to help. Differing in design, size, amount of amplification, ease of handling, volume control and special features, all have similar components that include a microphone to detect sound, an amplifier to make the sound louder, and a receiver (miniature loudspeaker) to deliver the sound into the ear. Bone-anchored hearing aids are implantable devices that act by directly stimulating the inner ear through the bone. Hearing assistive devices are available for use with or without hearing aids. Electromagnetic interference can be an issue with these aids (Ch. 5).

People with a severe-to-profound hearing loss who cannot be helped with hearing aids may find cochlear implants of benefit. Cochlear implants stimulate the auditory nerve directly, helping sensorineural

**Table 4.5** *Main causes of halitosis*

| Causes | Examples |
|---|---|
| Plaque-related gingival and periodontal disease | Gingivitis |
| | Periodontitis |
| | Necrotizing ulcerative gingivitis |
| | Pericoronitis |
| | Abscesses |
| Oral ulceration | Systemic disease (inflammatory/infectious disorders, cutaneous, gastrointestinal and haematological disease) |
| | Malignancy |
| | Local causes |
| | Aphthae |
| | Drugs |
| Hyposalivation | Drugs |
| | Sjögren syndrome |
| | Radiotherapy |
| | Chemotherapy |
| Tongue coating | Poor hygiene |
| Wearing dental appliances | Poor hygiene |
| Dental conditions | Food packing |
| Bone diseases | Jaw dry sockets |
| | Osteomyelitis |
| | Osteonecrosis |
| | Malignancy |
| Respiratory system | Sinusitis |
| | Antral malignancy |
| | Cleft palate |
| | Foreign bodies in the nose |
| | Nasal malignancy |
| | Tonsilloliths |
| | Tonsillitis |
| | Pharyngeal malignancy |
| | Lung infections |
| | Bronchitis |
| | Bronchiectasis |
| | Lung malignancy |
| Gastrointestinal tract | Oesophageal diverticulum |
| | Gastro-oesophageal reflux disease |
| | Malignancy |
| Metabolic disorders (blood-borne) | Acetone-like smell in uncontrolled diabetes |
| | Uraemic breath in renal failure |
| | Foetor hepaticus in liver disease |
| | Trimethylaminuria (fish odour syndrome) |
| | Hypermethioninaemia |
| | Cystinosis |
| Drugs (blood-borne) | Amphetamines |
| | Chloral hydrate |
| | Cytotoxic agents |
| | Dimethyl sulfoxide (DMSO) |
| | Disulfiram |
| | Nitrates and nitrites |
| | Phenothiazines |
| | Solvent abuse |
| Psychogenic causes | |

hearing loss. They have external parts behind the ear (receiver) and internal (surgically implanted) electrodes. People with cochlear implants are more likely to contract bacterial meningitis than those without. In addition, some children who are candidates for cochlear implants have inner ear anatomical abnormalities that may increase their risk for meningitis. The Centers for Disease Control (CDC) recommend that these children receive pneumococcal vaccination.

Precautions are needed for electrosurgery in patients with cochlear implants; use bipolar where possible. If monopolar diathermy is necessary, ensure that the distance between the active electrode and the return electrode is as short as possible by using a return electrode mat. It is always important when communicating with people with hearing impairment to face them, without a face mask, and to speak clearly, in the absence of extraneous noise. The sign language ('deaf') alphabet helps (Fig. 4.3).

## HEART FAILURE

Heart failure is usually the result of cardiac disease, but an otherwise normal heart can fail as a consequence of overload (e.g. severe anaemia). The common causes are ischaemic heart disease, hypertension, valve disease and chronic obstructive pulmonary disease. Failure can affect either the left or the right side of the heart predominantly, but left-sided heart failure is more common. Failure of one side of the heart usually leads to failure of the other. Right-sided failure often follows left-sided failure, particularly when there is mitral stenosis, and causes congestive cardiac failure (CCF). See also Chapter 5.

## HEPATOMEGALY

Hepatomegaly is enlargement of the liver beyond its normal size. The lower edge of the liver normally comes just to the lower edge of the ribs (costal margin) on the right side and it cannot be palpated. The diagnosis must be confirmed by imaging.

Causes include infections (viral, bacterial or parasitic, e.g. viral hepatitis, infectious mononucleosis); malignancy (leukaemias, tumour metastases, neuroblastoma, hepatocellular carcinoma); anaemias; storage diseases (Niemann–Pick disease, hereditary fructose intolerance, glycogen storage disease); heart failure; congenital heart disease; toxins (e.g. alcohol); primary biliary cirrhosis; sarcoidosis; sclerosing cholangitis; haemolytic–uraemic syndrome; or Reye syndrome.

## HIRSUTISM (HYPERTRICHOSIS)

Hirsutism is the excessive growth of dark, coarse body hair in women (and children), and typically appears in a male distribution pattern. Excessive facial hair is usually the most troublesome aspect. Signs of masculinization, such as voice deepening, increased muscle mass, decreased breast size, increased genital size and menstrual irregularities, may be associated.

Common causes of hirsutism include: genetic factors, endocrine abnormalities (polycystic ovarian syndrome, Cushing syndrome, adrenocortical carcinoma, congenital adrenal hyperplasia, precocious puberty, pregnancy, menopause, ovarian tumour or cancer, ovarian overproduction of androgens) or drugs (androgens, aminoglutethimide, calcium-channel blockers, ciclosporin, finasteride, phenytoin, glucocorticoids, metoclopramide and minoxidil).

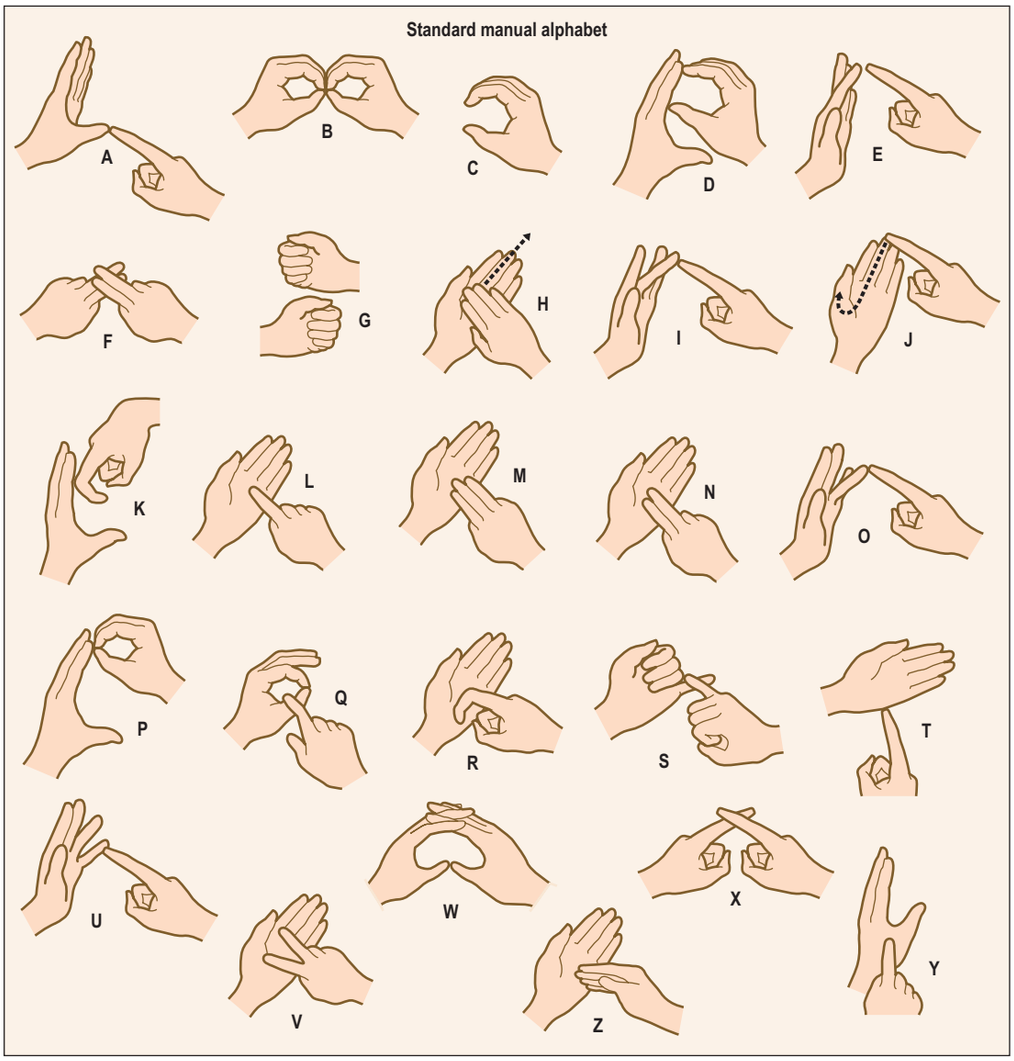


**Fig. 4.3** Manual alphabet.

## HOARSENESS

Hoarseness is usually due to acute laryngitis, secondary to excessive talking/singing/shouting, or caused by a viral upper respiratory infection such as a cold, and is self-limiting. Chronic laryngitis is the commonest cause of persistent hoarseness; predisposing factors are usually smoking and voice abuse. However, any patient with hoarseness persisting for over 1 month should be investigated for trauma to the vocal cords (from persistent shouting or singing – singer's nodules); thyroid cancer; laryngeal cancer; surgical damage to the vagus or recurrent laryngeal nerve during thyroid or cardiovascular surgery; and psychological problems.

