

# PART 1

## HISTORICAL SIGNS

### 1.1 General, systemic and metabolic historical signs

#### 1.1.1 Polyuria/polydipsia

##### **Diet**

Increased salt intake  
Very-low-protein diet

##### **Drugs/toxins**

Aminophylline  
Corticosteroids  
Delmadinone acetate  
Diuretics  
Ethylene glycol  
Indomethacin

- Lilies

Lithium

- Melamine

NPK fertilisers  
Paraquat  
Phenobarbitone  
Potassium bromide

Primidone  
Proligestone

- Raisins/grapes

Terfenadine  
Theophylline  
Vitamin D rodenticides

## **Electrolyte disorders**

Hypercalcaemia *q.v.*  
Hypernatraemia *q.v.*

- Primary
- Secondary to dehydration, lack of intake, excessive loss of water, severe vomiting/diarrhoea, etc.

Hypokalaemia *q.v.*

## **Endocrine disease**

Acromegaly  
Diabetes mellitus\*  
Diabetes insipidus

- Central
- Nephrogenic

Hyperadrenocorticism  
Hyperthyroidism\* (C)  
Hypoadrenocorticism (D)  
Insulinoma  
Pheochromocytoma  
Primary hyperaldosteronism  
Primary hyperparathyroidism

## **Hepatobiliary disease, e.g.**

Hepatic neoplasia\* *q.v.*  
Hepatitis/cholangiohepatitis\* *q.v.*

## **Infectious disease, e.g.**

Toxaemia, e.g.

- Pyometra\*

## **Miscellaneous**

Congenital lack of ADH receptors  
Hypothalamic disease  
Pericardial effusion

Polycythaemia  
Psychogenic\*

## Neoplasia\*

## Physiological

Exercise  
High environmental temperature

## Renal disorders

Acute kidney injury\* *q.v.*  
Chronic kidney disease\* *q.v.*  
Following urethral obstruction\*  
Glomerulonephritis  
Primary renal glycosuria  
Pyelonephritis  
Renal medullary washout

*Note:* Polyuria and polydipsia are considered together here, since one will lead to the other, with only a few exceptions. These include polydipsia in the face of obstructive lower urinary tract disease or oliguric renal failure and polyuria which is not matched by fluid intake, in which case dehydration will rapidly follow. None of these scenarios are encountered commonly in practice. Polydipsia without polyuria can occur in situations of increased urinary loss of fluid, such as after strenuous exercise.

### 1.1.2 Weight loss

## Decreased nutrient intake

Anorexia\* *q.v.*  
Diet

- Poor-quality diet
- Underfeeding

Dysphagia *q.v.*  
Oral disease, e.g.

- Dental disease
- Masticatory myositis
- Temporomandibular joint disease

Regurgitation *q.v.*

**Increased nutrient loss**

Burns

Chronic blood loss

- Epistaxis *q.v.*
- Haematemesis *q.v.*
- Haematuria *q.v.*
- Melaena *q.v.*

Diabetes mellitus/diabetic ketoacidosis\*

Effusions *q.v.*

Fanconi syndrome (D)

Intestinal parasites\*

Neoplasia\*

Protein-losing enteropathy\*

Protein-losing nephropathy

**Increased nutrient use**

*Endocrine, e.g.*

Hyperthyroidism\* (C)

*Neoplasia\**

*Physiological*

Cold environment

Exercise

Fever *q.v.*

Lactation\*

Pregnancy\*

**Maldigestion/malabsorption**

Cardiac failure

Exocrine pancreatic insufficiency

Hepatic failure/bile salt deficiency *q.v.*

Hypoadrenocorticism (D)

Neoplasia\*

Renal disease\* *q.v.*

Small intestinal disease\* *q.v.*, e.g.

- Antibiotic-responsive diarrhoea
- Inflammatory bowel disease
- Lymphangiectasia

**Regurgitation and vomiting\* *q.v.***

### 1.1.3 Weight gain

Decreased energy utilisation, e.g.

- Decreased exercise

### Fluid accumulation

Ascites\* *q.v.*

Peripheral oedema *q.v.*

Pleural effusion

### Increased body fat

*Overeating*

Boredom

Excessive appetite (normal in some breeds)

High-calorie diets

Overfeeding\*

*Endocrinopathies*

Acromegaly

Hyperadrenocorticism

Hypogonadism

Hypothyroidism\* (D)

Insulinoma

### Increased organ size

Hepatomegaly\* *q.v.*

Renomegaly *q.v.*

Splenomegaly\* *q.v.*

Uterine enlargement *q.v.*

- Pregnancy\*
- Pyometra\*

### Neoplasia

Large abdominal mass (often associated with poor body condition)\*

Drugs, e.g.

- Corticosteroids

### 1.1.4 Polyphagia

#### **Behavioural/psychological**

Boredom

Normal in some breeds\*

Psychogenic, e.g. problem with satiety centre

#### **Diet**

Highly palatable food\*

Poor-quality food

#### **Drugs, e.g.**

Benzodiazepines

Corticosteroids

Mirtazapine

Progestagens

#### **Endocrine**

Acromegaly

Diabetes mellitus\*

Hyperadrenocorticism

Hyperthyroidism \*(C)

Insulinoma

#### **Increased nutrient loss, e.g.**

Exocrine pancreatic insufficiency

Malabsorption

- Small intestinal disease

#### **Increased nutrient use, e.g.**

Neoplasia

#### **Malassimilation *q.v.***

#### **Physiological**

Cold environment

Increased exercise

Lactation

Pregnancy

### 1.1.5 Anorexia/inappetence

#### **Anorexia, primary**

Intracranial disease, e.g.

- Hypothalamic neoplasia

#### **Anorexia, secondary**

Anosmia

- Chronic rhinitis *q.v.*
- Nasal neoplasia
- Other nasal disease
- Neurological disease

Endocrine disease, e.g.

- Diabetic ketoacidosis
- Hypoadrenocorticism (D)

Fever\* *q.v.*

Gastrointestinal disease *q.v.*, e.g.

- Gastritis
- Inflammatory bowel disease\*

Heart disease, e.g.

- Cardiac failure\*

Hepatic disease\* *q.v.*

Infection\*

Metabolic abnormalities, e.g.

- Hypercalcaemia *q.v.*
- Hypokalaemia *q.v.*

Pain\*

Pancreatic disease\*, e.g.

- Pancreatitis

Renal disease\* *q.v.*

Respiratory disease, e.g.

- Airway disease\* *q.v.*
- Diaphragmatic hernia
- Pleural effusion\* *q.v.*
- Pneumonia *q.v.*

#### **Diet**

Recent dietary changes\*

Unpalatable diet\*

**Difficulty with mastication**

Dental disease\*

Lingual disease

Oral neoplasia\*

Oral ulceration, e.g.

- Ingestion of caustic or acidic substances\*
- Renal disease

**Difficulty with prehension**

Blindness *q.v.*

*Myopathy, e.g.*

- Masticatory myositis
- Tetanus

*Pain on opening jaw, e.g.*

- Mandibular or maxillary fracture
- Retrobulbar abscess
- Skull fractures
- Soft tissue trauma
- Temporomandibular joint disease

*Trigeminal nerve disease, e.g.*

- Neoplasia
- Trigeminal neuritis

**Difficulty with swallowing**

*Pharyngeal disease*

Foreign body\*

Neoplasia

Neurological disease

Ulceration

*Oesophageal disease, e.g.*

Foreign body\*

Megaoesophagus

Neoplasia

Stricture

Ulceration

Vascular ring anomaly

### *Drugs*

- Acetazolamide
- Amiodarone
- Amphotericin B
- Bethanechol
- Bromocriptine
- Butorphanol
- Cardiac glycosides
- Chlorambucil
- Diazoxide
- Doxorubicin
- Fentanyl
- Hydralazine
- Itraconazole
- Ketoconazole
- Melphalan
- Methimazole
- Mitotane
- Nicotinamide
- Oxytetracycline (C)
- Penicillamine
- Theophylline
- Trimethoprim/sulphonamide (C)

### **Psychological/behavioural\* factors**

Altered schedule  
 New family members  
 New house  
 New pets

### **1.1.6 Failure to grow**

#### **With good body condition**

Chondrodystrophy (normal in many breeds)\* (D)

Endocrine disorders

- Congenital hyposomatotropism (pituitary dwarfism)
- Congenital hypothyroidism

## With poor body condition

Dietary intolerance

Exocrine pancreatic insufficiency\*

*Inadequate nutrient intake*

- Anorexia *q.v.*
- Poor-quality diet
- Underfeeding

*Cardiac disorders, e.g.*

- Congenital
- Endocarditis

*Endocrine disease*

- Diabetes insipidus
- Diabetes mellitus\*
- Hypoadrenocorticism (D)

*Gastrointestinal disease, e.g.*

- Histoplasmosis
- Obstruction, e.g.
  - Foreign body\*
  - Intussusception\*
- Parasites\*

*Hepatic disorders, e.g.*

- Hepatitis *q.v.*
- Portosystemic shunt

*Inflammatory disease*

*Oesophageal disorders, e.g.*

- Megaoesophagus *q.v.*
- Vascular ring anomaly (e.g. persistent right aortic arch)

*Renal disease*

- Congenital kidney disease
- Glomerulonephritis
- Pyelonephritis

## 1.1.7 Syncope/collapse

### Cardiovascular dysfunction

*Bradyarrhythmias q.v., e.g.*

- High-grade second-degree heart block
- Sick sinus syndrome (D)

- Third-degree heart block

Myocardial failure

Myocardial infarction

*Cardiac disease*

- Congenital, e.g.
  - Aortic stenosis (D)
  - Pulmonic stenosis (D)
- Hypertrophic obstructive cardiomyopathy
- Pericardial effusion\* (D)
- Pulmonary hypertension
- Arterial obstruction, e.g.
  - Neoplasia
  - Thrombosis

Shock *q.v.*

*Tachyarrhythmias q.v.*

- Supraventricular tachycardia\*
- Ventricular tachycardia\*

## Drugs

Anti-arrhythmics, e.g.

- Atenolol
- Digoxin
- Propranolol
- Quinidine

Sedatives, e.g.

- Phenothiazines

Vasodilators, e.g.

- ACE inhibitors
- Hydralazine
- Nitroglycerine

## Hypoxaemic disease

Carboxyhaemoglobinaemia

Methaemoglobinaemia

Pleural/thoracic disorders, e.g.

- Pleural effusion
- Pneumothorax
- Rib fractures

*Respiratory disease*

- Lower airway, e.g.
  - Pneumonia
  - Small airway disease
- Upper airway, e.g.
  - Brachycephalic obstructive airway syndrome
  - Laryngeal paralysis
  - Tracheal collapse
  - Tracheal obstruction
- Ventilation–perfusion mismatch, e.g.
  - Pulmonary thromboembolism (PTE)
  - Lung collapse

*Right-to-left cardiac shunt, e.g.*

- Reverse-shunting patent ductus arteriosus
- Severe anaemia

## Metabolic/endocrine disorders

Diabetic ketoacidosis

Hypercalcaemia/hypocalcaemia *q.v.*

Hypernatraemia/hyponatraemia *q.v.*

Hyperthermia/hypothermia *q.v.*

Hypoglycaemia *q.v.*

Hyperkalaemia/hypokalaemia *q.v.*

Severe acidosis *q.v.*

Severe alkalosis *q.v.*

Pheochromocytoma

Hypoadrenocorticism

Insulinoma

## Miscellaneous

Carotid sinus stimulation, e.g.

- Neoplasia
- Tight collar

Hyperventilation

Postural hypotension

Tussive/cough syncope

## Myopathies

Corticosteroid myopathy

Exertional myopathy

Hypocalcaemic myopathy

Hypokalaemic myopathy  
 Malignant hyperthermia  
 Mitochondrial myopathy  
 Muscular dystrophy  
 Polymyopathy  
 Polymyositis  
 Protozoal myopathy

## Neurological dysfunction

Brainstem disease

*Diffuse cerebral dysfunction, e.g.*

- Encephalopathy
- Haemorrhage
- Hydrocephalus
- Inflammation
- Oedema
- Space-occupying lesion
- Trauma

Fibrocartilaginous embolism

Glossopharyngeal neuralgia

*Lower motor neurone disorders*

- Endocrine neuropathies, e.g.
  - Diabetes mellitus\*
  - Hyperadrenocorticism
  - Hypothyroidism\* (D)
- Lumbosacral disease
- Paraneoplastic neuropathies, e.g.
  - Insulinoma
- Peripheral nerve neoplasia
- Polyneuropathy, e. g.
  - Polyradiculoneuropathy

Micturition-related collapse

Narcolepsy/cataplexy

*Neuromuscular junction disorders*

- Botulism
- Myasthenia gravis

Seizures *q.v.*

Swallowing-related collapse

*Upper motor neurone disorders*

- Central vestibular disease

- Cerebellar disease
- Cerebral disease
- Peripheral vestibular disease
- Spinal disease

## **Skeletal/joint disorders**

Bilateral cranial cruciate disease  
Bilateral hip disease  
Discospondylitis  
Intervertebral disc disease  
Multiple myeloma  
Osteoarthritis  
Panosteitis  
Patellar luxation  
Polyarthritis

### **1.1.8 Weakness**

## **Cardiovascular diseases**

Bradyarrhythmias *q.v.*, e.g.

- High-grade second-degree heart block
- Sick sinus syndrome (D)
- Third-degree heart block

Congestive heart failure\*  
Hypertension\* *q.v.*  
Hypotension\* *q.v.*  
Pericardial effusion\* *q.v.*  
Tachyarrhythmias *q.v.*, e.g.  
Ventricular tachycardia\*

- Supraventricular tachycardia

## **Drugs/toxins**

Alphachloralose  
Anticoagulant rodenticides  
Anticonvulsants  
Antihistamines  
Blue-green algae  
Cannabis  
Diclofenac sodium

Glucocorticoids  
 Hypotensive agents, e.g.  
     • Beta blockers  
     • Vasodilators  
 Ibuprofen  
 Insulin overdosage  
 Iron salts  
 Mistletoe  
 Opioids  
 Organophosphates  
 Petroleum distillates  
 Phenoxy acid herbicides  
 Pyrethrin/pyrethroids  
 Rhododendron  
 Salbutamol  
 Sedatives

## Endocrine diseases

Diabetes mellitus\*  
 Hyperadrenocorticism  
 Hyperparathyroidism  
 Hypoadrenocorticism (D)  
 Hypoparathyroidism  
 Hypothyroidism\* (D)  
 Insulinoma

## Haematological diseases

Anaemia\* *q.v.*  
 Hyperviscosity syndrome, e.g. polycythaemia

## Inflammatory/Immune-mediated diseases

Chronic inflammatory conditions\*  
 Immune-mediated haemolytic anaemia\* *q.v.*  
 Immune-mediated polyarthritis

## Infectious diseases\*

Bacterial  
 Viral  
 Fungal  
 Rickettsial  
 Protozoal and other parasitic diseases

**Metabolic disease**

Acid–base disorders

- Acidosis *q.v.*
- Alkalosis *q.v.*

Electrolyte disorders\*

- Hypercalcaemia\*/hypocalcaemia *q.v.*
- Hyperkalaemia/hypokalaemia\* *q.v.*
- Hypernatraemia/hyponatraemia *q.v.*

Hepatic failure\* *q.v.*

Hyper-/hypoglycaemia *q.v.*

Renal disease\* *q.v.*

**Neurological diseases**

*Intracranial disease, e.g.*

Cerebrovascular accident

- Epilepsy\* *q.v.*

Infection

Inflammation

Space-occupying lesions

Vestibular disease

*Neuromuscular disease, e.g.*

- Botulism
- Myasthenia gravis
- Myopathies
- Tick paralysis

*Peripheral polyneuropathies*

Drugs/toxins, e.g.

- Cisplatin
- Lead
- Vincristine

Endocrine disorders, e.g.

- Diabetes mellitus\*
- Hyperadrenocorticism
- Hypothyroidism\* (D)

Polyradiculoneuritis

Paraneoplastic disorders

*Spinal cord disease q.v., e.g.*

Fibrocartilaginous embolism

Infection  
Inflammation  
Intervertebral disc disease\* (D)  
Neoplasia  
Trauma\*

*Vestibular disease* \* *q.v.*

- Central vestibular disease
- Peripheral vestibular disease

## Nutritional disorders

*Cachexia*, *e.g.*

Heart failure\*  
Neoplasia\*

*Inadequate calorie intake*, *e.g.*

Anorexia\* *q.v.*  
Poor-quality diet

*Specific nutrient deficiencies*, *e.g.*

Minerals  
Vitamins

## Physiological factors

Over-exercise  
Pain\*  
Stress/anxiety\*

## Respiratory diseases

Airway obstruction, *e.g.*

- Feline asthma\* (C)
- Foreign body\*
- Neoplasia \*
- Pleural effusion\*
- Pulmonary hypertension
- Pulmonary oedema\* *q.v.*
- Pulmonary thromboembolism

Severe pulmonary parenchymal disease

## Systemic disorders

Dehydration\*  
Fever\* *q.v.*  
Neoplasia\*

## 1.2 Gastrointestinal/abdominal historical signs

### 1.2.1 Ptyalism/salivation/hypersalivation

#### Drugs/toxins

Adder bites  
Alphachloralose  
Baclofen  
Batteries  
Benzodiazepines  
Bethanechol  
Blue-green algae  
Cannabis  
Carbamate  
Chocolate/theobromine  
Cotoneaster  
Cyanoacrylate adhesives  
Daffodil  
Dieffenbachia  
Dinoprost tromethamine  
Glyphosphate  
Horse chestnut  
Ivermectin  
Ketamine  
Laburnum  
Levamisole (C)  
Loperamide  
Metronidazole  
Mistletoe  
NPK fertilisers  
Organophosphates  
Paracetamol  
Paraquat  
Phenoxy acid herbicides  
Plastic explosives  
Plants  
Pyrethrin/pyrethroids

Pyridostigmine  
Rhododendron  
Rowan  
Terfenadine  
Toads  
Trimethoprim/sulphonamide (C)  
Xylazine

## **Nausea/regurgitation/vomiting q.v.\***

## **Neurological disease**

Cataplexy/narcolepsy  
Hepatic encephalopathy  
Intracranial neoplasia  
Partial seizures

## **Normal breed variation, e.g.\***

St Bernard

## **Oral cavity disease**

- Dental disease\*
- Foreign body\*
- Neoplasia\*, e.g. tonsillar
- Inability to close mouth, e.g.
- Mandibular trauma\*
  - Trigeminal nerve disease, e.g.
    - Idiopathic trigeminal neuritis
    - Infiltrating neoplasia, e.g.
    - Lymphoma
    - Nerve sheath tumours
- Infection, e.g.
- Rabies
- Inflammation, e.g.
- Faucitis\*
  - Lip fold dermatitis
  - Gingivitis\*
  - Glossitis\*
  - Oesophagitis\*
  - Stomatitis\*

Ulceration\*, e.g.

- Chronic kidney disease\*
- Immune-mediated disease
- Ingestion of irritant substance

## Physiological factors

Appetite stimulation\*

Fear\*

Stress\*

## Salivary gland disease q.v.

Salivary gland necrosis/sialadenitis

Salivary mucocoele

Sialadenosis

## 1.2.2 Gagging/retching

### Congenital disease

Achalasia, e.g.

- Cricopharyngeal achalasia (D)

Cleft palate

Hydrocephalus

### Inflammatory and infectious disease

Asthma\* (C)

Bacterial encephalitis

Fungal disease

- Granuloma complex

Idiopathic glossopharyngitis

Laryngitis\*

Nasopharyngeal disease, e.g. polyps (C)

Pharyngitis\*

Rabies

Rhinitis\*

Sialadenitis

Viral encephalitis

## **Neoplasia**

- Central nervous system
- Epiglottis
- Inner ear
- Nasal
- Pharyngeal
- Tonsillar

## **Neurological disease**

- Brainstem disease
- Cranial nerve defects (V, VII, IX, XII)
- Encephalitis
- Laryngeal paralysis\*
- Muscular dystrophy
- Myasthenia gravis

## **Nutrition**

- Food texture and size

## **Respiratory disease (expectoration), e.g.**

- Bronchitis\*
- Haemorrhage
- Pulmonary oedema\*

## **Systemic disorders**

- Hypocalcaemia
- Renal disease\*

## **Toxic**

- Botulism
- Ingestion of irritant chemical
- Smoke

## **Trauma**

- Foreign body\*
- Pharyngeal haematoma
- Styloid apparatus trauma
- Tracheal rupture

### 1.2.3 Dysphagia

#### Infectious/inflammatory disease

##### *Oral disease*

- Dental disease\*
- Osteomyelitis of the jaw
- Periodontitis\*
- Pharyngitis\*
- Rabies
- Retrobulbar abscess
- Severe gingivitis\*
- Salivary gland disease, e.g.
  - Sialadenitis
- Tooth root abscess\*
- Ulceration, e.g.
  - Ingestion of irritant substance
  - Renal disease\*

#### Neurological/neuromuscular disease

- Cricopharyngeal achalasia
- Myasthenia gravis
- Myopathy, e.g.
  - Masticatory myopathy
- Trigeminal nerve disease, e.g.
  - Intracranial disease
  - Trigeminal neuritis

#### Obstruction

- Foreign body\*
- Granuloma
- Neoplasia
- Sialocoele

#### Temporomandibular joint disease

##### *Trauma\**

- Fracture
- Haematoma
- Laceration

## 1.2.4 Regurgitation

### Endocrine disease

- Hypoadrenocorticism (D)
- Hypothyroidism\* (D)

### Gastric disease (can develop regurgitation secondary to outflow obstruction)

- Gastric dilatation/volvulus\* (D)
- Hiatal hernia
  - Gastro-oesophageal intussusception
- Pyloric outflow obstruction, e.g.
  - Foreign body\*
  - Neoplasia
  - Pyloric stenosis

### Immune-mediated disease

- Dermatomyositis (D)
- Polymyositis
- Systemic lupus erythematosus

### Neurological disease

#### *Central nervous system disease, e.g.*

- Brainstem disease
- Distemper infection (D)
- Infection
- Inflammation
- Intracranial space-occupying lesion
- Storage diseases
- Trauma

#### *Neuromuscular junctionopathies, e.g.*

- Anticholinesterase toxicity
- Botulism
- Myasthenia gravis
- Tetanus

#### *Peripheral neuropathies, e.g.*

- Giant cell axonal neuropathy (D)
- Lead poisoning

- Polyneuritis
- Polyradiculoneuritis
  - Idiopathic
  - Tick paralysis

## Oesophageal disease

- Foreign body\*
- Granuloma, e.g. *Spirocerca lupi*
- Mediastinal mass (extraluminal obstruction)
- Megaoesophagus
  - Idiopathic
  - Acquired
- Neoplasia
- Oesophageal diverticulum
- Oesophageal fistula
- Oesophageal inclusion cysts
- Oesophagitis\*, e.g.
  - Secondary to gastric reflux
  - Severe vomiting
    - Post anaesthesia
    - Idiopathic
    - Ingestion irritants
- Stricture
- Vascular ring anomaly, e.g.
  - Persistent right aortic arch

## Salivary gland disease

- Sialadenitis
- Sialadenosis

### 1.2.5 Vomiting

#### ACUTE VOMITING

##### Dietary

- Dietary indiscretion\*
- Dietary intolerance\*
- Sudden change in diet\*

**Drugs/toxins**

Acetazolamide  
Adder bite  
Allopurinol  
Alpha-2 agonists  
Aminophylline  
Amphotericin B  
Apomorphine  
Aspirin  
Atipamezole  
Atropine  
Batteries  
Benzalkonium chloride  
Bethanechol  
Blue-green algae  
Borax  
Bromocriptine  
Calcium edetate  
Carbimazole  
Carboplatin  
Cardiac glycosides  
Cephalexin  
Chlorambucil  
Chloramphenicol  
Chlorphenamine  
Clomipramine  
Colchicine  
Cotoneaster  
Cyclophosphamide  
Cyclosporin  
Cytarabine  
Daffodil  
Dichlorophen  
Diclofenac sodium  
Dinoprost tromethamine  
Dopamine  
Doxorubicin  
Doxycycline  
Dieffenbachia  
Ethylene glycol

Erythromycin  
Glipizide  
Glucocorticoids  
Glyphosphate  
Honeysuckle  
Horse chestnut  
Hydralazine  
Ibuprofen  
Indomethacin  
Ipecacuanha  
Iron/iron salts  
Ivermectin  
Ketoconazole  
Laburnum  
Lead  
Levamisole  
Lignocaine  
Loperamide  
Medetomidine  
Melfalan  
Metaldehyde  
Methimazole  
Metronidazole  
Mexiletine  
Misoprostol  
Mistletoe  
Mitotane  
Naproxen  
Nicotinamide  
Nitroscanate  
NPK fertilisers  
NSAIDs  
Paracetamol  
Paraquat  
Penicillamine  
Pentoxifylline  
Petroleum distillates  
Phenoxy acid herbicides  
Phenytoin  
Pimobendan

Piperazine  
Plastic explosives  
Poinsettia  
Potassium bromide  
Procainamide  
Propantheline bromide  
Pyracantha  
Pyrethrin/pyrethroids  
Pyridostigmine  
Rhododendron  
Rowan  
Salt  
Selective serotonin reuptake inhibitors  
Sildenafil  
Sotalol  
Strychnine  
Sulphasalazine  
Terfenadine  
Tetracycline  
Theobromine  
Theophylline  
Tricyclic antidepressants  
Trimethoprim/sulphonamide  
Ursodeoxycholic acid  
Vitamin D rodenticides  
Xylazine  
Yew  
Zinc

**Endocrine disease, e.g.**

Diabetic ketoacidosis\*  
Hypoadrenocorticism (D)

**Gastrointestinal disease**

Colitis\*  
Constipation/obstipation\* *q.v.*  
Foreign body\*  
Gastric dilatation/volvulus\*  
Gastric or duodenal ulceration\*  
Gastritis/enteritis\*

Haemorrhagic gastroenteritis\*

Infection, e.g.