## HOSTILITY

Hostile (acutely disturbed) patients can totally disrupt their environment and harm those with whom they come into contact. Frequently, the cause is drug/alcohol intoxication or an acute psychosis. Otherwise, the disorder may be due to infection or withdrawal of drugs (alcohol or other drugs of abuse). If the patient appears unresponsive to reason, no treatment should be attempted, but the physician or psychiatrist should be contacted. No attempt should be made to sedate the patient; benzodiazepines usually worsen violently psychotic behaviour and adequate doses of phenothiazines, such as chlorpromazine, can cause severe hypotension. If the patient becomes violent, the police have to be called to restrain them; ambulance personnel cannot usually manage such cases. The usual treatment, once the patient has been forcibly restrained, is to give haloperidol by injection.

## HYPERPIGMENTATION

Most pigmentation is racial in origin. Local pigmentations, such as a tattoo, are common. Systemic causes of hyperpigmentation, apart from suntan, are rare (Box 4.4).

## HYPERTHERMIA

Hyperthermia is an unusual rise in body temperature above normal, caused by disordered body temperature control. A group of inherited

**Box 4.4** *Causes of hyperpigmentation*

***Congenital***

- Racial (even in some Caucasians)
- Naevi
- Syndromes

  Peutz–Jeghers syndrome: oral and perioral hyperpigmentation with small intestine polyps

  Carney complex: lentiginosis due to adrenal disease, and multiple neoplasia such as myxomas of skin, heart and breast, schwannomas, pituitary adenomas, testicular and thyroid tumours

  Laugier–Hunziker syndrome: oral and perioral hyperpigmentation with nail pigmentation

  NAME syndrome (naevi, atrial myxoma, myxoid neurofibromas and ephelides)

  LAMB syndrome (lentigines, atrial myxoma, mucocutaneous myxoma, blue naevi)

  LEOPARD syndrome: lentigines with hypertrophic cardiomyopathy, or arterial dissections

***Acquired***

***Endocrine or metabolic***

- Addison disease
- Adrenocorticotropic hormone (ACTH) therapy
- ACTH-producing tumours (lung cancer)
- Haemochromatosis
- Nelson syndrome

***Neoplastic***

- Melanoma
- Kaposi sarcoma

***Foreign bodies***

Drugs

- Smoking
- Antimalarials
- Cytotoxics (particularly busulfan)
- Oral contraceptives
- Phenothiazines
- Minocycline
- Zidovudine
- Clofazimine

***Others***

- Human immunodeficiency syndrome (HIV) infection and acquired immunodeficiency syndrome (AIDS)

muscle problems, characterized by muscle breakdown following certain stimuli, is termed malignant hyperthermia. Attacks can be precipitated by anaesthesia, extreme exercise, fever or certain drugs (Ch. 23).

## HYPERVENTILATION

See ‘Tachypnoea’.

## HYPODONTIA

Most missing teeth are caused by tooth extraction. Hypodontia is the developmental absence of teeth and affects about 5% of the population. The teeth most commonly missing, apart from third molars, are the mandibular second premolars, maxillary lateral incisors and maxillary second premolars. Severe hypodontia is the absence of six or more teeth and can be a feature of ectodermal dysplasia, Down syndrome, hemifacial microsomia and van der Woude syndrome.

## HYPOGLYCAEMIA

Hypoglycaemia (low blood sugar) is when blood glucose levels drop, causing the patient to feel weak, drowsy, confused, hungry, aggressive and dizzy. Pallor, headache, irritability, trembling, sweating, rapid pulse and a cold, clammy feeling are other signs and, in severe cases, unconsciousness or coma can result.

Hypoglycaemia is caused by diabetes (insulin or drug overdose, missing or delaying a meal, eating too little food for the amount of insulin taken); exercising too strenuously, particularly when associated with beta-blocker medication; prolonged fasting; certain foods and drinks (alcohol, aspirin [in some children], unripe Jamaican ackee fruit); liver disease; hormonal states (early pregnancy, insulinomas, growth hormone deficiency, breast cancer and adrenal cancer); or hereditary enzyme deficiencies (hereditary fructose intolerance [attacks of hypoglycaemia, marked by seizures, vomiting and unconsciousness] or galactosaemia [also causes vomiting, weight loss and cataracts]).

## HYPOTENSION

See ‘Low blood pressure’.

## HYPOTHERMIA

Cold exposure is the main cause of hypothermia (low body temperature). Conditions that may predispose include drugs (alcohol, anxiolytics, antidepressants, antiemetics and some over-the-counter cold remedies); illnesses that restrict activity (stroke or other causes of paralysis, severe arthritis, Parkinson disease, Alzheimer disease); or hypothyroidism.

## IMPOTENCE

Impotence is the term used particularly for erectile dysfunction (ED), lack of sexual desire and ejaculation or orgasm problems. ED is the repeated inability to achieve or maintain an erection adequate for intercourse. Causes of impotence are psychological factors, including stress, anxiety, guilt, depression, low self-esteem and fear of sexual failure; smoking; drugs (antihypertensives, antihistamines, antidepressants, finasteride, tranquillizers, appetite suppressants and cimetidine); various diseases (diabetes, renal disease, alcoholism, multiple sclerosis, atherosclerosis, neurological disease); hormonal abnormalities (inadequate testosterone); and injuries to the nerves or conditions that impair penile blood flow. These include trauma in particular (to penis, spinal cord, prostate, bladder or pelvis), including that from surgery (especially radical prostate surgery). Sildenafil citrate (Viagra) is effective treatment.

## INSOMNIA

See Chapter 13.

## JAUNDICE

Jaundice (icterus) is the accumulation of, and colouring of the skin and mucous membranes by, bilirubin, if it appears in excessive

amounts or is not conjugated or excreted. Jaundice can be a manifestation of haemolytic anaemias, liver disease, biliary disease or pancreatic disorders (Ch. 9).

## LOW BLOOD PRESSURE (HYPOTENSION)

The main causes of hypotension are described here.

*Drugs* causes include:

- alcohol
- analgesics
- antidepressants
- anxiolytics
- diuretics.

*Orthostatic hypotension*, including postprandial orthostatic hypotension, is brought on by a sudden change in body position, most often when shifting from lying down to standing. This type of hypotension usually lasts only a few seconds or minutes. It most commonly affects older adults, those with high blood pressure, and persons with parkinsonism, excessive use of diuretics, vasodilators or other drugs, dehydration, Addison disease, atherosclerosis or dysautonomias, such as in diabetes.

*Neurally mediated hypotension* (NMH) occurs when a person has been standing for a long time and most often affects young adults and children.

*Disease* causes of low blood pressure include:

- anaphylaxis
- arrhythmias
- dehydration
- diabetes
- fainting
- heart failure
- infection
- myocardial infarction
- sudden blood loss.

Symptoms of hypotension may include:

- blurred vision
- confusion
- dizziness
- fainting
- light-headedness
- sleepiness
- weakness.

## LYMPHADENOPATHY

Many diseases can cause lesions in the neck, but most commonly they involve swellings and/or pain in the cervical lymph nodes. About one-third of all lymph nodes are in the neck and the dental surgeon can often detect serious disease by examination of the neck.

A limited number of lymph nodes swell, usually because of infection in the area of drainage. The nodes are then often firm, discrete and tender but mobile (lymphadenitis), and the focus of inflammation can usually be found in the drainage area, which is anywhere on the face, scalp, nasal cavity, sinuses, ears, pharynx and oral cavity.

Lymphadenopathy in the anterior triangle of the neck alone is often due to local disease, especially if the nodes are enlarged on one side only. Infection and malignancy in the drainage area are important causes. Metastatic infiltration causes the node to feel distinctly hard, and it may become bound down to adjacent tissues ('fixed') and, in advanced cases, may ulcerate through the skin.

Lymph nodes may also swell in systemic infections or disorders involving the immune system, and then there is usually involvement of more than one node, and often several in different sites. Most children or young people may have small palpable cervical, axillary and/or inguinal nodes. Most of these are caused by viral infections.

Lymph node enlargement may have several disparate causes including infections; lymphadenitis (inflammation of lymph nodes) is the most common cause of lymphadenopathy. The location of the affected nodes is usually related to the site of the underlying infection (Box 4.5).

## MALABSORPTION

Malabsorption is difficulty with the digestion or absorption of nutrients from food, such as failure to absorb specific sugars, fats, proteins or other nutrients (such as vitamins). Diarrhoea, bloating or cramping, weakness, failure to thrive, frequent bulky stools that are difficult to flush, muscle-wasting and a distended abdomen may result; in children, malabsorption can affect growth and development.

Causes of malabsorption include: intestinal, biliary or pancreatic disease (cystic fibrosis, biliary atresia, Whipple disease, Shwachman–Bodian-Diamond syndrome); food allergies or intolerances (coeliac disease, lactose intolerance, bovine lactalbumin intolerance [cow's milk protein], soy milk protein intolerance); vitamin $B_{12}$ malabsorption (pernicious anaemia, ileal disease, *Diphyllobothrium latum* [fish tapeworm] infestation); other parasites (*Giardia lamblia*, *Strongyloides stercoralis* [threadworm], *Necator americanus* [hookworm]); or, rarely, acrodermatitis enteropathica or abetalipoproteinaemia.

## MALAISE

Malaise is a generalized feeling of discomfort, illness, uneasiness, fatigue or lack of well-being, often associated with a disease state. However, it is a very non-specific symptom and can be due to almost any infection, cancer and metabolic, endocrine, psychiatric or neurological disorders, and may develop slowly or rapidly, depending on the nature of the disease.

## MELAENA

Melaena is the passage of black, tarry and foul-smelling stools, and usually indicates bleeding from the upper gastrointestinal tract. Other substances, such as blackberries, iron or liquorice, can cause black stools (false melaena), so that black stools should be formally tested for blood. Table 4.6 shows the causes of stools of various colours.

## MENORRHAGIA

Menorrhagia is heavy regular bleeding over consecutive menstrual cycles ('periods'). The definition of heavy periods is the loss of 80 mL or more of blood, but passage of clots and overuse of sanitary towels or tampons may be suggestive. It may cause anaemia.

Common causes of menorrhagia are dysfunctional uterine bleeding (DUB) and uterine fibroids. Other causes are endometriosis, clotting disorders and anticoagulants.

**Box 4.5** *Causes of cervical lymphadenopathy*

***Bacterial***
- Dental, face or scalp infections
- Tuberculosis
- Syphilis
- Cat scratch disease
- Brucellosis

***Viral***
- Herpetic stomatitis
- Infectious mononucleosis
- Adenovirus infections
- HIV
- Cytomegalovirus

***Parasitic***
- Toxoplasmosis

***Connective tissue disorders***
- Rheumatoid arthritis
- Systemic lupus erythematosus

***Lymphoid or reticuloendothelial disease***
- Leukaemias
- Hodgkin disease
- Non-Hodgkin lymphomas

***Neoplasms***
- Metastases from any tumour in the drainage area
- Nasopharyngeal carcinoma
- Neuroblastoma
- Thyroid carcinoma, chronic lymphocytic thyroiditis
- Kaposi sarcoma
- Langerhans histiocytosis

***Immunodeficiency syndromes and phagocytic dysfunction***
- Chronic granulomatous disease
- Hyperimmunoglobulin E (Job) syndrome
- HIV/AIDS

***Metabolic and storage diseases***
- Gaucher disease
- Niemann–Pick disease
- Cystinosis

***Haemopoietic diseases***
- Sickle cell anaemia
- Thalassaemia
- Congenital haemolytic anaemia
- Autoimmune haemolytic anaemia

***Drug-induced hypersensitivity syndrome***
- Phenytoin
- Others (such as cephalosporins, penicillins or sulphonamides)

***Immunological disorders***
- Serum sickness
- Chronic graft-versus-host disease
- Benign sinus histiocytosis
- Angioimmunoblastic or immunoblastic lymphadenopathy
- Chronic pseudolymphomatous lymphadenopathy (chronic benign lymphadenopathy)
- Sarcoidosis, Crohn disease and orofacial granulomatosis
- Kawasaki disease (mucocutaneous lymph node syndrome)
- Angiolymphoid hyperplasia with eosinophilia, haemangioma, with eosinophilic infiltration and lymphoid hyperplasia
- Castleman disease (angiofollicular lymphoid hyperplasia or benign giant lymph node hyperplasia).
- Kikuchi syndrome (Ch. 37)

**Table 4.6** *Causes of coloured stools (apart from foods/drinks/drugs)*

| Black | Maroon | Red |
|---|---|---|
| Bleeding gastric ulcer | All the causes of black-coloured stool | All the causes of black- or maroon-coloured stool |
| Gastritis | Bleeding diverticula | Haemorrhoids |
| Oesophageal varices | Bleeding vascular malformation | Anal fissures |
| Mallory–Weiss tear | Intestinal infection (e.g. bacterial enterocolitis) | |
| Bleeding disorder | Inflammatory bowel disease | |
| | Colonic polyps | |
| | Colonic cancer | |

## MOUTH ULCERS

Oral ulcers are common; most are traumatic or recurrent aphthae, but more serious causes must always be excluded. Particular care must be taken to exclude drugs, cancer, blood dyscrasias, infections, and gastrointestinal or mucocutaneous disease (Box 4.6 and Ch. 11).

## MURMURS

Heart murmurs are caused by turbulence of blood flow through valves or ventricular outflow tracts. The prevalence of cardiac murmurs in the general population is very high, and some indicate cardiac disease. Functional (high-flow – also called physiological) murmurs are innocent murmurs that are heard in the absence of cardiac valvular disease. An example is an aortic systolic ejection murmur caused by a high cardiac output state, as in athletes and anaemia. Another example is pregnancy, where the rise in cardiac output, especially when coupled with anaemia, can result in physiological ejection murmurs.

## NAUSEA AND VOMITING

Nausea is the sensation leading to the urge to vomit; vomiting is the forced ejection of stomach contents through the oesophagus and out of the mouth. Causes of nausea and vomiting are varied, but may include unusual motion (e.g. travel/motion sickness); gastroenterological causes (infections, food poisoning, food allergies, gastroenteritis, pyloric stenosis); neuropsychiatric factors (bulimia, cyclic vomiting syndrome, emotional stress, labyrinthitis, migraine); morning sickness during pregnancy; and many drugs (especially alcohol, chemotherapy, erythromycin, general anaesthetics). Complications of vomiting include dehydration, loss of electrolytes, peptic oesophagitis, haematemesis, aspiration, Mallory–Weiss tear, and tooth erosion if vomiting is chronic. Apart from treating underlying causes, antiemetic drugs may help.

## NECK LUMPS

The lumps in the neck of most significance are enlarged cervical lymph nodes, but lumps may also be due to other pathology (Box 4.7).

**Box 4.6** *Causes of oral ulceration*

***Systemic causes***

***Blood diseases (Ch. 8)***

- Leukopenias, including HIV disease
- Leukaemias and myelodysplastic syndrome
- Deficiency states or anaemia
- Hypereosinophilic syndrome

***Infections***

Viral, mainly (Ch. 21)

- Herpes viruses
- Coxsackie viruses
- ECHO viruses

Bacterial

- Acute necrotizing gingivitis
- Syphilis
- Tuberculosis

Fungal

- Cryptococcosis
- Histoplasmosis
- Paracoccidioidomycosis
- Blastomycosis
- Zygomycosis
- Aspergillosis

Protozoal

- Leishmaniasis

***Gastrointestinal disease (Ch. 7)***

- Coeliac disease
- Crohn disease
- Ulcerative colitis

***Mucocutaneous diseases (Ch. 11)***

- Lichen planus
- Chronic ulcerative stomatitis
- Pemphigus
- Pemphigoid
- Localized oral purpura
- Erythema multiforme
- Epidermolysis bullosa
- Dermatitis herpetiformis
- Linear immunoglobulin A (IgA) disease
- Behçet and Sweet syndromes

***Connective tissue and other diseases (Ch. 16)***

- Lupus erythematosus
- Reiter syndrome
- Vasculitides
- Giant cell arteritis
- Wegener granulomatosis
- Periarteritis nodosa

***Malignant neoplasms (Ch. 22)***

- Squamous cell carcinoma
- Others

***Local causes***

- Trauma
- Chemical irritation
- Burns
- Irradiation

***Aphthae and aphthous-like ulcers***

Drugs (Ch. 29)

**Box 4.7** *Causes of neck lumps other than lymphadenopathy*

***Infections***

- Abscess
- Actinomycosis

***Cysts***

- Thyroglossal
- Branchial
- Cystic hygroma
- Sebaceous cyst
- Dermoid cyst

***Hamartomas***

- Haemangioma/lymphangioma

***Thyroid***

- Goitre
- Nodules (and carcinoma)

***Carotid***

- Aneurysm
- Body tumour

***Skin***

- Lipoma
- Seroma
- Carcinoma
- Pharyngeal pouch

## NECK STIFFNESS

Neck pain and stiffness may originate from any neck structure or from the shoulders and arms, ranging from the cervical vertebrae to blood vessels, muscles and lymphatic tissue. Causes mainly include strain and spasm of neck muscles; trauma (road traffic accidents); or arthritis. Neck stiffness can have serious significance since it can also originate from meningeal irritation in meningitis (there may also be fever, an aversion to light, vomiting, and severe headache) and meningism – a non-infective syndrome with similar features, caused by meningeal irritation by, for example, an intracranial haemorrhage or tumour.

## NOCTURIA

Nocturia is the passing of too much urine at night. Young people tend to excrete their daily urine output mostly in the day; older people commonly also pass urine once or twice at night. Causes of nocturia include, in particular, drinks such as coffee or tea too close to bedtime; insomnia or other sleep-related difficulties; urinary or prostatic disorders (e.g. benign prostate disease or cystitis); chronic kidney disease; diabetes; or cardiac failure.

## NYSTAGMUS

A few irregular eye jerks are normal in some individuals when the eyes are deviated far to one side. Nystagmus is involuntary rapid, back-and-forth, repetitive eye movements, caused by abnormalities of function in the areas of the brain that control eye movements. It may be congenital (the most common cause), when it is usually mild, unchanging in severity, and not associated with any other disorder. Causes include cataract, glaucoma, retinal disease, Down syndrome and albinism.

Nystagmus may be acquired and caused by disease or injury later in life, most commonly by head injury or, in older people, by stroke, but any brain diseases, such as multiple sclerosis or tumours, inner ear problems or drugs, can be responsible.

The most common form of nystagmus is rhythmic (jerk), which is usually horizontal but can be vertical or rotary. It results from drug intoxication (barbiturates, phenytoin toxicity and alcohol intoxication); inner ear disease (Ménière disease); cerebellar disease; or brainstem disease.

## OBESITY

See Chapter 27.

## OEDEMA

Oedema is the accumulation of fluid in the tissues. Slight oedema of the legs is common in healthy persons, especially in the warm summer months, after prolonged standing and/or on long flights or car journeys. Injury or trauma, insect bite or sting, burns, allergic reactions or angioedema can cause oedema. It may also stem from more serious conditions. When venous pressure rises in cardiac failure, subcutaneous oedema gravitates to dependent parts; ankle oedema is seen in ambulant patients and sacral oedema in those in bed. Oedema may be pitting (when a finger is pressed against a swollen area for 10 seconds and then quickly removed, an indentation is left that fills slowly) or non-pitting (no indentation is left). In pregnancy (pre-eclampsia – hypertension with albuminuria), oedema can appear between the 20th week of pregnancy and the end of the first week postpartum. Other causes include loss of plasma proteins from renal factors or malnutrition (causing the nephrotic syndrome) and medical treatments (body fluid overload, infiltration of an intravenous site, diagnostic tests, e.g. venogram), including drugs (corticosteroids, androgenic and anabolic steroids, oestrogens, antihypertensives, NSAIDs).