- Bacterial\*
- Parasites\*
- Viral\*

Inflammatory bowel disease\*

Intestinal volvulus

Intussusception

Neoplasia\*

## **Metabolic/systemic disease**

Hypercalcaemia/hypocalcaemia *q.v.*

Hyperkalaemia/hypokalaemia\* *q.v.*

Hyperthermia\* *q.v.*

Liver disease\* *q.v.*

Pancreatitis\*

Peritonitis\*

Prostatitis\*

Pyometra\* (D)

Renal disease\* *q.v.*

Septicaemia\*

Urinary obstruction\*

Vestibular disease\*

## **Miscellaneous conditions**

Central nervous system disease

Diaphragmatic hernia

Motion sickness\*

Psychogenic

## **CHRONIC VOMITING**

### **Endocrine disease, e.g.**

Diabetes mellitus\*

Hyperthyroidism\* (C)

Hypoadrenocorticism (D)

### **Gastrointestinal disease**

Bacterial overgrowth

Colitis\*

Constipation/obstipation\* *q.v.*

Enterogastric reflux

Gastric motility disorders\*

Gastric or duodenal ulceration\*

Gastritis/enteritis\*

Infection, e.g.

- Bacterial
- Fungal
- Parasites\*
- Viral

Inflammatory bowel disease

- Eosinophilic
- Lymphocytic
- Lymphoplasmacytic
- Mixed

Irritable bowel syndrome

Neoplasia\*

- Intestinal, e.g. lymphoma and adenocarcinoma
- Gastrinoma
- Mast cell tumour

Obstruction, e.g.

- Foreign body\*
- Inflammatory bowel disease (gastritis or enteritis)
- Intussusception\*
- Neoplasia\*
- Pyloric stenosis
- Ulceration

## Metabolic/systemic disease

Heartworm disease

Hypercalcaemia/hypocalcaemia *q.v.*

Hyperkalaemia/hypokalaemia *q.v.*

Liver disease\* *q.v.*

Pancreatitis\*

Prostatitis

Pyometra\* (D)

Renal disease\* *q.v.*

Septicaemia

**Miscellaneous conditions**

- Abdominal neoplasia
- Diaphragmatic hernia
- Sialadenitis
- Hydrocephalus
- Brain tumour

**1.2.6 Diarrhoea****SMALL INTESTINAL DIARRHOEA****Diet**

*Dietary intolerance, e.g.*

- Food hypersensitivity\*
- Food intolerance
- Gluten-sensitive enteropathy

*Overfeeding*

*Sudden change in diet*

**Drugs/toxins (see Large intestinal diarrhoea)****Extra-gastrointestinal disease**

- Exocrine pancreatic insufficiency\*
- Hepatic disease\* *q.v.*
- Hyperthyroidism\* (C)
- Hypoadrenocorticism (D)
- IgA deficiency
- Nephrotic syndrome
- Pancreatic duct obstruction
- Pancreatitis\*
- Renal disease\* *q.v.*
- Right-sided congestive heart failure\*
- Systemic lupus erythematosus
- Uraemia

**Idiopathic disease**

- Lymphangiectasia

## Infection

*Bacterial\**, e.g.

*Campylobacter* spp.

*Clostridium* spp.

*E. coli*

*Salmonella* spp.

*Staphylococcus* spp.

Small intestinal bacterial overgrowth/antibiotic-responsive diarrhoea

*Fungal*

*Helminths\**

Hookworm

Roundworm

Tapeworm

Whipworm

*Protozoal\**, e.g.

Cryptosporidiosis

- *Giardia* spp.

*Rickettsial*

*Viral\**, e.g.

Coronavirus

Feline leukaemia virus (C)

Parvovirus

## Inflammatory/immune-mediated disease

Basenji enteropathy (D)

Duodenal ulceration

Haemorrhagic gastroenteritis\*

Inflammatory bowel disease\*

- Eosinophilic
- Granulomatous
- Lymphoplasmacytic

Protein-losing enteropathy and nephropathy of the soft-coated wheaten terrier (D)

**Motility disorders, e.g.**

- Dysautonomia
- Enteritis
- Functional obstruction (ileus)
- Hypoalbuminaemia
- Hypokalaemia

**Neoplasia\*, e.g.**

- Adenocarcinoma
- Carcinoid tumours
- Leiomyoma
- Lymphoma
- Mast cell tumours
- Sarcoma

*Partial obstruction\**

- Foreign body
- Intussusception
- Neoplasia
- Stricture

**LARGE INTESTINAL DIARRHOEA****Diet\***

- Dietary hypersensitivity
- Dietary indiscretion

**Drugs/toxins**

- Acetazolamide
- Adder bite
- Allopurinol
- Aminophylline
- Amoxicillin
- Amphotericin B
- Ampicillin
- Atenolol
- Benzalkonium chloride
- Bethanechol
- Blue-green algae
- Borax

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Calcium edetate  
Carbamate insecticides  
Cardiac glycosides  
Cephalexin  
Chloramphenicol  
Chlorphenamine  
Colchicine  
Cotoneaster  
Cyclophosphamide  
Cyclosporin  
Cytarabine  
Daffodil  
Diazoxide  
Diclofenac sodium  
Dieffenbachia  
Doxycycline  
Glyphosphate  
Honeysuckle  
Horse chestnut  
Ibuprofen  
Indomethacin  
Iron/iron salts  
Laburnum  
Lactulose  
Levamisole  
Lithium  
Loperamide  
Mebendazole  
Metaldehyde  
Methiocarb  
Misoprostol  
Mistletoe  
Mitotane  
Naproxen  
Nicotinamide  
NPK fertilisers  
NSAIDs  
Organophosphates  
Oxytetracycline  
Pamidronate

Pancreatic enzyme supplementation  
Paracetamol  
Paraquat  
Pentoxifylline  
Petroleum distillates  
Phenoxy acid herbicides  
Piperazine  
Poinsettia  
Procainamide  
Pyracantha  
Pyrethrin/pyrethroids  
Pyridostigmine  
Quinidine  
Rhododendron  
Rowan  
Salt  
Selective serotonin reuptake inhibitors  
Sotalol  
Theobromine  
Theophylline  
Vitamin D rodenticides  
Yew  
Zinc sulphate

### **Extra-intestinal conditions**

Metastatic neoplasia  
Neurological disease leading to ulcerative colitis  
Pancreatitis  
Toxaemia  
Uraemia

### **Idiopathic conditions**

Fibre-responsive large-bowel diarrhoea  
Irritable bowel syndrome

### **Infection**

*Bacterial\*, e.g.*

*Campylobacter* spp.

*Clostridium difficile*

*Clostridium perfringens*  
*E. coli*  
*Salmonella* spp.  
*Yersinia enterocolitica*

*Fungal, e.g.*  
 Histoplasmosis  
 Protothecosis

*Parasitic\*, e.g.*  
 Amoebiasis  
*Ancylostoma* spp.  
*Balantidium coli*  
 Cryptosporidiosis  
*Giardia* spp.  
*Heterobilharzia americana*  
 Roundworm  
 Tapeworm  
*Tritrichomonas foetus* (C)  
*Uncinaria* spp.  
 Whipworm

*Protozoal, e.g.*  
 Toxoplasmosis

*Viral\**  
 Coronavirus  
 Feline immunodeficiency virus (C)  
 Feline infectious peritonitis (C)  
 Feline leukaemia virus (C)  
 Parvovirus

## **Inflammatory/Immune-mediated disease**

Histiocytic ulcerative colitis or granulomatous  
 colitis of boxers (and other breeds) (D)  
 Inflammatory bowel disease\*

## **Neoplasia\***

*Benign, e.g.*  
 Adenomatous polyps  
 Leiomyoma

*Malignant, e.g.*

Adenocarcinoma

Lymphoma

## **Obstruction**

Caecal inversion

Foreign body\*

Intussusception\*

Neoplasia

Stricture

## **Miscellaneous**

Secondary to chronic small intestinal disease

Stress

Note: Perirectal diseases, e.g. anal sac disease, anal furunculosis, perineal hernia, rectal prolapse and perianal adenoma, may cause signs mimicking large-bowel disease (tenesmus, haematochezia, mucoid stool).

## **1.2.7 Melaena**

### **Extra-gastrointestinal disease**

Hypoadrenocorticism (D)

Liver disease\* *q.v.*

Mastocytosis

Pancreatitis\*

Septicaemia\*

Shock\* *q.v.*

Systemic hypertension\* *q.v.*

Uraemia\* *q.v.*

Vasculitis, e.g.

- Rocky Mountain spotted fever

*Coagulopathy q.v., e.g.*

Anticoagulant toxicity\* *q.v.*

Congenital clotting factor deficiency *q.v.*

Disseminated intravascular coagulation

Thrombocytopenia *q.v.*

Thrombocytopathia

von Willebrand's disease (D)

## Gastrointestinal disease

Enteritis\*  
 Gastritis\*  
 Oesophagitis  
 Parasites\*

### *Gastrointestinal ulceration\**

Gastrinoma  
*Helicobacter* infection  
 Inflammatory gastroenteric disease\*  
 Neurological disease  
 Post foreign body\*  
 Stress  
 Uraemia\* *q.v.*  
 Drugs, e.g.  
 • Glucocorticoids\*  
 • NSAIDs\*

### *Ischaemia, e.g.*

Mesenteric avulsion  
 Mesenteric thrombosis/infarction  
 Mesenteric volvulus  
 Post gastric dilatation/volvulus\* (D)

### *Neoplasia\*, e.g.*

Adenocarcinoma  
 Leiomyoma  
 Leiomyosarcoma  
 Lymphoma

### *Ingestion of blood*

### *Nasal disease (see also Epistaxis), e.g.*

Coagulopathy\* *q.v.*  
 Neoplasia\*  
 Trauma\*

### *Oropharyngeal haemorrhage*

Coagulopathy\* *q.v.*  
 Neoplasia\*  
 Trauma\*

*Respiratory disease (see also Haemoptysis), e.g.*

Coagulopathy\* *q.v.*

Exercise-induced pulmonary haemorrhage

Parasites, e.g. *Angiostrongylus vasorum*

Neoplasia\*

Ruptured aneurysm

Trauma\*

### 1.2.8 Haematemesis

#### **Extra-gastrointestinal disease**

Hypoadrenocorticism (D)

Liver disease\* *q.v.*

Mastocytosis

Pancreatic disease

Septicaemia\*

Shock\*

Systemic hypertension\* *q.v.*

Uraemia\* *q.v.*

*Coagulopathies q.v., e.g.*

Anticoagulant toxicity\*

Congenital clotting factor deficiency

Disseminated intravascular coagulation

Thrombocytopenia

Thrombocytopathia

von Willebrand's disease(D)

*Toxins, e.g.*

Calcipotriol

Paraquat

*Vasculitis, e.g.*

Rocky Mountain spotted fever

#### **Gastrointestinal disease**

Gastritis\*

Haemorrhagic gastroenteritis

Oesophagitis

*Gastrointestinal ulceration\**

Drugs, e.g.

- NSAIDs
- Glucocorticoids\*

Gastrinoma

*Helicobacter* infection\*

Inflammatory gastroenteric disease\*

Neurological disease

Post foreign body\*

Stress

Systemic mastocytosis

Uraemia\*

*Ischaemia, e.g.*

Post gastric dilatation/volvulus\* (D)

*Neoplasia\*, e.g.*

- Adenocarcinoma
- Lymphoma

## **Ingestion of blood**

*Nasal disease (see also Epistaxis), e.g.*

Coagulopathy\* *q.v.*

Infection, e.g. fungal

Neoplasia\*

Trauma\*

*Oropharyngeal haemorrhage*

Coagulopathy\* *q.v.*

Neoplasia\*

Trauma\*

*Respiratory disease (see also Haemoptysis), e.g.*

Coagulopathy\* *q.v.*

Exercise-induced pulmonary haemorrhage

Parasites

Neoplasia\*

Ruptured aneurysm

Trauma\*

### 1.2.9 Haematochezia

#### Drugs

Glucocorticoids

#### *Extra-gastrointestinal disease*

Neurological disease leading to ulcerative colitis

#### *Coagulopathies q.v., e.g.*

Anticoagulant toxicity\*

Congenital clotting factor deficiency *q.v.*

Disseminated intravascular coagulation

Thrombocytopenia *q.v.*

von Willebrand's disease (D)

#### *Perirectal disease, e.g.*

Anal furunculosis\*

Anal sac disease\*

Perianal adenoma\*

Perineal hernia\*

Rectal prolapse\*

#### Gastrointestinal disease

##### *Algal, e.g.*

Protothecosis

##### *Bacterial\*, e.g.*

*Campylobacter* spp.

*Clostridium* spp.

*E. coli*

*Salmonella* spp.

##### *Dietary*

Dietary hypersensitivity

Dietary indiscretion

##### *Fungal, e.g.*

Histoplasmosis

## Idiopathic conditions

Fibre-responsive large-bowel diarrhoea

Caecal disease, e.g.