## PALMAR ERYTHEMA

Redness of the palms of the hands may be seen in cirrhosis, pregnancy, rheumatoid arthritis, systemic lupus erythematosus and hyperthyroidism.

## PALPITATIONS

Palpitations are the consciousness of rapid heart action (Ch. 5). Cardiac activity is controlled by the autonomic nervous system and is commonly sensed only by persons with abnormally heightened awareness of their body functions, as in anxiety states, or following exercise – when heart stroke volume or rate rises. Palpitations are most commonly caused by arrhythmias but may also stem from disorders such as anaemia, aortic regurgitation or thyrotoxicosis. Palpitations accompanied by myocardial ischaemia-type chest pain probably indicate coronary artery disease. Enquiry into the rate and the rhythm of palpitations helps differentiate pathological from physiological, since palpitations due to an arrhythmia may be accompanied by weakness, dyspnoea or light-headedness.

Atrial or ventricular extrasystoles are often described as skipped beats, and atrial fibrillation as total irregularity, while supraventricular or ventricular tachycardia is most often perceived as being rapid and regular, and of sudden onset and termination.

## PAPILLOEDEMA

Papilloedema is a swelling of the optic nerve seen on ophthalmoscopy. The optic nerve anatomy makes it sensitive to slight rises in cerebrospinal fluid (CSF) pressure, and when the optic nerve is exposed to such pressure or when it becomes inflamed, it can bulge (papilloedema). Causes of raised CSF pressure and papilloedema are brain disease, raised intracranial pressure (e.g. haemorrhage, tumours, infections – brain abscess, meningitis or encephalitis) and pseudotumour cerebri or benign intracranial hypertension (results from CSF overproduction). This is more common in women who are obese and of childbearing age, and seems to be triggered at times of hormone change, such as pregnancy, the start of contraceptive pill use, tetracycline use, the first menstrual period or menopause. Papilloedema can also arise from local inflammation (optic neuritis); multiple sclerosis is the most common cause.

Symptoms related to papilloedema are mainly caused by raised intracranial pressure and include headache and nausea with vomiting. About 25% of patients with advanced papilloedema also develop some visual symptoms, such as recurring brief episodes in which the vision turns grey or ‘blacks out’, as if a veil has fallen over the eyes. Ophthalmoscopy shows an elevated optic disc with a blurred margin, and there is a wider blind spot and narrowing of peripheral vision.

## PARAESTHESIA

Paraesthesia is a burning or prickling sensation, most common when there is sustained pressure on a nerve and experienced as temporary paraesthesia – ‘pins and needles’ – when individuals have sat with their legs crossed for too long or fallen asleep with an arm crooked under their head; the feeling abates once the pressure is relieved. Nerve entrapment syndromes, such as carpal tunnel syndrome, can cause paraesthesia sometimes accompanied by pain but are usually very peripheral and obvious. Chronic paraesthesia may be a feature of traumatic nerve damage or an underlying neurological disease, such as cerebrovascular issues (stroke and TIAs), multiple sclerosis, connective tissue diseases, sarcoidosis, transverse myelitis, brain or spinal cord tumour or vascular lesion, encephalitis and some drugs. Some LA agents can be neurotoxic (Ch. 3).

## POLYDIPSIA

Polydipsia is an abnormal feeling of constant thirst. The most common cause is the excessive intake of salty foods but the desire to drink excessively beyond a certain limit may reflect underlying disease, either physical or emotional. Causes include excessive loss of water and salt (as with water deprivation, profuse sweating, diarrhoea or vomiting, severe infections or widespread burns); fluid loss during exercise; bleeding sufficient to cause a significant fall in blood volume; drugs (including anticholinergics, demeclocycline, diuretics, lithium, phenothiazines); endocrine disorders (diabetes mellitus, Conn disease, Cushing disease, hyperthyroidism, diabetes insipidus); and cardiac, hepatic or renal failure. Psychogenic causes are most commonly seen in women over age 30.

## POLYURIA

Polyuria – the passing of abnormally large amounts of urine (for an adult, at least 2.5 L per day) – is fairly common and often first noticed

at night. Polyuria is to be expected with excessive intake of fluids, particularly ones containing caffeine or alcohol, or too much salt or glucose (especially if diabetic); the use of diuretics can also lead to polyuria. Other causes include diabetes mellitus or insipidus; psychogenic polydipsia; renal failure; sickle cell anaemia; and radiography using contrast media.

## PRESSURE ULCERS (BED SORES)

Pressure sores or ulcers are injuries to skin and underlying tissues from prolonged pressure on skin that covers bony areas of the body, such as the heel, ankles, hips or buttocks. People most at risk are those with medical conditions that limit their ability to change position, requires them to use a wheelchair or confines them to bed for long periods. Sores develop through a series of stages:

- Stage I
  The skin is intact and red in people with lighter skin colour, failing to blanch when touched.
  The site may be painful, firm, soft, warmer or cooler compared with surrounding skin.
- Stage II
  A pressure ulcer may appear – as a shallow, pinkish-red ulcer.
  It may also appear as an intact or ruptured fluid-filled blister.
- Stage III
  There is a deep wound, usually with fat exposed.
  The bottom of the wound may have some slough.
  Damage may extend beyond the primary wound below layers of healthy skin.
- Stage IV
  The wound may expose muscle, bone and tendons.
  The wound base contains slough or eschar.
  Damage often extends beyond the primary wound below layers of healthy skin.

Risk factors, apart from continued pressure, include:

- age
- lack of sensory perception; spinal cord injuries, neurological disorders and other conditions can result in a loss of sensation
- weight loss
- poor nutrition and hydration
- urinary or faecal incontinence
- excess moisture or dryness
- diabetes and vascular disease, affecting the circulation
- smoking
- decreased mental awareness
- muscle spasms.

Complications of pressure ulcers include:

- sepsis
- cellulitis
- bone and joint infections
- cancer (Marjolin ulcer).

Treatment consists of the following measures:

- Relief of pressure by repositioning. Special cushions, pads, mattresses and beds may be used.
- Removal of damaged tissue by surgical mechanical, enzymatic or autolytic debridement.
- Cleaning and dressing of wounds.
- Pain management. Interventions may include the use of NSAIDs, such as ibuprofen and naproxen, particularly before and after repositioning, debridement procedures and dressing changes. Topical pain medications, such as a combination of lidocaine and prilocaine, also may be used during debridement and dressing changes.
- Antibiotics.
- Healthy diet.
- Muscle spasm relief. Relaxants such as diazepam, tizanidine, dantrolene and baclofen may inhibit spasms.
- Surgical repair.

## PROPTOSIS

Proptosis is the anterior displacement of one or both eye globes within the bony orbit. The term exophthalmos is sometimes used, particularly when the proptosis is related to thyroid dysfunction. The normal amount of ocular protrusion as measured (with an exophthalmometer) from the lateral orbital rim to the corneal apex is 14–21 mm in adults; protrusion greater than 21 mm or a 2-mm change is abnormal. On scans, proptosis is defined as globe protrusion greater than 21 mm anterior to the interzygomatic line on axial scans at the level of the lens.

*Proptosis without displacement* (axial) is due to intraconal, most commonly dysthyroid, eye disease. In this case, the protrusion is caused by inflammatory swelling of the small eye-moving muscles behind the globe. Thyroid exophthalmos may appear months or years after the onset of a thyroid disorder but may occasionally precede it. Tumours (such as glioma and meningioma of the optic nerve and cavernous haemangioma) may also be responsible.

*Proptosis with displacement* (non-axial) is due to extraconal disease, most commonly lacrimal tumours or a mucocoele.

*Pseudoproptosis* is either the simulation of abnormal eye prominence, or a true asymmetry that is not the result of increased orbital contents. Causes include enlarged eye globe (high myopia, buphthalmos); extraocular muscle weakness or paralysis; contralateral enophthalmos; asymmetrical orbital size (congenital, post-irradiation, post-surgical); and asymmetrical palpebral fissures (e.g. caused by ipsilateral eyelid retraction, scarring, facial nerve paralysis or contralateral ptosis).

## PRURITUS (ITCHING)

Pruritus is a peculiar tingling or uneasy irritation of the skin, which leads to a desire to scratch the affected area. Causes include skin irritation from insect bites, stings and chemicals; environmental causes (drying, sunburn); or urticaria. Parasites (e.g. lice) or skin conditions (e.g. lichen planus, dermatitis herpetiformis) are other causes. Less commonly, pruritus is due to infectious diseases (chickenpox), pregnancy, allergic reactions, biliary obstruction, chronic kidney disease, lymphomas, drugs (penicillin, sulphonamides, gold, griseofulvin, isoniazid, opiates, phenothiazines or vitamin A) or contact irritants (such as soaps, chemicals or wool).

Pruritus ani is a common and troublesome complaint that can result from such causes as haemorrhoids or irritable bowel syndrome; fistulas or fissures; mucocutaneous diseases such as lichen planus; or infections such as candidosis or worms.

## PTOSIS

Ptosis is drooping eyelids, caused by weakness of the muscle responsible for raising the eyelid (levator palpebrae superioris), as in

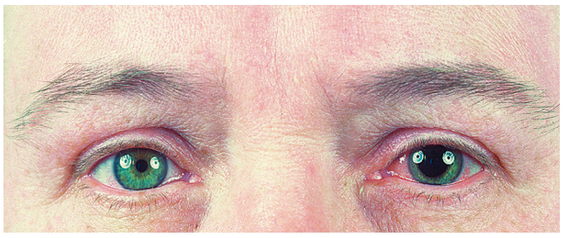

**Fig. 4.4** Mydriasis.

myasthenia gravis, damage to the extraocular nerves, or skin laxity in the upper eyelids.

*Congenital ptosis* is most commonly due to a defect in the levator palpebrae superioris or rare myopathies (e.g. myotonica congenita). Marcus Gunn 'jaw-winking' syndrome is ptosis usually in one eye only; it is due to the lid partially opening as the jaw opens because of an abnormal nerve connection.

*Acquired ptosis* can be through age-related defects of the eyelid muscles and nerves, or by damage to the sympathetic nerve supply or the oculomotor nerve. A mechanical defect caused by anything that increases the weight of the eyelid, such as a cyst, may also cause ptosis.

## PUPIL ANOMALIES

The pupils normally are equal in size, and they constrict on exposure to bright light and on accommodation for near objects. Light shone in one eye causes pupillary constriction in that eye (direct light reflex) and also in the unexposed eye (indirect or consensual reflex).

Pupil size is determined by dilator fibres (the sympathetic nerve supply from the superior cervical ganglion runs along the internal carotid artery and joins the ophthalmic division of the trigeminal nerve and the long ciliary nerves) and the sympathetic nerve supply is also partially responsible for contraction of the levator palpebrae superioris muscle (raising the upper eyelid). Pupil size is also determined by constrictor fibres (the parasympathetic supply runs with the oculomotor nerve). Pupil constriction (miosis) can be caused by a lesion of the sympathetic supply, and dilatation (mydriasis) by a third nerve lesion (Fig. 4.4). The most important cause of an abnormally dilated pupil is a rise in intracranial pressure, when the pupil also becomes non-reactive owing to pressure on the oculomotor nerve (Table 4.7).

**Table 4.7** *Causes of pupillary abnormalities*

| Pupils | Other signs | Significance |
|---|---|---|
| Constricted bilaterally | ±Signs of drug abuse | Opiate use |
| Constricted bilaterally, unequal, react to accommodation but not light | – | Argyll Robertson pupils – neurosyphilis, multiple sclerosis, diabetes mellitus, sarcoid, brain tumour, amyloid, trauma, Lyme disease |
| Constricted unilaterally | Ptosis, absence of facial sweating, enophthalmos sometimes | Horner syndrome – damage to sympathetic fibres, usually in neck (e.g. by trauma or bronchial carcinoma) |
| Dilated unilaterally | Ptosis | Third nerve lesion |
| Dilated unilaterally and react slowly to light or convergence | Possible absence of ankle or knee jerks | Usually benign Adie (Holmes–Adie) pupil |
| Dilated bilaterally and reactive | ±Signs of drug abuse | Cocaine or other drug use |
| Dilated bilaterally and unreactive | ±Headaches | Raised intracranial pressure |

## PURPURA

Purpura is abnormal bruising (Fig. 4.5) with small bleeds into the skin (petechiae) or larger bleeds (ecchymoses), and bleeding from mucosae (epistaxes – nosebleeds – and gingival bleeding).

Causes of purpura include:

- *purpura simplex* (easy bruising) – the most common vascular bleeding disorder, due to excessive vascular fragility and usually seen in women in whom the platelet count and tests of platelet function, blood coagulation and fibrinolysis are normal. Bruises develop without known trauma on the thighs, buttocks and upper arms, and are typically small.
- *senile purpura* – a common disorder affecting older patients, mainly on the extensor surfaces of the hands and forearms, particularly in those who have had excessive sun exposure. Lesions appear often without known trauma as dark purple ecchymoses and slowly resolve over several days, leaving a brownish discolouration caused by deposits of haemosiderin. The condition has no serious consequences. Angina bullosa haemorrhagica may be a localized form of purpura seen in the mouth or throat.
- *thrombocytopenia* – the most important systemic cause of purpura (Ch. 8).

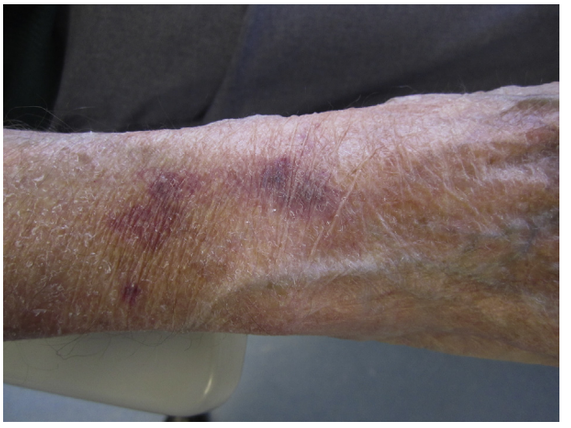

**Fig. 4.5** Purpura.

## RAISED INTRACRANIAL PRESSURE

Normal intracranial pressure (ICP) for an adult at rest is 7–15 mmHg supine, becoming negative (−10 mmHg) in the vertical position. Changes in ICP are attributed to volume changes in one or more of the constituents contained in the cranium; any expansion of cranial contents causes a rise of ICP, which tends to impede the venous return from the brain and to increase the pressure further. Cerebral blood flow is thus diminished, even though the raised CSF pressure causes a reflex rise in systemic blood pressure in an attempt to improve cerebral blood flow.

**Table 4.8** *Types of glaucoma*

| Type | Features | Treatment |
|---|---|---|
| Open-angle | Most common. The angle that allows fluid to drain out of the anterior chamber is *open.* However, the fluid passes too slowly through the meshwork drain. Optic nerve damage and narrowed side vision develop. Risk groups include people of African heritage over the age of 40, anyone over age 60 and a family history of glaucoma | Drugs or laser trabeculoplasty |
| Low-tension or normal-tension | Optic nerve damage and narrowed side vision develop unexpectedly in people with normal eye pressure | Drugs or laser trabeculoplasty |
| Closed-angle | The fluid at the front of the eye cannot reach the angle and leave it because the angle is blocked by part of the iris. Without treatment, the eye can become blind within 48 h | A medical emergency. Immediate laser treatment |
| Congenital | Involves defects in the angle of the eye that slow the normal drainage of fluid | Surgery |
| Secondary | Develops as a complication of other medical conditions, cataracts, uveitis, eye surgery, injuries or tumours | Various |

Causes of raised ICP include hydrocephalus, intracranial haemorrhage (after head injury), space-occupying lesions (abscess, tumour or haematoma), oedema (trauma, malignant hypertension, vascular lesions or tumours of the brain), or obstruction to the flow of CSF (blockage of the aqueduct of Sylvius, or subarachnoid adhesions due to meningitis).

Idiopathic intracranial hypertension, sometimes called benign intracranial hypertension or pseudotumour cerebri, occurs in the absence of a tumour or other disease affecting the brain or meninges.

Characteristic symptoms of raised ICP are headache, transient visual changes or loss in one or both eyes usually lasting seconds, pulse-synchronous tinnitus (a 'whooshing noise'), diplopia (double vision) and visual loss. Signs of raised ICP include papilloedema (bulging of the optic disc with engorgement of its vessels seen by ophthalmoscopy); restlessness (in the unconscious patient); vomiting; decreasing consciousness; rising blood pressure and slowing of the pulse; dilatation of the pupil on the side of the lesion with diminished reaction to light, and loss of visual acuity and fields. Diplopia, if present, may be due to abducens palsy.

Raised ICP can be fatal, as the pressure can cause herniation of the brain (displacement of part of the brain from one dural compartment to another) and pressure is exerted on the brainstem and medullary respiratory and cardiac control centres (this is called 'coning'). *Lumbar puncture is contraindicated*, as it can precipitate brain herniation and death by coning. The possibility of herniation is suggested by signs of raised ICP, particularly pupil dilatation and reduced reactivity to light caused by stretching of the oculomotor nerves.

## RAISED INTRAOCULAR PRESSURE

Normal intraocular pressure is between 12 and 21 mmHg. Glaucoma is a group of diseases of raised intraocular pressure that can lead to damage to the eye's optic nerve and result in impaired vision (Table 4.8). Glaucoma often affects both eyes, usually in varying degrees but one eye may develop glaucoma quicker than the other. Glaucoma occurs when the eye drainage tubes (trabecular meshwork) become slightly blocked, impeding eye fluid (aqueous humour) drainage. When the fluid cannot drain properly, intraocular pressure (IOP) increases and can damage the optic nerve and the retina. The main types of glaucoma are:

- *chronic open-angle glaucoma* – the most common type; develops slowly
- *primary angle-closure glaucoma* – rare; can develop slowly, or rapidly with a sudden, painful build-up of pressure
- *secondary glaucoma* – the result of an eye injury or another eye condition, such as uveitis
- *developmental (congenital) glaucoma* – rare but serious; usually presents at birth or develops shortly after.

Early diagnosis is important because any damage cannot be reversed. Treatment aims to control the condition and minimize future damage with eye medication drops (prostaglandin inhibitors, sympathomimetics, beta-blockers or carbonic anhydrase inhibitors), laser trabeculoplasty, cyclodiode therapy or surgery (trabeculectomy).

Drug-induced elevation of intraocular pressure is more common by an open-angle mechanism; some antidepressants, atropine, corticosteroids, diazepam, glycopyrrolate, hyoscine (scopolamine) and topiramate are implicated and therefore contraindicated. Most drugs that have glaucoma as a contraindication or adverse effect, however, are concerned with inducing acute angle-closure glaucoma and include topical anticholinergic or sympathomimetic dilating drops; antidepressants (tricyclic antidepressants, monoamine oxidase inhibitors [MAOIs]); antihistamines; antiparkinsonians; antipsychotics; antispasmolytics; and benzodiazepines.

Overviews of drug-induced glaucoma can be found at http://emedicine.medscape.com/article/1205298-overview and http://www.fmshk.org/database/articles/03mb6_5.pdf (accessed 25 May 2013).