- Typhlitis
- Inversion

Haemorrhagic gastroenteritis

Irritable bowel syndrome

## Inflammatory/immune-mediated disease

Histiocytic ulcerative colitis or granulomatous colitis of boxers (and other breeds) (D)

Inflammatory bowel disease\*

## Neoplasia

- *Benign, e.g.*
  - Adenomatous polyps
  - Leiomyoma
- *Malignant, e.g.*
  - Adenocarcinoma
  - Lymphoma

## Obstructive disease

Foreign body\*

Intussusception\*

## Parasitic\*, e.g.

Amoebiasis

*Ancylostoma* spp.

*Balantidium coli*

Cryptosporidiosis

*Giardia* spp.

*Heterobilharzia americana*

Roundworm

Tapeworm

- Toxoplasmosis

*Tritrichomonas foetus* (C)

*Uncinaria* spp.

Whipworm

*Viral\**

- Coronavirus
- Feline immunodeficiency virus (C)
- Feline infectious peritonitis (C)
- Feline leukaemia virus (C)
- Parvovirus

**1.2.10 Constipation/obstipation****Behavioural factors\*, e.g.**

- Change of daily routine
- Dirty litter box
- Hospitalisation
- Inadequate water intake
- Inadequate exercise
- Novel litter substrate

**Congenital conditions**

- Atresia ani
- Atresia coli

**Diet**

- Ingestion of hair, bones and foreign material
- Low-fibre diets

*Drugs/toxins*

- Aluminium antacids
- Butylscopolamine (hyoscine)
- Diphenoxylate
- Diuretics
- Loperamide
- Opioids
- Propantheline bromide
- Sucralfate
- Verapamil
- Vincristine

**Idiopathic conditions**

- Idiopathic megacolon\*

## Neuromuscular disease

Feline dysautonomia (C) (also reported rarely in dogs)

Lumbosacral disease\*

Pelvic nerve disease, e.g.

- Traumatic\*

## Obstructive disease

### *Intraluminal/intramural*

Diverticulum

Foreign body\*

Neoplasia\*, e.g.

- Adenoma
- Leiomyoma
- Leiomyosarcoma
- Lymphoma

Stricture

### *Extraluminal*

Granuloma

Neoplasia\*

Pelvic fracture\*

Perineal hernia\*

Prostatic disease (D)

- Abscess
- Benign prostatic hypertrophy\*
- Neoplasia
- Prostatitis\*

Sublumbar lymph node disease

## Painful conditions

Anal furunculosis\*

Anal or rectal inflammation\*

Anal or rectal mass\*

Anal or rectal stricture

Anal sac disease\*, e.g.

- Abscess
- Anal sacculitis

Orthopaedic disease causing pain and failure to posture

Pelvic trauma (soft tissue or bony)\*

Perianal fistula  
Proctitis  
Spinal cord disease\*

**Prolonged colonic distension, e.g.**

Narrowing of the pelvic canal post fracture\*

**Systemic disease**

Dehydration\*  
Hypercalcaemia *q.v.*  
Hypokalaemia\* *q.v.*  
Hypothyroidism\* (D)  
Hyperparathyroidism

**1.2.11 Faecal tenesmus/dyschezia****Anal sac disease, e.g.**

Abscess/cellulitis  
Anal sacculitis\*  
Impaction  
Neoplasia  
Stricture

**Caudal abdominal mass\*****Colorectal disease, e.g.**

Colitis *q.v.*  
Congenital disease  
Foreign body  
Large intestinal neoplasia  
Megacolon  
Polyp  
Stricture

**Constipation/obstipation *q.v.*****Diet**

Excess bone  
Excess fibre

### **Perianal disease, e.g.**

- Anal furunculosis/perianal fistulas\* (D)
- Perianal adenoma\*
- Perineal hernia\*
- Rectal prolapse\*

### **Pelvic narrowing**

### **Prostatic disease (D)**

- Abscess
- Benign prostatic hypertrophy\*
- Neoplasia
- Paraprostatic cyst
- Prostatitis\*

### **Trauma, e.g.**

- Pelvic fracture\*

### **Urogenital disease\*, e.g.**

- Lower urinary tract disease
- Urethral obstruction

## **1.2.12 Faecal incontinence**

### **Anal sphincter incompetence**

- Myopathy
- Neoplasia\*
- Trauma\*

### *Iatrogenic disease, e.g.*

- Damage to anal sphincter during anal saccullectomy

### *Neurological, e.g.*

- Cauda equina syndrome
- Degenerative myelopathy/CDRM\* (D)
- Distemper encephalomyelitis
- Dysautonomia
- Lumbosacral stenosis
- Myelodysplasia/spinal dysraphism

- Peripheral neuropathy
- Polyneuropathy
- Sacrocaudal dysgenesis
- Spinal arachnoid cysts
- Spinal trauma

*Perianal disease, e.g.*

- Perianal fistula\*
- Neoplasia

### **Reservoir incontinence**

- Behavioural
- CNS disease *q.v.*
- Colitis\*
- Constipation
- Diet\*
- Neoplasia\*
- Perineal hernia

## **1.2.13 Flatulence/borborygmus**

### **Aerophagia\***

- Competitive/aggressive eating
- Nervous animal

### **Diet**

- High-fibre diets
- Milk products/lactase deficiency
- Spoiled food

### **Drugs/toxins, e.g.**

- Lactulose
- Metaldehyde

### **Maldigestion, e.g.**

- Exocrine pancreatic insufficiency

### **Malabsorption, e.g.**

- Inflammatory bowel disease

## 1.3 Cardiorespiratory historical signs

### 1.3.1 Coughing

#### Drugs/toxins/irritants

Benzalkonium chloride ingestion  
Chemical fume inhalation  
Potassium bromide (C)  
Smoke inhalation

#### Infection

*Bacterial, e.g.*

Bordetellosis\*  
• Mycoplasma

*Fungal, e.g.*

Coccidioidomycosis

*Viral, e.g.*

Canine distemper\*

*Parasitic*

*Aelurostrongylus abstrusus* (C)  
*Angiostrongylus vasorum* (D)  
*Dirofilaria immitis*  
*Oslerus osleri* (D)  
Paragonimiasis

#### Inflammatory/immune-mediated disease

Asthma\* (C)  
Chronic bronchitis\*

#### Miscellaneous conditions

Aspiration pneumonia  
Idiopathic pulmonary fibrosis  
Inhaled foreign body  
Laryngeal paralysis

Left atrial enlargement\*  
Lung lobe torsion  
Primary ciliary dyskinesia

## Neoplasia

Adenocarcinoma  
Alveolar carcinoma  
Bronchial gland carcinoma  
Metastatic disease  
Squamous cell carcinoma

## Pulmonary haemorrhage

Coagulopathy *q.v.*  
Exercise induced  
Neoplasia\*  
Traumatic

- *Angiostrongylus vasorum* (D)

## Pulmonary oedema (D)

Airway obstruction  
Cardiogenic\*  
Electrocution  
Hypoglycaemia  
Hypoproteinaemia *q.v.*  
Iatrogenic  
Ketamine  
Neurological

- Cranial trauma
- Seizures

Obstruction of lymphatic drainage  
Primary alveolar–capillary membrane injury  
Re-expansion  
Strangulation

### 1.3.2 Dyspnoea/tachypnoea

See Section 2.3.1.

### 1.3.3 Sneezing and nasal discharge

#### Anatomical deformities

Acquired nasopharyngeal stenosis  
Cleft palate  
Oronasal fistula

#### Congenital disease

Ciliary dyskinesia

#### Dental disease

Tooth root abscess\*

#### Infection

##### Bacterial

*Bordetella bronchiseptica*\*  
*Chlamydomphila* spp.\*  
Coliforms  
*Mycoplasma* spp.  
*Pasteurella* spp.  
*Staphylococcus* spp.  
*Streptococcus* spp.

##### Fungal

Aspergillosis  
Cryptococcosis  
*Exophiala jeanselmei*  
*Penicillium* spp.  
Phaeohyphomycosis  
*Rhinosporidium seeberi*

##### Parasitic

*Cuterebra* spp.  
*Eucoleus böehmi*  
*Linguatula serrata*  
*Pneumonyssoides caninum*

##### Viral

Canine distemper virus\* (D)  
Canine infectious tracheobronchitis\* (D)

Feline calicivirus\* (C)  
Feline herpesvirus\* (C)  
Feline immunodeficiency virus\* (C)  
Feline leukaemia virus\* (C)  
Feline poxvirus  
Feline reovirus (C)

## **Inflammatory disease**

Allergic rhinitis\*  
Granulomatous rhinitis  
Lymphoplasmacytic rhinitis\*  
Nasopharyngeal polyp\* (C)

## **Neoplasia**

Adenocarcinoma\*  
Chondrosarcoma  
Fibrosarcoma  
Haemangiosarcoma  
Lymphoma\*  
Mast cell tumour  
Melanoma  
Neuroblastoma  
Osteosarcoma  
Squamous cell carcinoma\*  
Transmissible venereal tumour  
Undifferentiated carcinomas\*

## **Physical**

Foreign body\*  
Irritant gases  
Trauma

## **Systemic disease (see also Epistaxis)**

Coagulopathy *q.v.*  
Hypertension *q.v.*  
Hyperviscosity syndrome  
Vasculitis

- Ehrlichiosis
- Rocky Mountain spotted fever

### 1.3.4 Epistaxis

#### Coagulopathies *q.v.*

*Angiostrongylus vasorum* infection

Coagulation factor deficiency *q.v.*

Platelet disease

- Thrombocytopathia *q.v.*
- Thrombocytopenia *q.v.*

#### Miscellaneous conditions

Hypertension *q.v.*

Hyperviscosity syndrome e.g.

- Hyperlipidaemia,
- Polycythaemia

Increased capillary fragility

Thromboembolism

#### Nasal disease

Dental disease

Oronasal fistula

Tooth root abscess\*

Infection

Bacterial

- *Mycoplasma* spp.\*
- *Pasteurella* spp.\*

Fungal

- Aspergillosis
- *Cryptococcus* spp.
- *Exophiala jeanselmei*
- *Penicillium* spp.
- Phaeohyphomycosis
- *Rhinosporidium seeberi*

Parasitic

- *Cuterebra*
- *Eucolus böehmi*
- *Linguatula serrata*
- *Pneumonyssoides caninum*

### Viral

- Canine distemper virus\* (D)
- Canine infectious tracheobronchitis\* (D)
- Feline calicivirus\* (C)
- Feline herpesvirus\* (C)
- Feline immunodeficiency virus\* (C)
- Feline leukaemia virus\* (C)

### Inflammatory disease

Allergic rhinitis\*

Lymphoplasmacytic rhinitis\*

### Neoplasia

Adenocarcinoma\*

Chondrosarcoma

Fibrosarcoma

Haemangiosarcoma

Lymphoma\*

Mast cell tumour

Melanoma

Osteosarcoma

Squamous cell carcinoma\*

Transmissible venereal tumour

Undifferentiated carcinomas\*

### Physical

Trauma\*

## 1.3.5 Haemoptysis

### Cardiovascular disease

Arteriovenous fistula

Bacterial endocarditis

*Dirofilaria immitis* (D)

Pulmonary oedema\* *q.v.*

### Iatrogenic

Diagnostic procedures, e.g.

- Bronchoalveolar lavage
- Bronchoscopy

- Lung aspirate
- Trans-tracheal wash

Endotracheal intubation\*

## **Pulmonary disease**

Pulmonary hypertension

Pulmonary thromboembolism

### *Infection*

Bacterial

- Nocardiosis
- Pneumonia\*
- Pulmonary abscessation

Fungal

- Blastomycosis
- Coccidioidomycosis
- Histoplasmosis

Parasitic

- *Aelurostrongylus abstrusus* (C)
- *Angiostrongylus* (D)
- *Capillaria aerophila*
- *Dirofilaria immitis* (D)
- *Paragonimus kellicotti*

Viral

- Infectious tracheobronchitis\*

### *Inflammatory*

Bronchiectasis

Bronchopneumonia

Chronic bronchitis\* (D)

Pulmonary infiltrate with eosinophils

### *Neoplastic*

Adenocarcinoma

Chondrosarcoma

Metastatic tumours\*

Squamous cell carcinoma

### *Physical*

Abscess

Bronchial gland carcinoma

Foreign body

Lung lobe torsion

Trauma, e.g.

- Pulmonary contusions

### **Systemic disease**

Coagulation factor deficiency *q.v.*

Thrombocytopathia *q.v.*

Thrombocytopenia *q.v.*

## **1.3.6 Exercise intolerance**

### **Cardiovascular disease, (see Section 1.1.7) e.g.**

Arrhythmias

Congestive heart failure\*

Cyanotic heart disease *q.v.*

Myocardial dysfunction

Obstruction to ventricular outflow

### **Drugs, e.g.**

Drugs causing hypotension

### **Metabolic/endocrine disease, e.g.**

Anaemia\*

Hyperthyroidism\* (C)

Hypoadrenocorticism (D)

Hypoglycaemia *q.v.*

Hypokalaemic polymyopathy

Hypothyroidism\* (D)

Malignant hyperthermia

### **Neuromuscular/musculoskeletal disease, e.g.**

Botulism

Cervical myelopathy (D)

Coonhound paralysis

Ischaemic neuromyopathy\* (C)

Intermittent claudication

Lumbosacral pain

Myasthenia gravis

**Myopathies**

- Congenital
- Hypokalaemic
- Toxic

Peripheral neuropathy *q.v.*

Polyarthrititis

Polymyositis

Protozoal myositis

Tick paralysis

**Respiratory disease *q.v.*, e.g.**

Idiopathic pulmonary fibrosis

Pleural effusion\*

Pulmonary oedema\*

Upper airway obstruction *q.v.*

## 1.4 Dermatological historical signs

### 1.4.1 Pruritus

**Drugs/toxins**

Methimazole

Paracetamol

**Endocrine disorders**

Calcinosis cutis\*

Hyperthyroidism\* (C)

Predisposing to pyoderma

- Hyperadrenocorticism
- Hypothyroidism\* (D)

**Environmental**

Contact irritant dermatitis\*

Sunburn/solar dermatitis\*

**Immune-mediated disease**

Drug eruptions

Discoid lupus erythematosus

Systemic lupus erythematosus

*Allergy/hypersensitivity*

Atopy\*

Contact allergy\*

Food hypersensitivity\*

Hormonal hypersensitivity (D)

Parasite hypersensitivity\*, e.g.

- Fleas
- Mosquitoes

*Pemphigus complex*

Pemphigus erythematosis

Pemphigus foliaceus

Pemphigus vegetans

Pemphigus vulgaris

Bullous pemphigoid

**Infection***Bacterial*

Deep pyoderma\*

Surface pyoderma/acute moist dermatitis (wet eczema\*)

Superficial bacterial folliculitis\*

*Fungal*

Candidiasis

Dermatophytosis\*

*Malassezia* dermatitis\*

Pythiosis

*Parasitic*

Cheyletiellosis

Demodicosis\*

*Dermanyssus gallinae*

Dirofilariasis

Dracunculiasis

Fleas\*

Hookworm dermatitis

*Lynxacarus radovskyi* (C)*Notoedres cati* (C)*Otobius megnini* (D)*Otodectes cynotis*

Pediculosis

*Pelodera* dermatitis

*Pneumonyssoides caninum* (D)  
Sarcoptic mange\* (D)  
Schistosomiasis  
Trombiculiasis\*

## **Keratinisation disorders**

Acne\*  
Idiopathic facial dermatitis  
Primary seborrhoea  
Vitamin A-responsive dermatosis

## **Miscellaneous**

Feline hypereosinophilic syndrome (C)  
Idiopathic sterile granulomatous dermatitis  
Sterile eosinophilic pustulosis  
Subcorneal pustular dermatosis  
Urticaria pigmentosa  
Waterline disease of black Labradors (D)  
Zinc-responsive dermatosis

## **Neoplasia**

Cutaneous T cell lymphoma  
Mast cell tumour\*  
Mycosis fungoides  
Other neoplasia with secondary pyoderma  
Paraneoplastic pruritus

## **Neurological, e.g.**

Syringohydromyelia

# **1.5 Neurological historical signs**

## **1.5.1 Seizures**

### **INTRACRANIAL**

#### **Congenital**

Ceroid lipofuscinosis  
Chiari-like malformation  
Cortical dysplasia

Hydrocephalus  
Intracranial arachnoid cysts  
Lissencephaly  
Lysosomal storage diseases  
Organic acidurias, e.g.

- L-2-hydroxyglutaricaciduria

## **Idiopathic\***

## **Infectious**

### *Bacterial, e.g.*

Nocardiosis  
*Pasteurella* spp.  
*Staphylococcus* spp.

### *Fungal*

Aspergillosis  
Blastomycosis  
Coccidioidomycosis  
Cryptococcosis  
Histoplasmosis  
Mucormycosis

### *Parasitic*

Aberrant migration of *Cuterebra* spp.  
Dirofilariasis

### *Protozoal, e.g.*

Neosporosis (D)  
Toxoplasmosis

### *Rickettsial encephalitis*

Ehrlichiosis/anaplasmosis  
Rocky Mountain spotted fever

### *Viral*

Canine distemper\* (D)  
Canine herpesvirus (D)  
Eastern equine encephalitis  
Feline immunodeficiency virus\* (C)

Feline infectious peritonitis\* (C)  
 Feline leukaemia virus\* (C)  
 Pseudorabies  
 Rabies

## **Inflammatory/immune-mediated disease**

Breed-specific necrotising  
 meningoencephalitis  
 Distemper vaccine associated (D)  
 Eosinophilic meningoencephalitis  
 Granulomatous meningoencephalomyelitis\* (D)  
 Steroid-responsive meningoencephalitis

## **Neoplasia**

### *Local extension*

Middle-ear tumour  
 Nasal/paranasal sinus tumour  
 Pituitary tumour  
 Skull tumour

### *Metastatic, e.g.*

Haemangiosarcoma  
 Lymphoma  
 Malignant melanoma  
 Mammary carcinoma  
 Prostatic carcinoma  
 Pulmonary carcinoma  
 Teratoma

### *Primary intracranial*

Astrocytoma  
 Choroid plexus tumours  
 Ependymoma  
 Ganglioblastoma  
 Glioma  
 Medulloblastoma  
 Meningioma  
 Neuroblastoma  
 Oligodendroglioma

**Physical**

Trauma

**Vascular**

*Haemorrhage, e.g.*

*Angiostrongylus vasorum*

Coagulopathy *q.v.*

Feline ischaemic encephalopathy (C)

Hypertension *q.v.*

Trauma

*Infarction, e.g.*

Thromboembolism

**EXTRACRANIAL****Drugs/toxins**

Alphachloralose

Arsenic

Baclofen

Blue-green algae

Borax

Cannabis

Carbamate

Doxapram

Ethylene glycol

Glyphosphate

Honeysuckle

Hymenoptera stings

Ibuprofen

Iodine-containing myelographic contrast media

Laburnum

Lead

Lignocaine

Metaldehyde

Metronidazole

Mexiletine

Mistletoe

Organophosphates

Paracetamol

Petroleum distillates  
Phenoxy acid herbicides  
Piperazine  
Plastic explosives  
Pyrethrin/pyrethroids/permethrin  
Risperidone  
Salt  
Selective serotonin reuptake inhibitors  
Strychnine  
Terfenadine  
Theobromine  
Theophylline  
Tricyclic antidepressants  
Vitamin D rodenticides  
Yew

## Metabolic

Electrolyte imbalances\*, e.g.

- Hypernatraemia *q.v.*
- Hypocalcaemia *q.v.*
- Hyponatraemia *q.v.*

Hepatic encephalopathy\* *q.v.*

- Hypoglycaemia *q.v.*
- Renal disease\* *q.v.*

## Nutritional

Thiamine deficiency

### 1.5.2 Trembling/shivering

#### Drugs/toxins

5-Fluorouracil  
Baclofen  
Benzodiazepines  
Blue-green algae  
Bromethalin  
Caffeine  
Carbamate

Guarana  
Hexachlorophene  
Horse chestnut  
Ivermectin  
Macadamia nuts  
Metaldehyde  
Mexiletine  
Mycotoxins  
Risperidone  
Organochlorines  
Organophosphates  
Petroleum distillates  
Plastic explosives  
Piperazine  
Pyrethrin/pyrethroids/permethrin  
Rhododendron  
Salbutamol  
Salt  
Strychnine  
Terbutaline  
Theobromine  
Theophylline  
Tricyclic antidepressants  
Yew  
Zinc phosphate

## **Metabolic**

Hepatic encephalopathy *q.v.*\*  
Hyperadrenocorticism/hypoadrenocorticism (D)  
Hyperkalaemia *q.v.*  
Hypocalcaemia *q.v.*  
Hypoglycaemia *q.v.*  
Primary hyperparathyroidism  
Uraemia *q.v.*\*

## **Neurological**

Abiotrophies  
Cerebellar disease *q.v.*  
Central nervous system inflammatory disease  
Cerebrospinal hypomyelination and dysmyelination  
Corticosteroid responsive tremor syndrome ('white dog shaker disease')

Idiopathic head nod of Dobermanns and bulldogs

Lumbosacral disease, e.g.

- Disc herniation
- Discospondylitis
- Neoplasia
- Stenosis

Lysosomal storage disease

Neuroaxonal dystrophy (D)

Nerve root compression

Niemann–Pick disease (C)

Peripheral neuropathies *q.v.*

Primary orthostatic tremor

Senility

Spongiform encephalopathy

## Physiological

Ballistocardiographic\*

Fatigue/weakness\*

Fear\*

Reduced environmental temperature\*

### 1.5.3 Ataxia

## FOREBRAIN

### Congenital

Dandy–Walker syndrome

Hydrocephalus

Intra-arachnoid cyst

### Degenerative

Leukodystrophy

Lysosomal storage disease

Mitochondrial encephalopathy

Multi-system neuronal degeneration

Spongy degeneration

### Immune-mediated disease/infection

Encephalitis *q.v.*

Feline spongiform encephalopathy

**Metabolic**

- Electrolyte/acid–base disorders *q.v.* \*
- Hepatic encephalopathy *q.v.* \*
- Hypoglycaemia *q.v.*
- Uraemic encephalopathy *q.v.* \*

**Neoplasia**

- Choroid plexus tumours
- Dermoid cyst
- Ependymoma
- Epidermoid cyst
- Glioma
- Lymphoma
- Medulloblastoma
- Meningioma
- Metastatic tumour

**Vascular**

- Cerebrovascular accident

**BRAINSTEM/CENTRAL VESTIBULAR DISORDERS****Congenital**

- Chiari-like malformation
- Hydrocephalus
- Intra-arachnoid cysts

**Degenerative**

- Lysosomal storage disorders

**Drugs**

- Metronidazole

**Immune mediated/infectious**

- Feline spongiform encephalopathy (C)
- Meningoencephalitis *q.v.*

**Metabolic**

- Electrolyte abnormalities\* *q.v.*
- Hepatic encephalopathy\* *q.v.*
- Uraemic encephalopathy\* *q.v.*

## Neoplastic

- Choroid plexus tumours
- Dermoid cyst
- Epidermoid cyst
- Glioma
- Lymphoma
- Medulloblastoma
- Meningioma
- Metastatic tumour

## Nutritional

- Thiamine deficiency

## Trauma

## Vascular

- Cerebrovascular accident

**CEREBELLUM** (generally ataxia without conscious proprioceptive deficits)

## Congenital

- Feline cerebellar hypoplasia (C)

## Degenerative

- Cerebellar cortical degeneration
- Gangliosidosis
- Hereditary ataxia of Jack Russell and smooth-coated fox terriers (D)
- Leukoencephalomalacia (D)
- Neuroaxonal dystrophy (D)
- Neuronal vacuolation and spinocerebellar degeneration (D)
- Storage diseases

## Drugs/toxins

- Heavy metals
- Organophosphates

## Immune mediated/infectious *q.v.*

- In utero* infection with feline parvovirus (C)

**Metabolic**

Thiamine deficiency

**Neoplastic**

Choroid plexus tumours

Dermoid cyst

Epidermoid cyst

Glioma

Lymphoma

Medulloblastoma

Meningioma

Metastatic tumour

**Vascular**

Cerebrovascular accident *q.v.*

**PERIPHERAL VESTIBULAR DISEASE****Congenital**

Lymphocytic labyrinthitis

Non-inflammatory cochlear degeneration

**Drugs/toxins**

Aminoglycosides

Chlorhexidine

Topical iodophors

**Idiopathic**

Canine geriatric vestibular disease

Feline idiopathic vestibular disease

**Immune mediated/infectious**

Nasopharyngeal polyps\*

Otitis media/interna\*

- Primary secretory otitis media in the Cavalier King Charles Spaniel
- Secondary to otitis externa

**Metabolic**

Hypothyroidism\* (D)

## Neoplastic

*Middle- or inner-ear tumours, e.g.*

- Adenocarcinoma
- Chondrosarcoma
- Fibrosarcoma
- Lymphoma
- Osteosarcoma
- Squamous cell carcinoma

## Traumatic

### SPINE

#### Congenital

- Atlanto-occipital dysplasia
- Atlantoaxial subluxation
- Cartilaginous exostoses
- Dermoid sinus
- Epidermoid cyst
- Hereditary myelopathy
- Meningoceles
- Sacral osteochondritis dissecans
- Sacrocaudal dysgenesis
- Spina bifida
- Spinal arachnoid cyst
- Spinal dysraphism
- Syringohydromyelia (D)
- Tethered cord syndrome
- Vertebral malformations *q.v.*

#### Degenerative

- Cervical fibrotic stenosis
- Cervical spondylomyelopathy
- Degenerative disc disease\* (D)
- Degenerative myelopathy\*
- Leukoencephalomalacia
- Lumbosacral disease
- Lysosomal storage disease
- Neuroaxonal dystrophy
- Neuronal vacuolation and spinocerebellar degeneration (D)

Other leukodystrophies  
Synovial cysts

### **Idiopathic**

Calcinosis circumscripta  
Disseminated idiopathic skeletal hyperostosis

### **Immune mediated**

Cauda equina neuritis  
Granulomatous meningoencephalomyelitis\*  
Steroid-responsive meningitis–arteritis