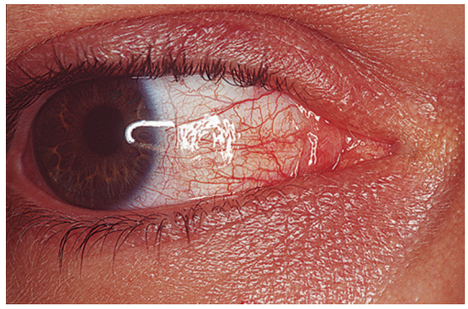

**Fig. 4.6** Red eye.

## RED EYE

There are many causes of red eye (Fig. 4.6), ranging from trauma or simple superficial inflammation (conjunctivitis) to more serious corneal ulceration, uveitis (inflammation of iris, ciliary body and choroids) and acute glaucoma – a medical emergency.

**Box 4.8** *Causes of salivary gland swelling*

***Inflammatory***
- Mumps
- Bacterial ascending sialadenitis
- Obstructive sialadenitis
- Allergic sialadenitis (e.g. to iodides or chlorhexidine)
- Sjögren syndrome and IgG4 syndrome
- Sarcoidosis
- HIV infection
- Tuberculosis and non-tuberculous mycobacteriosis
- Actinomycosis
- Toxoplasmosis

***Neoplastic***
- Pleomorphic adenoma and many others

***Endocrine and metabolic***
- Alcoholic and other types of cirrhosis
- Diabetes mellitus
- Acromegaly
- Malnutrition or bulimia
- Cystic fibrosis
- Chronic renal failure
- Amyloidosis
- Haemochromatosis

***Drugs (rarely)***
- Antiretroviral drugs (lipomatosis)
- Chlorhexidine
- Iodides
- Isoprenaline
- Phenylbutazone

## RED LESIONS IN THE MOUTH

Many oral mucosal red lesions are due to infections or are inflammatory with no identified infectious agent (sarcoidosis, Crohn disease); vascular anomalies (e.g. telangiectasias); or mucosal atrophy (erythema migrans [geographic tongue], desquamative gingivitis, erythroplasia or deficiency state). Lichen planus, lupus erythematosus and candidosis may cause red or white lesions (Ch. 11). Red lesions are sometimes due to Kaposi sarcoma or Wegener granulomatosis.

## SALIVARY SWELLING

The most common cause of salivary swelling is mumps (Ch. 21), which usually affects children and typically causes bilateral painful swellings, but there are many other causes (Box 4.8). Salivary obstruction, as by a calculus (stone), is the common cause of a unilateral swelling. Neoplasms (usually pleomorphic adenoma) must be considered, particularly when there is a persistent unilateral swelling in older patients (Fig. 4.7). Painless bilateral salivary swelling in an adult is usually due to sialadenosis (sialosis) and to autonomic dysfunction; it is thus a rare feature of alcoholic cirrhosis, diabetes mellitus, acromegaly, starvation or bulimia, or may be idiopathic. Sjögren syndrome and immunoglobulin G4 (IgG4) disease may also cause salivary gland swelling (see Box 4.8).

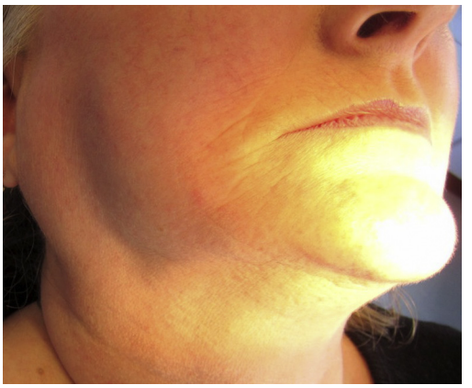

**Fig. 4.7** Unilateral parotid swelling.

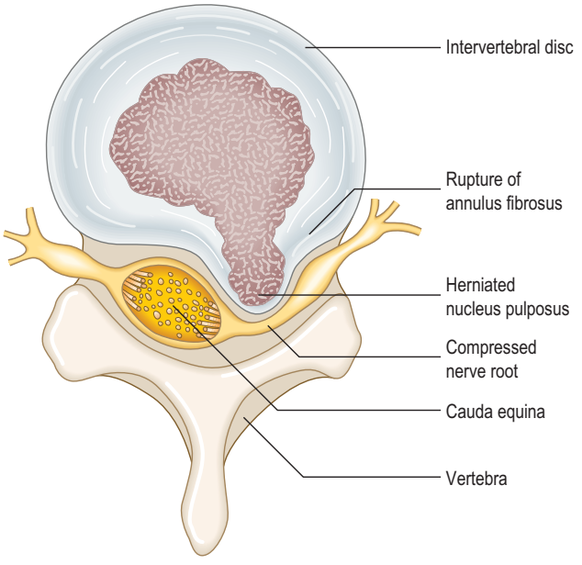


**Fig. 4.8** Prolapsed intervertebral disc ('slipped disc').

## SCIATICA

Sciatica is pain down the leg, caused by irritation of the sciatic nerve, the main nerve to the leg. The pain travels below the knee and may involve the foot, and there may be numbness and weakness of the lower leg muscles. The most common cause is a 'slipped disc' (a prolapsed intervertebral disc or herniated nucleus pulposus). Pressures within intervertebral discs can be high on bending or twisting, even without carrying a load. If part of the fibrous outer ring of the disc is weak, the softer nucleus pulposus centre may push its way through, and if it presses against a nerve it causes symptoms. Sciatica occurs when the herniated disc presses against the sciatic nerve (Fig. 4.8).

CT or MRI scans determine whether an operation will help cure the sciatica. Simple analgesics, such as paracetamol or ibuprofen, help. Activities likely to put unnecessary strain on the back should be avoided. In the minority of cases in which sciatica does not settle or complications arise, surgery is needed.

## SELF-HARM

See Chapter 10.

## SIALORRHOEA (HYPERSALIVATION)

Normally, any excess of saliva is swallowed and causes no symptoms. However, in normal infants, and in patients who have learning impairment, poor neuromuscular coordination or pharyngeal or oesophageal obstruction, drooling is common without any true overproduction of saliva (hypersalivation).

Causes of decreased saliva clearance include:

- infections such as tonsillitis, retropharyngeal and peritonsillar abscesses, epiglottitis and mumps
- jaw problems, e.g. fracture or dislocation
- neurological disorders such as myasthenia gravis, Parkinson disease, rabies, bulbar paralysis, bilateral facial nerve palsy and hypoglossal nerve palsy
- radiation therapy.

Causes of saliva overproduction include:

- excessive starch intake
- foreign bodies (e.g. new mouth appliances)
- gastro-oesophageal reflux disease, in such cases specifically called water brash, and characterized by a sour fluid or almost tasteless saliva
- liver disease
- oral infections or ulcers
- pancreatitis
- pregnancy
- rabies
- serotonin syndrome.

Drugs that can cause saliva overproduction include:

- clozapine
- ketamine
- pilocarpine
- potassium chlorate
- rabeprazole sodium
- risperidone.

Toxins that can cause hypersalivation include:

- arsenic
- copper
- mercury
- organophosphates (insecticide).

However, there is often no objective evidence for hypersalivation – when it may have a psychogenic basis.

Hypersalivation or drooling may be controllable with anticholinergic drugs (benzatropine, glycopyrronium and trihexyphenidyl hydrochloride) or antimuscarinic agents such as sublingual atropine or propantheline bromide. Botulinum toxin injections can be effective in certain circumstances. If hypersalivation is very severe, surgical relocation of the parotid duct, such that it discharges into the pharynx, may be effective, and the submandibular duct can also be moved.

## SNEEZING (STERNUTATION)

Sneezing is a sudden, forceful, involuntary burst of air through the nose and mouth, almost invariably caused by irritation to the mucous membranes of the nose or throat. Rarely a sign of serious disease, sneezing typically is caused by allergy or hay fever, upper respiratory tract infections, opioid withdrawal or corticosteroid inhalation.

## SNORING

Snoring is caused by obstructed breathing; the sound is usually made by the palate vibrating when the muscles relax, narrowing the airway. Snoring is usually normal, of unknown cause and not an indication of any underlying disorder. Excess alcohol or sedation can contribute. However, snoring can also be a sign of the *sleep apnoea syndrome*, with chronic nasal congestion or obstruction by enlarged tonsils and adenoids – or more serious pathology. It often causes nocturnal xerostomia. Snoring may often be reduced by not taking too much alcohol or sedation at bedtime, by avoiding sleeping flat on the back, and by weight loss (Ch. 14).

## SORE THROAT

A sore throat is discomfort, pain or scratchiness in the throat, often associated with pain on swallowing. Sore throats are common, especially in children between the ages of 5 and 10, most often caused by upper respiratory viruses (Ch. 14). Streptococcal throat is the most common bacterial cause and can occasionally lead to rheumatic fever, so antibiotics are indicated. Other causes of sore throat include trauma (a fish or chicken bone or other foreign substance stuck in the throat, endotracheal intubation, or local surgery, such as tonsillectomy and adenoidectomy). Occasionally, more serious pathology underlies the complaint.

## SPLENOMEGALY

Splenomegaly is enlargement of the spleen beyond its normal size. The spleen is involved in the production and maintenance of erythrocytes and the production of certain immunocytes; it may be affected and enlarged by many conditions involving the blood or lymph system, and by infection, liver disease, haemolytic anaemias, malignancies and parasites. Causes of splenomegaly can include those listed in Box 4.9.

Rupture of the enlarged spleen is possible and usually due to trauma.

## STROKE (CEREBROVASCULAR EVENT OR ACCIDENT; CVA)

See Chapter 13.