### **Infectious**

Discospondylitis  
Foreign body  
Meningomyelitis  
Spinal epidural empyema

### **Neoplastic**

#### *Extradural*

Chondrosarcoma  
Fibrosarcoma  
Haemangiosarcoma  
Lipoma  
Lymphoma  
Malignant nerve sheath tumour  
Meningioma  
Metastatic disease  
Myeloma  
Osteosarcoma

#### *Intradural extramedullary*

Malignant nerve sheath tumour  
Meningioma  
Metastatic

#### *Intramedullary*

Astrocytoma  
Ependymoma

Metastatic tumour  
Oligodendroglioma

## Nutritional

Hypervitaminosis A  
Thiamine deficiency

## Traumatic

Brachial plexus avulsion  
Dural tear  
Fracture\*  
Gunshot wound  
Luxation\*  
Sacrocaudal injury  
Traumatic disc injury\*

## Vascular

Fibrocartilaginous embolism\*  
Fat-graft necrosis  
Myelomalacia  
Spinal cord haematoma  
Spinal cord haemorrhage  
Vascular anomaly

## PERIPHERAL NERVES (mono- or polyneuropathies)

### Degenerative

Birman cat distal polyneuropathy (C)  
Boxer dog progressive axonopathy (D)  
Giant axonal neuropathy of German shepherds (D)  
Globoid cell leukodystrophy  
Golden retriever hypomyelinating polyneuropathy (D)  
Hereditary/idiopathic polyneuropathy of Alaskan malamutes (D)  
Hypertrophic neuropathy  
Hypomyelinating polyneuropathy  
Laryngeal paralysis–polyneuropathy complex  
Lysosomal storage diseases

- Fucosidosis (D)
- Globoid cell leukodystrophy
- Glycogen storage disease type IV
- Niemann–Pick disease (C)

Mucopolysaccharidosis IIIA (D)  
Sensory neuropathy (D)

### **Immune mediated/infectious**

Chronic inflammatory demyelinating polyneuropathy  
Feline leukaemia virus associated  
Polyradiculoneuritis  
Protozoal  
Sensory ganglioradiculoneuritis

### **Neoplastic**

Lymphoma  
Malignant nerve sheath tumours  
Myelomonocytic neoplasia  
Paraneoplastic neuropathy

### **Traumatic**

Bite wounds\*  
Iatrogenic  
Missile injuries  
Traction injuries

### **Vascular**

Ischaemic neuromyopathy\*  
Neurogenic claudication

## **SYSTEMIC**

### **Drugs/toxins**

Alphachloralose  
Baclofen  
Benzodiazepines  
Blue-green algae  
Butorphanol  
Cannabis  
Carbamate  
Codeine  
Daffodil  
Dichlorophen  
Diclofenac

Ethylene glycol toxicity  
Fentanyl and other sedatives and tranquillisers  
Glyphosphate  
Horse chestnut  
Ivermectin  
Loperamide  
Metaldehyde  
Methiocarb  
Metronidazole  
Naproxen  
Nitroscanate (C)  
Organophosphates  
Paracetamol  
Paraquat  
Phenobarbitone  
Phenoxy acid herbicides  
Phenytoin  
Piperazine  
Plastic explosives  
Potassium bromide  
Primidone  
Pyridoxine (Vitamin B6)  
Selective serotonin reuptake inhibitors  
Terfenadine  
Thallium  
Theobromine  
Tricyclic antidepressants  
Vincristine  
Walker Hound mononeuropathy  
Yew

## Metabolic

Electrolyte/acid–base disorders\*  
Endocrine disease, e.g.

- Diabetes mellitus\*
- Hypothyroidism\* (D)

Hepatic encephalopathy\*  
Hyperadrenocorticoid neuropathy  
Hyperchylomicronaemia  
Insulinoma/hypoglycaemia

**Nutritional**

Vitamin B6 (pyridoxine) overdose

**1.5.4 Paresis/paralysis****SPINAL DISEASE****Congenital**

Atlantoaxial subluxation  
Atlanto-occipital dysplasia  
Cartilaginous exostoses  
Dermoid sinus  
Epidermoid cyst  
Hereditary myelopathy  
Meningoceles  
Osteochondromatosis  
Sacrocaudal dysgenesis  
Sacral osteochondritis dissecans  
Spina bifida  
Spinal arachnoid cyst  
Spinal dysraphism  
Syringohydromyelia (D)  
Vertebral malformations *q.v.*

**Degenerative**

Afghan hound hereditary myelopathy (D)  
Calcinosis circumscripta  
Cervical spondylomyelopathy  
Degenerative disc disease\* (D)  
Degenerative myelopathy\* (D)  
Labrador retriever axonopathy (D)  
Lumbosacral disease  
Lysosomal storage disease  
Neuronal vacuolation and spinocerebellar degeneration (D)  
Rottweiler leukoencephalomyelopathy (D)  
Other leukodystrophies  
Synovial cysts

**Idiopathic**

Calcinosis circumscripta  
Disseminated idiopathic skeletal hyperostosis

## **Immune mediated**

- Cauda equina neuritis
- Epidural granuloma
- Granulomatous meningoencephalomyelitis\*
- Steroid-responsive meningitis–arteritis

## **Infectious**

- Discospondylitis
- Infectious meningoencephalomyelitis
- Spinal epidural empyema

## **Neoplastic**

### *Extradural*

- Chondrosarcoma
- Fibrosarcoma
- Haemangiosarcoma
- Lipoma
- Lymphoma
- Malignant nerve sheath tumour
- Meningioma
- Metastatic
- Multiple myeloma
- Osteosarcoma
- Plasma cell tumour

### *Intradural extramedullary*

- Malignant nerve sheath tumour
- Meningioma
- Metastatic

### *Intramedullary*

- Astrocytoma
- Ependymoma
- Metastatic tumour
- Oligodendroglioma

## **Nutritional**

- Hypervitaminosis A
- Thiamine deficiency

**Traumatic**

Brachial plexus avulsion  
Dural tear  
Foreign body  
Fracture\*  
Gunshot wound  
Luxation\*  
Sacrocaudal injury  
Traumatic disc injury\*

**Vascular**

Fibrocartilaginous embolism\*  
Fat-graft necrosis  
Ischaemic neuromyopathy\*  
Myelomalacia  
Neurogenic claudication  
Spinal cord haematoma  
Spinal cord haemorrhage  
Vascular anomaly

**PERIPHERAL NERVES** (mono- or polyneuropathies)**Degenerative**

Adult-onset motor neurone disease  
Birman cat distal polyneuropathy (C)  
Boxer dog progressive axonopathy (D)  
Distal denervating disease (D)  
Giant axonal neuropathy of German shepherds (D)  
Golden retriever hypomyelinating polyneuropathy (D)  
Hereditary/idiopathic polyneuropathy of Alaskan malamutes (D)  
Hypertrophic neuropathy  
Idiopathic polyneuropathy  
Laryngeal paralysis–polyneuropathy complex  
Lysosomal storage diseases

- Fucosidosis (D)
- Globoid cell leukodystrophy
- Glycogen storage disease type IV
- Niemann–Pick disease (C)

Mucopolysaccharidosis IIIA (D)  
Rottweiler distal sensorimotor polyneuropathy (D)

Sensory neuropathy of long-haired dachshunds (D)  
Spinal muscular atrophy

## Drugs/toxins

Baclofen  
Blue-green algae  
Cannabis  
Daffodil  
Horse chestnut  
Ivermectin  
Methiocarb  
Organophosphate  
Petroleum products  
Phenoxy acid herbicides  
Pyrethrin/pyrethroids  
Salinomycin toxicity (C)  
Thallium  
Vincristine  
Vitamin K antagonists  
Walker hound mononeuropathy (D)

## Immune mediated/infectious

Acute idiopathic polyradiculoneuritis (coonhound paralysis in the USA) (D)  
Brachial plexus neuritis  
Chronic inflammatory demyelinating polyneuropathy  
Protozoal polyradiculoneuritis  
Sensory ganglioradiculoneuritis

## Metabolic

Diabetic neuropathy\*  
Hyperchylomicronaemia  
Hypothyroid neuropathy\*  
Primary hyperoxaluria

## Neoplastic

Insulinoma  
Lymphoma  
Malignant nerve sheath tumours  
Myelomonocytic neoplasia  
Paraneoplastic neuropathy, e.g. lymphoma

**Traumatic**

- Bite wounds\*
- Iatrogenic
- Missile injuries
- Traction injuries

**Vascular**

- Arterial thromboembolism
- Ischaemic neuromyopathy\*
- Traumatic ischaemic neuromyopathy associated with bottom-hung pivot windows and garage doors

**1.5.5 Coma/stupor****INTRACRANIAL DISEASE**

(*Note:* Especially lesions of the midbrain through the medulla that impair the ascending reticular activating system)

**Congenital**

- Hydrocephalus

**Degenerative**

- Inherited neurodegenerative diseases
  - Multi-system neuronal degeneration of cocker spaniels (D)
  - Multi-systemic chromatolytic neuronal degeneration
  - Spongiform degenerations

**Inflammatory/infectious q.v.****Neoplastic***Local extension*

- Nasal tumour
- Skull osteochondroma

*Metastatic*

- Carcinoma
- Haemangiosarcoma

### *Primary*

- Choroid plexus papilloma
- Glioma
- Lymphoma
- Meningioma
- Pituitary tumour

### **Trauma**

- Head trauma
- Intracranial haemorrhage
- Subdural haematoma

### **Vascular**

- Cerebrovascular accident
- Feline ischaemic encephalopathy (C)
- Hypertension *q.v.*
- Intracranial haemorrhage

## **EXTRACRANIAL DISEASE**

### **CNS perfusion disturbances**

- Anaemia (severe/acute)\* *q.v.*
- Cardiorespiratory disease\*
- Haemoglobin-related toxicity
- Hyperviscosity
- Hypovolaemia (severe/acute)\*

### **Drugs/toxins**

- Alphachloralose
- Baclofen
- Barbiturates
- Benzodiazepines and other sedatives/anaesthetic agents
- Blue-green algae
- Borax
- Cannabis
- Carbamate insecticides
- Diclofenac sodium
- Ethylene glycol
- Ibuprofen
- Indomethacin

Iron  
Ivermectin  
Lead  
Loperamide  
Metaldehyde  
Methiocarb  
Metronidazole  
Naproxen  
Organophosphates  
Paracetamol  
Phenoxy acid herbicides  
Salt  
Tricyclic antidepressants  
Vitamin K antagonists  
Water  
Xylitol  
Yew

## **Metabolic**

Electrolyte disturbances\* *q.v.*  
Hepatic encephalopathy\*  
Hypoglycaemia *q.v.*  
Hypothyroid myxoedema coma  
Uraemic encephalopathy *q.v.*

## **Nutritional**

Thiamine deficiency

### **1.5.6 Altered behaviour: General changes**

(E.g. disorientation, increased aggression, and loss of normal behaviour)

## **INTRACRANIAL DISEASE**

### **Congenital**

Hydrocephalus  
Lissencephaly  
Lysosomal storage diseases

## **Degenerative**

Cognitive dysfunction

## **Drugs/toxins**

Acepromazine  
Benzodiazepines  
Other sedatives/tranquillisers  
Cannabis  
Ibuprofen  
Ivermectin  
Petroleum distillates  
Phenylpropanolamine  
Risperidone  
Salbutamol  
Selective serotonin reuptake inhibitors  
Selegiline  
Terfenadine

## **Infectious**

*Bacterial*

*Fungal*

*Prion*

Feline spongiform encephalopathy

*Protozoal*

Neosporosis  
Toxoplasmosis

*Viral*

Canine distemper\* (D)  
Feline immunodeficiency virus\* (C)  
Feline infectious peritonitis\* (C)  
Feline leukaemia virus\* (C)

*Inflammatory/immune mediated*

Granulomatous meningoencephalitis  
Meningoencephalitis of unknown origin  
Necrotising meningoencephalitis

**Neoplastic, e.g.**

- Glioma
- Lymphoma
- Meningioma
- Metastatic disease
- Pituitary

**Physical**

- Trauma

**EXTRACRANIAL DISEASE****Metabolic**

- Hepatic encephalopathy *q.v.*
- Hypocalcaemia *q.v.*
- Hypoglycaemia *q.v.*
- Renal disease *q.v.*
- Thiamine deficiency

**1.5.7 Altered behaviour: Specific behavioural problems****Aggression**

- Dominance\*
- Fear\*
- Hypocholesterolaemia
- Petting\*
- Play\*
- Possessive\*
- Predatory\*
- Territorial\*

**Inappropriate urination and defecation**

- Cognitive dysfunction
- Fear
- Gastrointestinal disease *q.v.*
- Hyperexcitability
- Litter box related
  - Dirty litter

- New location of the litter box
- Unfamiliar litter

Separation anxiety

Territorial marking

Urinary tract disease (see Incontinence/inappropriate urination)

## **Stereotypy/compulsive behaviour**

Boredom\*

Frustration\*

Genetic predisposition\*

Physical triggers, e.g.

- Anal sac disease (tail chasing)\*
- Dermatitis in over-grooming\*

Neurological disease

- Brainstem lesions *q.v.*
- Forebrain disease *q.v.*
- Lumbosacral disease (tail chasing)
- Seizures\* *q.v.*
- Sensory neuropathies (self-mutilation)
- Vestibular lesions (circling)\* *q.v.*

Stress\*

## **1.5.8 Deafness**

### **Congenital conditions**

Aplasia/hypoplasia of auditory receptors

Hydrocephalus

### **Degenerative disease**

Presbycusis/age-related hearing loss\*(D)

- Cochlear conductive defects
- Senile ossicle or receptor degeneration

### **Drugs/toxins**

*Antibiotics*

Aminoglycosides

Amphotericin B

Ampicillin

Bacitracin  
Chloramphenicol  
Colistin  
Erythromycin  
Griseofulvin  
Hygromycin B  
Minocycline  
Polymyxin B  
Tetracyclines  
Vancomycin

*Antiseptics*

Benzalkonium chloride  
Benzethonium chloride  
Cetrimide  
Chlorhexidine  
Ethanol  
Iodine  
Iodophors

*Cancer chemotherapeutics*

Actinomycin  
Cisplatin  
Cyclophosphamide  
Vinblastine  
Vincristine

*Diuretics*

Bumetanide  
Ethacrynic acid  
Frusemide

*Metals/heavy metals*

Arsenic  
Gold salts  
Lead  
Mercury  
Triethyl/trimethyl tin

*Miscellaneous*

Ceruminolytic agents  
Danazol

Detergents  
 Digoxin  
 Dimethyl sulphoxide  
 Diphenylhydrazine  
 Insulin  
 Potassium bromide  
 Prednisolone  
 Propylene glycol  
 Quinidine  
 Salicylates

## **Idiopathic**

## **Infection/inflammation**

Otitis externa\* *q.v.*  
 Otitis interna\*  
 Otitis media\*

## **Mechanical**

Loud noise  
 Trauma

## **Neoplasia**

Intracranial  
 Middle ear  
 Nasopharyngeal polyp\*

# **1.5.9 Multifocal neurological disease**

## **Congenital**

Hydrocephalus  
 Syringohydromyelia

## **Degenerative**

Mitochondrial encephalopathies  
 Organic acidurias  
 Storage diseases

## **Drugs/toxins**

Alphachloralose

Baclofen  
Benzodiazepines  
Blue-green algae  
Borax  
Cannabis  
Carbamate  
Daffodil  
Dichlorophen  
Diclofenac sodium  
Ethylene glycol  
Glyphosphate  
Horse chestnut  
Ibuprofen  
Ivermectin  
Laburnum  
Loperamide  
Metaldehyde  
Methiocarb  
Naproxen  
Organophosphates  
Paracetamol  
Petroleum products  
Piperazine  
Plastic explosives  
Pyrethrin/pyrethroids  
Rhododendron  
Salbutamol  
Salt  
Selective serotonin reuptake inhibitors  
Terfenadine  
Theobromine  
Tricyclic antidepressants  
Vitamin D2/D3  
Vitamin K antagonists  
Yew

## **Idiopathic conditions**

Dysautonomia

## **Immune-mediated disease**

Granulomatous meningoencephalomyelitis

Necrotising encephalitis  
 Spinal cord vasculitis  
 Steroid-responsive meningitis–arteritis

## Infectious

### *Bacterial*

Bacterial encephalitis/meningitis  
 Tetanus

### *Fungal*

Aspergillosis  
 Blastomycosis  
 Candidiasis  
 Coccidioidomycosis  
 Cryptococcosis

### *Parasitic*

*Cuterebra* spp.  
 Toxocariasis

### *Protozoal*

Neosporosis  
 Toxoplasmosis

### *Rickettsial*

Ehrlichiosis/anaplasmosis  
 Protothecosis  
 Rocky Mountain spotted fever

### *Viral*

Canine distemper virus (D)\*  
 Feline immunodeficiency virus\* (C)  
 Feline infectious peritonitis\* (C)  
 Feline leukaemia virus\* (C)  
 Herpesvirus  
 Parainfluenza virus  
 Parvovirus\*

## Metabolic

Hepatic disease\* *q.v.*

Hyperosmolarity  
Hypoglycaemia *q.v.*  
Hypothyroidism\* (D)  
Renal disease\* *q.v.*

## Neoplastic

Leukaemia  
Lymphoma  
Metastatic neoplasia

## Nutritional

Thiamine deficiency

## Vascular

Intracranial and/or spinal haemorrhage

- *Angiostrongylus vasorum*
- Coagulopathy
- Trauma
- Vascular anomaly

Hypertension *q.v.*  
Thromboembolism

# 1.6 Ocular historical signs

## 1.6.1 Blindness/visual impairment

### CENTRAL NERVOUS SYSTEM (CNS)

#### Brain disease

*Congenital, e.g.*  
Hydrocephalus

*Degenerative, e.g.*  
Neuronal ceroid lipofuscinosis  
Lysosomal storage diseases

*Drugs/toxins, e.g.*  
Ivermectin/moxidectin  
Lead

Levamisole  
Metaldehyde

*Immune mediated/infectious, e.g.*  
Granulomatous meningoencephalomyelitis  
Toxoplasmosis

*Metabolic, e.g.*  
Hepatic encephalopathy *q.v.*

*Neoplastic, e.g.*  
Lymphoma  
Meningioma  
Pituitary tumour

*Trauma*

*Vascular, e.g.*  
Cerebrovascular accident

### **Optic nerve disease, e.g.**

Optic nerve hypoplasia/aplasia  
Optic neuritis  
Space-occupying lesion compressing the optic nerve  
Trauma

## **INTRAOCULAR/PERIOcular**

### **Acquired**

Anterior uveitis  
Cataract\* *q.v.*  
Chorioretinitis  
Chronic superficial keratitis/pannus\*  
Chronic uveitis\*  
Corneal lipid dystrophy/degeneration  
Corneal oedema and endothelial dysfunction\*  
Endophthalmitis  
Entropion  
Generalised progressive retinal degeneration  
Glaucoma\*

Hypertensive ocular disease\*

Hyphaema

Intraocular haemorrhage\*

Keratoconjunctivitis sicca\*

Nutritional retinal degeneration

- Taurine deficiency
- Vitamin A deficiency
- Vitamin E deficiency

Phthisis bulbi, e.g.

- Secondary to ocular trauma or chronic uveitis

Pigmentary keratitis

Retinal degeneration

Retinal detachment\* *q.v.*

Retinal haemorrhage

Retinal pigment epithelial cell dystrophy

Sudden acquired retinal degeneration

Superficial keratitis

Symblepharon

Trauma\*

Ulcerative keratitis and corneal scarring

Vitreous haemorrhage

### *Sequelae to chronic uveitis\**

Corneal oedema

Cyclitic membranes

Exudative retinal detachment

Hyphaema

Intraocular adhesions

Lens luxation

Phthisis bulbi

Secondary cataracts

Secondary glaucoma

Secondary retinal degeneration\*

## **Congenital**

Ankyloblepharon

Anophthalmia

Anterior segment dysgenesis

Collie eye anomaly

Congenital vitreous opacification

Corneal dermoid  
Entropion (severe)  
Microphthalmia  
Persistent hyperplastic primary vitreous  
Persistent hyperplastic tunica vasculosa lentis  
Persistent pupillary membranes  
Posterior segment coloboma  
Vitreoretinal dysplasia

### *Lens disorders*

Aphakia  
Cataracts  
Coloboma  
Lenticulus/lentiginosus  
Microphakia  
Spherophakia

### *Retinal disorders*

Congenital retinal dystrophy  
Early-onset photoreceptor dystrophies

- Early retinal degeneration
- Photoreceptor dysplasia
- Rod-cone dysplasia
- Rod dysplasia

Hemeralopia  
Lysosomal storage diseases  
Primary retinal dysplasia  
Secondary retinal dysplasia

- Idiopathic/inherited
- Intrauterine trauma
- Maternal infections
- Radiation
- Vitamin A deficiency during pregnancy

## **1.6.2 Epiphora/tear overflow**

### *Impaired tear drainage*

Dacryocystitis  
Entropion

Imperforate/obstructed punctum  
or canaliculus  
Lacrimal canicular aplasia  
Small lacrimal lakes

*Painful/irritating ocular conditions*

*Extraorbital conditions*

Diseases of paranasal sinuses  
Mechanical or olfactory stimulation  
of the nasal mucosa

*Eyelid conditions\**

Blepharitis  
Distichiasis/ectopic cilia  
Entropion  
Facial nerve paralysis  
Lid laceration  
Neoplasia  
Trichiasis

*Intraocular conditions*

Acute uveitis  
Anterior lens luxation (D)  
Glaucoma  
Trauma

*Ocular surface conditions*

Conjunctivitis\*  
Corneal ulceration\*  
Foreign body  
Keratitis\*

*Third eyelid conditions\**

Lymphoid hyperplasia  
Neoplasia  
Prolapsed nictitans gland  
Scrolled third eyelid  
Trauma

## 1.7 Musculoskeletal historical signs

### 1.7.1 Forelimb lameness

#### YOUNG ANIMALS

##### Any site

- Infection\*
- Metaphyseal osteopathy
- Panosteitis
- Trauma\*
  - Bruising or strain of soft tissues\*
  - Laceration\*
  - Penetrating wound\*

##### Shoulder

- Brachial plexus avulsion
- Fracture of the humerus\*
- Fracture of the scapula
- Haemarthrosis
- Joint capsule rupture
- Luxation (congenital or acquired)
- Medially displaced biceps tendon
- Osteochondrosis\* (D)
- Septic arthritis\*
- Shoulder dysplasia\*
- Traumatic arthritis\*

##### Elbow

- Avulsion of the medial epicondyle
- Collateral ligament rupture or avulsion
- Degenerative joint disease\*
- Elbow incongruity
- Fracture of the humerus\*
- Fracture of the radius\*
- Fracture of the ulna\*
- Growth plate disorders
- Haemarthrosis

Luxation (congenital or acquired)

Osteochondrosis (D)\*

- Fragmented medial coronoid process
- Osteochondritis dissecans of the medial condyle of the humerus
- Ununited anconeal process

Septic arthritis

Traumatic arthritis\*

## **Carpus**

Carpal hyperextension

Collateral ligament rupture or avulsion

Degenerative joint disease\*

Dysostosis

Flexor tendon contracture

Fracture of the carpal bones\*

Fracture of the metacarpal bones\*

Fracture of the radius\*

Fracture of the ulna\*

Growth plate disorders

Luxation

Osteochondrosis

Septic arthritis

Shearing injury

Subluxation

## **Foot**

Avulsion of the deep digital flexor tendon

Avulsion of the superficial digital flexor tendon

Claw disease *q.v.*\*

Degenerative joint disease\*

Fracture of distal metacarpal bones\*

Fracture of phalanges\*

Injury to the integument, e.g.

- Bite wound
- Foreign body
- Laceration

Other pathology of the integument\*

Luxation/subluxation

Septic arthritis

Sesamoid disease/fracture

## ADULT ANIMALS

### Any site

Infection\*

Trauma\*

- Bruising or strain of soft tissues
- Laceration
- Penetrating wound

### Shoulder

Biceps tendon rupture

Bicipital tenosynovitis (D)

Degenerative joint disease\*

Fracture of the humerus\*

Fracture of the scapula\*

Haemarthrosis

Infraspinatus contracture/other muscle contractures

Joint capsule rupture

Luxation (congenital or acquired)\*

Medially displaced biceps tendon

Neoplasia\*, e.g.

- Metastatic tumour
- Nerve root tumour
- Primary bone tumour
- Soft tissue tumour
- Synovial sarcoma

Osteochondrosis

Septic arthritis

Shoulder dysplasia

Traumatic arthritis\*

### Elbow

Collateral ligament rupture or avulsion

Degenerative joint disease\*

Elbow incongruity

Fracture of the humerus\*

Fracture of the radius\*

Fracture of the ulna\*

Haemarthrosis

Incomplete ossification of the humeral condyle

Luxation (congenital or acquired)

Medial spur

Neoplasia\*

- Bone
- Metastatic
- Soft tissue

Osteochondrosis

Septic arthritis

Traumatic arthritis\*

## **Carpus**

Carpal hyperextension

Degenerative joint disease\*

Fracture of the radius\*

Fractures of the carpal bones\*

Fractures of the metacarpal bones\*

Haemarthrosis

Luxation or subluxation

Neoplasia\*

- Bone
- Metastatic
- Soft tissue

Septic arthritis

Shearing injury

Traumatic arthritis\*

## **Foot**

Avulsion of the superficial or deep digital flexor tendon

Claw disease *q.v.*

Degenerative joint disease\*

Fracture of the distal metacarpal bones\*

Fracture of the phalanges\*

Fracture of the sesamoid bones\*

Haemarthrosis

Injury to the integument\*, e.g.