## STUTTERING

Stuttering (stammering) is a speech disorder in which the normal flow of speech is disrupted by frequent repetitions or prolongations of speech sounds, syllables or words, or by an individual's inability to start a word. Stuttering usually has a genetic basis but other causes can be neurogenic – following a stroke or other brain injury, or psychogenic – particularly anxiety. Stuttering may be accompanied by rapid eye blinks, lip and/or jaw tremors or other movements. Certain situations, such as lecturing, talking on the telephone or being interviewed, tend to aggravate stuttering, whereas others, such as singing or speaking alone, often improve it.

## SWEATING

Sweating is a heat-regulatory mechanism, mediated by the hypothalamus, when in a warm environment or exercising. The evaporation of

**Box 4.9** *Causes of splenomegaly*

***Infections***
- Malaria (worldwide the most common cause)
- Infectious mononucleosis
- Cytomegalovirus infection
- Other viral infections
- Parasitic infections
- Cat scratch disease
- Bacterial infections

***Liver diseases***
- Cirrhosis (portal vein obstruction, portal hypertension)
- Sclerosing cholangitis
- Wilson disease
- Biliary atresia
- Cystic fibrosis

***Haemolytic anaemias***
- Thalassaemia
- Haemoglobinopathies
- Glucose-6-phosphate dehydrogenase (G6PD) deficiency
- Idiopathic autoimmune haemolytic anaemia
- Immune haemolytic anaemia

***Malignant disease***
- Leukaemia
- Lymphoma
- Hodgkin disease

***Other causes***
- Sarcoidosis
- Sickle cell splenic crisis
- Banti syndrome
- Felty syndrome

sweat, produced by sweat glands in the skin, leads to heat loss. Other causes of sweating are shown in Box 4.10.

## SYNCOPE

Syncope is a feeling of faintness, dizziness or light-headedness (presyncope), or loss of consciousness (syncope), due to a sudden decline in blood flow to the brain. Syncope can affect otherwise healthy people but may also be caused by an irregular cardiac rate or rhythm, or by changes of blood volume or distribution. The main causes include: vasovagal attack (fainting, Ch. 1); respiratory factors (severe coughing causing vagal stimulation); cardiac disease (arrhythmias, heart block, aortic stenosis); paralytic factors – in the elderly, especially those taking drugs such as phenothiazines, L-dopa, hypotensive agents, tricyclics or benzodiazepines; brainstem factors – owing to migraine or vertebrobasilar disease, usually in the elderly; and carotid sinus syndrome – an exaggerated baroreceptor response resulting in periods of inappropriately high vagal tone and sympathetic suppression. The diagnosis is frequently made in men over 50 and in patients with atherosclerosis and hypertension. Syncope may also be caused by turning or pressing on the neck.

## TACHYCARDIA

See Chapter 5.

**Box 4.10** *Causes of sweating*

- Exercise
- Infections
- Menopause
- Malignant disease
  - Breast cancer
  - Prostate cancer
  - Hodgkin disease
  - Phaeochromocytoma
  - CNS tumours
  - Endocrine tumours
- Drugs
  - Tamoxifen
  - Opioids
  - Antidepressants
  - Steroids
  - Recreational drugs
- Hypothalamic disease
- Sweating disorders (hyperhidrosis)

**Box 4.11** *Causes of tachypnoea*

- Psychological states
  - Anxiety
  - Stress
  - Situations in which there is a psychological advantage in having a sudden dramatic illness
- Drug use
  - Stimulant use
  - Drugs (e.g. aspirin overdose)
- Respiratory disorders
  - Asthma
  - Chronic obstructive pulmonary disease
  - Pneumonia
  - Pulmonary fibrosis
  - Pleurisy
  - Pulmonary embolism
- Cardiac disease
  - Congestive heart failure
  - Coronary artery disease
  - Valvular disease
- Severe pain
- Ketoacidosis and similar medical conditions

## TACHYPNOEA

Tachypnoea or hyperventilation is excessive, rapid and deep breathing, resulting in a fall in the carbon dioxide level in the blood. Hyperventilation is not uncommon in young adults, especially in women, usually when they are nervous and tense. It can also be a symptom of other disorders. Causes of tachypnoea include those shown in Box 4.11.

## TASTE DISORDERS

See Chapter 13.

**Box 4.12** *Causes of tiredness*

- Excessive physical exertion
- Poor nutrition
- Infections (e.g. tuberculosis, bacterial endocarditis, HIV, hepatitis, influenza and mononucleosis)
- Chronic fatigue syndrome
- Psychological disorders
  - Anxiety and depression
  - Chronic boredom
  - Grief
  - Sleep disorders, such as insomnia
  - Stress
- Anaemia
- Endocrinopathies (e.g. diabetes, hypothyroidism, Addison disease, acromegaly)
- Drugs (e.g. antihistamines, antihypertensives, sedatives or diuretics)
- Chronic disease (e.g. cancer, rheumatoid arthritis, systemic lupus erythematosus)
- Most types of surgery
- Cardiac failure

## TEETHING

Restlessness, irritability, finger-sucking, gum-rubbing and drooling may be associated with the eruption of deciduous teeth. Teething is traditionally blamed for a variety of other signs and symptoms in infancy, but is not responsible for diarrhoea, fever, convulsions or other systemic disorders. These have systemic causes, usually infections – often herpetic stomatitis.

## TINNITUS

Tinnitus is a ringing, roaring or other sound inside the ears. It may be caused by ear problems (wax, infection, Ménière disease); neurological causes; or aspirin or certain antibiotics (aminoglycosides mainly). However, the reason for the tinnitus often cannot be found. Tinnitus can fluctuate or can resolve spontaneously, but is frequently untreatable.

## TIREDNESS

Tiredness is a feeling of lack of energy, fatigue or weariness. Fatigue represents a normal response to physical exertion, emotional stress or lack of sleep, but can also be a non-specific symptom of a psychological or physiological disorder. In many cases, fatigue is related to boredom, unhappiness, disappointment, lack of sleep or hard work. Because it is such a common complaint and is often caused by psychological problems, its potential seriousness is often overlooked.

Pathological (illness-related) fatigue is not relieved by rest, adequate sleep or removal of stressful factors. An example is the so-called *chronic fatigue syndrome*.

The pattern of fatigue may help delineate its underlying cause: individuals who arise in the morning rested but, with activity, rapidly fatigue may have a disease, while individuals who awaken fatigued and the level of fatigue remains constant throughout the day may be suffering from depression. Other causes are shown in Box 4.12.

**Table 4.9** *Causes of discolouration of teeth*

| Extrinsic | Intrinsic |
|---|---|
| ***Most teeth affected*** | |
| Smoking, beverages, e.g. tea | Tetracycline, fluorosis, amelogenesis imperfecta, dentinogenesis imperfecta, kernicterus, biliary atresia, porphyria |
| Drugs, e.g. iron, chlorhexidine, minocycline | |
| Poor oral hygiene, betel chewing | |
| ***One or a few teeth affected*** | |
| As above | Trauma, caries, resorption |

**Table 4.10** *Different types of tremor*

| Type | Causes |
|---|---|
| Contraction tremors (e.g. making a tight fist while the arm is resting and supported) | Essential tremor, cerebellar disease, hyperthyroidism, drugs such as caffeine and anticholinergic agents |
| Intention (action or kinetic) tremors (e.g. finger-to-nose test) | Cerebellar disorders and alcohol |
| Posture tremors (e.g. with the arms raised against gravity) | Essential tremor, physiological tremor, tremor with basal ganglia disease (as in parkinsonism), cerebellar disease, peripheral neuropathy, post-traumatic and alcoholic |
| Resting tremors (e.g. when the hands are lying on the lap) | Parkinsonism, antipsychotic drugs, essential tremor |

## TOOTH DISCOLOURATION

Most causes of discolouration of several teeth are extrinsic stains. Discolouration of isolated teeth is commonly related to caries or trauma. Fluorosis, tetracyclines or congenital defects of enamel or dentine may cause brown or white intrinsic discolouration of most or all teeth; biliary atresia may cause green teeth, and erythropoietic porphyria may cause red teeth (Table 4.9).

## TREMOR

Tremor is an unintentional, somewhat rhythmic, involuntary muscle movement involving to-and-fro movements (oscillations) of one or more parts of the body, most commonly affecting the hands. Tremor may also affect the arms, head, face, vocal cords, trunk and legs (Table 4.10). Caffeine (e.g. in coffee and carbonated beverages) and other stimulants should be avoided because they commonly worsen a tremor, as may emotion, stress, fever or physical exercise.

The most common form of tremor occurs in otherwise healthy people; this is essential tremor (no known cause). Tremor may also be caused by drugs (e.g. alcohol, amphetamines, caffeine, corticosteroids, ciclosporin, lithium, major tranquillizers and valproate); poisoning (e.g. mercury); neurological disorders (e.g. parkinsonism, multiple sclerosis, cerebellar disease); psychogenic reactions; or metabolic disorders (hypoglycaemia, hyperthyroidism, liver failure).

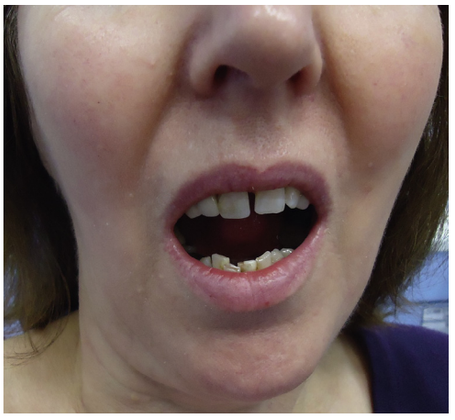

**Fig. 4.9** Trismus.

## TRISMUS

40–50 mm from incisal edge to incisal edge is considered normal mouth opening but 3 fingers is usually a rough guide. Limited oral opening (Fig. 4.9) can arise from temporomandibular joint disorders or from extra-articular causes such as infection, submucous fibrosis or scarring, or even tetanus.

Intra-articular causes may include:

- ankylosis
  - bony ankylosis: after trauma, infections and prolonged immobilization
  - fibrous ankylosis: due to trauma and infection
- arthritis
- synovitis.

Extra-articular causes may include:

- infection
  - odontogenic
  - non-odontogenic: peritonsillar abscess, tetanus, meningitis, brain abscess, parotid abscess.

## URINARY INCONTINENCE

Urinary incontinence is an inability to hold urine until a lavatory is reached. It results from an underlying medical condition and is often only temporary. Women, particularly older women, experience incontinence twice as often as men because of problems associated with pregnancy and childbirth, and the menopause. Both women and men can become incontinent from neurological injury, birth defects, strokes, multiple sclerosis and physical problems associated with ageing.

*Stress incontinence* results from physical changes from pregnancy, childbirth and the menopause, and causes incontinence when coughing, laughing, sneezing or other movements that put pressure on the bladder.

*Urge incontinence* is caused by inappropriate bladder contractions, which result from overactive nervous control of the bladder. Urine is lost for no apparent reason while suddenly feeling the need or urge to urinate. Urge incontinence can mean that the bladder empties during sleep, after drinking a small amount of water, or when touching water or hearing it running (as when washing dishes or hearing someone else taking a shower). Involuntary actions of bladder muscles can occur due to damage to the nerves of the bladder, to the nervous system (spinal cord and brain), or to the muscles themselves as in multiple sclerosis, Parkinson disease, Alzheimer disease, stroke and injury.

*Functional incontinence* appears in people who have problems thinking, moving or communicating that prevent them from reaching a lavatory fast enough, as in Alzheimer disease. A person in a wheelchair may be blocked from getting to a lavatory in time.

*Overflow incontinence* is seen when the bladder is always full because of weak bladder muscles or a blocked urethra (e.g. prostatic disease), so that it leaks urine frequently. Nerve damage from diabetes or other diseases can lead to weak bladder muscles; tumours and urinary stones can block the urethra.

## VERTIGO

See ‘Dizziness’.

## VISUAL IMPAIRMENT

Visual impairment may be suspected if a patient has overcautious driving habits; finds lighting either too bright or too dim; has frequent spectacle prescription changes; holds books or reading material close to the face or at arm’s length; squints or tilts the head to see; has difficulty in recognizing people; changes leisure-time activities, personal appearance or table etiquette; moves about cautiously or bumps into objects; or acts confusedly or is disoriented.

Visual impairment can have a range of causes, from disease of the lens such as cataract, to albinism, glaucoma, retinitis pigmentosa, retinal detachment or nerve lesions. Blindness or defects of visual fields can be caused by ocular, optic nerve or cortical damage, but the type of defect varies according to the site and extent of the lesion. A complete lesion of one optic nerve causes that eye to be totally blind. There is no direct reaction of the pupil to light (loss of constriction) and, if a light is shone into the affected eye, the pupil of the unaffected eye also fails to respond (loss of the consensual reflex). However, the nerves to the affected eye that are responsible for pupil constriction run in the third cranial nerve and should be intact. If, therefore, a light is shone into the *unaffected eye*, the pupil of the affected eye also constricts, even though that eye is sightless.

Lesions of the optic tract, chiasma, radiation or optic cortex cause various visual field defects involving both visual fields but without total field loss on either side.

*Visual field examination* (perimetry) tests the total area where objects can be seen in the peripheral vision while the eye is focused on a central point. Confrontation visual field examination is a quick and basic evaluation of the visual field done by an examiner sitting directly in front of the patient, who is asked to look at the examiner’s eye and say when they can see the examiner’s hand. Tangent screen examination involves the patient looking at a central target and telling the examiner when an object brought into the peripheral vision can be seen.

Automated perimetry is when the patient sits in front of a computer-driven program that flashes small lights at different locations, and presses a button whenever the lights in the peripheral vision are seen. An ophthalmological opinion should always be obtained if there is any suggestion of a visual field defect.

Vision is tested by visual acuity testing using the Snellen eye chart or another standard eye chart. This displays a series of letters or letters and numbers, with the largest at the top. As the person being tested reads down the chart, the letters gradually become smaller. When visual acuity is being checked, one eye is covered at a time and the vision of each eye is recorded separately, as well as both eyes together. Normal vision is 20/20, which means that the eye being tested can read

**Fig. 4.10** Complete blindness: an opaque eye.

a letter of a certain size when it is 20 feet away. If a person sees 20/40, then at 20 feet from the chart that person can read letters that a person with 20/20 vision could read from 40 feet away. The 20/40 letters are twice the size of 20/20 letters; however, if 20/20 is considered 100% visual efficiency, 20/40 visual acuity is 85% efficient. For people who have worse than 20/400 vision, a different eye chart can be used. It is common to record vision worse than 20/400 as count fingers (CF at a certain number of feet), hand motion (HM at a certain number of feet), light perception (LP) or no light perception (NLP). As for legal blindness, in the UK the statutory definition of 'blind' is 'so blind as to be unable to perform any work for which eyesight is essential' (the Blind Persons Act 1920). There is no statutory definition of 'partial sight', although the guideline is 'substantially and permanently handicapped by defective vision caused by congenital defect, illness, or injury' (the National Assistance Act 1948).

After the pupils have been dilated, direct *ophthalmoscopy/fundoscopy* provides a wider magnified view of the retina. *Tonometry* measures pressure inside the eye and is one of several tests necessary to detect glaucoma. *Slit-lamp examination* allows examination of the front of the eye. *Phoroptery* detects refractive errors.

Visual impairment can vary from limitations in sight for distance, colour, size or shape to full blindness (Fig. 4.10). It is an important disability that invariably restricts activity to some degree. Most visual impairment is caused by disease or malnutrition. The main causes include:

- cataracts
- glaucoma
- uveitis
- age-related macular degeneration (ARMD)
- trachoma
- corneal opacity
- diabetic retinopathy.

Cataracts, the most common cause of visual impairment in older people, are lens opacities that are more common in diabetes or after excess exposure to sunlight, ionizing irradiation or corticosteroids.

Visual defects are also among the most common genetic disorders, and congenital blindness may be associated with other handicaps such as epilepsy.

Clearly, communication is best verbally, though, for the partially sighted, writing matter can sometimes be used but must be in large, bold, black type on a white background.

Adaptive technology that may help includes adaptations around the home, as well as large-print books, books on tape and in Braille, and low-vision and blindness-related products.

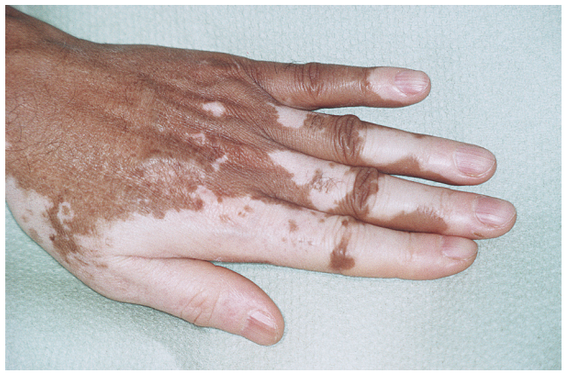

**Fig. 4.11** Vitiligo (see also Fig. 2.25).

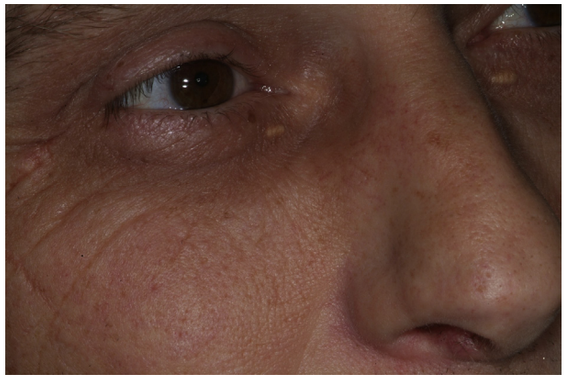

**Fig. 4.12** Xanthelasma.

## VITILIGO

Vitiligo is loss of skin pigmentation (Fig. 4.11), which can be dramatically unaesthetic. It is usually an autoimmune disorder.

## WEIGHT LOSS

Involuntary weight loss is a non-specific finding but is of concern. Causes, apart from malnutrition, are diabetes, hyperthyroidism, eating disorders, cancer (e.g. lung, gastrointestinal), infections (e.g. HIV disease, tuberculosis), depression and drugs.

## WHITE LESIONS IN THE MOUTH

Most white oral lesions are due to local causes, such as keratoses caused by irritation, or idiopathic leukoplakia. Rare congenital causes include white sponge naevus (can involve the vagina and anus), dyskeratosis congenita and pachyonychia congenita.

Candidosis may cause white or red lesions (Ch. 21). Lichen planus and lupus erythematosus are discussed in Chapter 11. Cancer may present as a white lesion.

## XANTHELASMA

These are flat yellow plaques over the upper or lower eyelids, most often near the inner canthus (Fig. 4.12). They are areas of lipid-containing

macrophages; the presence of xanthelasma and corneal arcus indicates a higher risk of developing ischaemic heart disease and, though xanthelasma also have other causes, patients should have fasting lipid levels checked and those with hyperlipidaemia should have a formal cardiac assessment.

## KEY WEBSITES

(Accessed 25 May 2013)

AIDS.gov. <http://aids.gov/hiv-aids-basics/hiv-aids-101/signs-and-symptoms/>.

American Cancer Society. <http://www.cancer.org/cancer/cancerbasics/signs-and-symptoms-of-cancer>.

WebMD symptom checker. <http://www.medicinenet.com/symptoms_and_signs/article.htm>.