- Bite wound
- Foreign body
- Laceration

Other pathology of the integument\*

Luxation

Neoplasia

- Bone
- Metastatic
- Soft tissue

Septic arthritis

Sesamoid disease

Traumatic arthritis\*

## 1.7.2 Hindlimb lameness

### YOUNG ANIMALS

#### Any site

Infection

Metaphyseal osteopathy

Panosteitis

Trauma

- Bruising or strain of soft tissues
- Laceration
- Penetrating wound

#### Hip

Avascular necrosis of the femoral head (D)

Fracture of the acetabulum\*

Fracture of the femur\*

Haemarthrosis

Hip dysplasia\*

Luxation\*

Septic arthritis

Traumatic arthritis\*

#### Stifle

Caudal cruciate ligament rupture or avulsion

Cranial cruciate ligament rupture or avulsion\*

Femorotibial luxation

Fracture of the femur\*

Fracture of the fibula\*

Fracture of the patella\*

Fracture of the tibia\*

Genu valgum

Haemarthrosis  
Long digital extensor tendon avulsion  
Meniscal trauma\*  
Osteochondrosis\*  
Patellar ligament rupture or avulsion  
Patellar luxation\*  
Septic arthritis  
Stifle hyperextension  
Traumatic arthritis\*

## **Hock**

Calcaneal tendon rupture, laceration or avulsion  
Collateral ligament avulsion  
Congenital tarsal anomalies  
Fracture of the tibia\*  
Fracture of the fibula\*  
Fractures of the metatarsal bones\*  
Fractures of the tarsal bones\*  
Gastrocnemius tendon rupture, laceration or avulsion  
Growth plate disorders  
Haemarthrosis  
Luxation  
Osteochondrosis\*  
Septic arthritis  
Shearing injury  
Tibial dysplasia  
Traumatic arthritis\*

## **Foot**

Avulsion of the superficial or deep digital flexor tendon  
Claw disease *q.v.*\*  
Degenerative joint disease\*  
Fractures of the distal metatarsal bones\*  
Fractures of the phalanges\*  
Fractures of the sesamoid bones  
Haemarthrosis  
Injury to the integument\*, e.g.

- Bite wound
- Foreign body
- Laceration

Other pathology of the integument\*

Luxation

Septic arthritis

Sesamoid disease

Traumatic arthritis\*

## ADULT ANIMALS

### Any site

Infection

Trauma

- Bruising or strain of soft tissues
- Laceration
- Penetrating wound

### Hip

Avascular necrosis of the femoral head\*

Degenerative joint disease\*

Fracture of the acetabulum\*

Fracture of the femur\*

Haemarthrosis

Hip dysplasia\*

Luxation\*

Myositis ossificans

Neoplasia\*

- Bone
- Soft tissue
- Metastatic

Septic arthritis

Traumatic arthritis\*

### Stifle

Caudal cruciate ligament rupture or avulsion

Cranial cruciate ligament rupture or avulsion\*

Degenerative joint disease\*

Femorotibial luxation

Fracture of the femur\*

Fracture of the fibula\*

Fracture of the patella\*

Fracture of the tibia\*

Haemarthrosis

Long digital extensor tendon avulsion

Meniscal trauma\*

Neoplasia\*

- Bone
- Soft tissue
- Metastatic

Osteochondrosis\*

Patellar ligament rupture or avulsion

Patellar luxation\*

Septic arthritis

Stifle hyperextension

Traumatic arthritis\*

## **Hock**

Calcaneal tendon rupture, laceration or avulsion

Collateral ligament avulsion

Degenerative joint disease\*

Fracture of the fibula\*

Fracture of the tibia\*

Fractures of the metatarsal bones\*

Fractures of the tarsal bones\*

Gastrocnemius tendon rupture, laceration or avulsion

Growth plate disorders

Haemarthrosis

Luxation

Neoplasia\*

- Bone
- Soft tissue
- Metastatic

Osteochondrosis\*

Septic arthritis

Shearing injury

Superficial digital flexor luxation

Tibial dysplasia

Traumatic arthritis\*

## **Foot**

Avulsion of the superficial or deep digital flexor tendon

Claw disease\* *q.v.*

Degenerative joint disease\*

Fractures of distal metatarsal bones\*

Fractures of phalanges\*

Fractures of sesamoid bones

Haemarthrosis

Injury to the integument\*, e.g.

- Bite wound
- Foreign body
- Laceration

Other pathology of the integument\*

Luxation\*

Neoplasia\*

- Bone
- Soft tissue
- Metastatic

Septic arthritis

Sesamoid disease

Traumatic arthritis\*

Traumatic tenosynovitis

### 1.7.3 Multiple joint/limb lameness

#### Young animals

Borreliosis

Chondrodysplasia

Drug reaction

- Sulphonamide
- Vaccine

Excessive joint laxity

- Collagen defect
- Dietary
- Traumatic

Haemarthroses

Metaphyseal osteopathy (D)

Nutritional secondary hyperthyroidism

Panosteitis

Polyarthritis

Osteochondrosis\*

Septic arthritis

Viral arthritis

## Adult animals

- Borreliosis
- Chondrodysplasia
- Degenerative joint disease\*
- Drug reaction
  - Sulphonamide
  - Vaccine
- Excessive joint laxity
  - Collagen defect
  - Dietary
  - Traumatic
- Haemarthroses
- Hyperparathyroidism
- Neuromuscular disease
- Osteochondrosis\*
- Nutritional, e.g.
  - Hypervitaminosis A
  - Copper deficiency
- Periosteal proliferative arthritis
- Polyarthritis
- Septic arthritis
- Systemic lupus erythematosus
- Viral arthritis

## 1.8 Reproductive historical signs

### 1.8.1 Failure to observe oestrus

- Abnormal sex chromosomes
- Early embryonic death *q.v.*
- Idiopathic
- Immune-mediated oophoritis
- Inadequate display of oestrus\*
- Inadequate observation of oestrus\*
- Inappropriate photoperiod (C)
- Lactational anoestrus\*
- Panhypopituitarism

Physical/athletic training  
 Poor diet  
 Prepuberty\*  
 Previous ovariectomy\*  
 Pseudohermaphroditism  
 Pseudopregnancy\*  
 Seasonal anoestrus (C)\*  
 Social factors  
 Spontaneous ovulation  
 Sterile matings  
 True hermaphroditism

### **Concurrent disease**

Hyperadrenocorticism  
 Hypoadrenocorticism (D)  
 Hypothyroidism\* (D)  
 Poor body condition

### **Iatrogenic**

Anabolic steroids  
 Androgens  
 Glucocorticoids  
 Progesterones

### **Ovarian disease**

Ovarian aplasia  
 Ovarian cysts and tumours
 

- Granulosa–thecal cell tumours
- Luteal cysts
- Other neoplasms or cysts causing ovarian atrophy

 Ovarian hypoplasia  
 Senile ovarian failure

### **Stress\***

Frequent showing  
 Frequent travel  
 Overcrowding  
 Temperature extremes

## 1.8.2 Irregular seasons

### Short pro-oestrus followed by anoestrus

Poor diet

Shortened inter-pro-oestrus intervals (see succeeding text)

Stress

#### *Reduced intensity of visible signs of oestrus*

Concurrent disease\*

Drugs\*

- Anabolic steroids
- Androgens
- Glucocorticoids
- Progesterones

### Persistence of oestrus behaviour

#### *Signs of oestrus in the absence of true hormonal oestrus*

Vaginal foreign body

Vaginal tumour

Vaginitis\*

Vulvitis\*

### Prolonged pro-oestrus/oestrus

Excessive adrenal production of oestrogen (C)

Follicular cysts\*

Hepatic disease

Merging of waves of follicular growth (C)

Normal in young females\*

#### *Iatrogenic*

Drugs used to prevent pregnancy after mating

Exogenous gonadotrophins

#### *Ovarian tumours*

Adenocarcinoma

Cystadenoma

Granulosa cell tumour

**Shortened inter-pro-oestrus interval**

- Follicular cysts
- Frequent episodes of pro-oestrus
- Ovulatory failure
- Short anoestrus
- Split heats

*Iatrogenic*

- Bromocriptine
- Cabergoline
- Prostaglandins

**Prolonged inter-pro-oestrus interval**

- Normal in some breeds
- Hypothyroidism\* (D)
- Idiopathic
- Ovarian cysts or neoplasia
- Severe systemic disease
- Silent heat

**1.8.3 Infertility in the female with normal oestrus****Failure to achieve intromission**

Male factors\* *q.v.*

*Congenital defects of the vestibule and vagina*

- Intersexes
- Vaginal septa
- Vestibulovaginal strictures
- Vulval constrictions

*Acquired vaginal conditions*

- Foreign body
- Post-partum fibrosis
- Transmissible venereal tumour
- Vaginal hyperplasia\*

Vaginal tumours  
Vaginal ulceration

### **Failure of ovulation**

Idiopathic (D)  
Inadequate number of matings (C)  
Incorrect timing of mating\* (C)

### **Miscellaneous**

Cervical stenosis  
Cystic endometrial hyperplasia\*  
Early embryonic loss *q.v.*  
Endometritis  
Herpesvirus  
Hypoluteodism/insufficient progesterone secretion by corpus luteum  
Incorrect timing of mating/insemination\*  
Infertile male  
Non-patent oviducts or uterus  
Segmental aplasia of the paramesonephric (Müllerian) duct  
Stress  
Uterine polyps  
Uterine tumours

## **1.8.4 Male infertility**

### **Failure to achieve intromission**

Female factors *q.v.*

#### *Acquired abnormalities*

Neoplasia of the penis/prepuce  
Phimosis  
Trauma of the penis/prepuce  
Urethral obstruction and subsequent haematoma

#### *Congenital abnormalities, e.g.*

Diphallus  
Penile hypoplasia  
Persistent penile frenulum  
Preputial stenosis  
Pseudohermaphroditism

### *Miscellaneous*

Incomplete erection

Ineffective thrusting

- Experience\*
- Poor socialisation\*
- Short os penis
- Size discrepancy\*
- Trauma (desensitised glans)

Premature full attainment of erection in inexperienced dog\*

Premature loss of erection\*

### **Inability to mount the female**

Prostatic disease *q.v.*

Orthopaedic disease\*

### **Lack of fertility where normal mating(s) is(are) achieved**

#### *Failure of/incomplete ejaculation*

Discomfort or stress during mating\*

Inadequate tie\*

Retrograde ejaculation

- Disorder of the sympathetic nervous system
- Urethral sphincter incompetence

### **Lack of libido**

#### *Age related*

Prepubertal\*

Senility\*

#### *Behavioural*

Inexperience\*

Previous bad experience when mating\*

Training not to display sexual interest\*

#### *Concurrent/systemic disease\*, e.g.*

Hypoadrenocorticism

Hypogonadism

Hypothyroidism\* (D)

#### *Diet*

Malnutrition

Obesity\*

*Drugs*

Anabolic steroids  
Cimetidine  
Glucocorticoids  
Ketoconazole  
Oestrogens  
Overuse of testosterone  
Progestagens

*Management*

Overuse\*

*Testicular disease*

Idiopathic testicular degeneration  
Orchitis  
Sertoli cell tumour

**Low/absent sperm number or quality***Artefact*

Poor collection technique/analysis\*

*Acquired defects*

Infections causing azoospermia or abnormal sperm/semen

- Balanoposthitis
- Epididymitis
- Orchitis
- Prostatitis
- Urethritis

Increases in testicular temperature

- Chemotherapeutics, e.g.
  - Chlorambucil
  - Cisplatin
  - Cyclophosphamide
- High environmental temperature
- Hyperthermia
- Iatrogenic
- Orchitis in the contralateral testis
- Other drugs
  - Anabolic steroids
  - Androgens
  - Glucocorticoids

- Radiation therapy/excessive radiography
- Scrotal dermatitis

Local trauma

- Dog bites
- Kicks/blows
- Lacerations

Neoplasia of the testis

Overuse\*

Pain\*

Prepuberty\*

Retrograde ejaculation

Toxins

## **Congenital defects**

Cryptorchidism

Genetic abnormalities in spermatogenesis

- Chromosomal abnormalities, e.g.
  - XXY syndrome (D)
  - 38,XY/57,XXY (C)
- Immotile cilia (Kartagener's syndrome)

Segmental aplasia of the duct system

Testicular hypoplasia

### **1.8.5 Vaginal/vulval discharge**

Ovarian remnant syndrome

Pseudopregnancy\*

Pyometra\*

Stump pyometra\*

Vaginal or uterine neoplasia

Vaginitis\*

Vulvitis\*

### **1.8.6 Abortion**

#### **Drugs, e.g.**

Cabergoline

Corticosteroids

Prostaglandins

## Habitual abortion

Abnormal uterine environment, e.g.

- Cystic endometrial hyperplasia

Poor luteal function

## Infection

*Brucella canis* (D)

Canine adenovirus (D)

Canine distemper virus (D)\*

Canine herpesvirus (D)

*Chlamydophila psittaci* (C)

Ehrlichiosis

Feline herpesvirus (C)\*

Feline infectious peritonitis (C)\*

Feline leukaemia virus (C)\*

Feline panleukopenia virus (C)\*

Leishmaniasis

Toxoplasmosis

### 1.8.7 Dystocia

## MATERNAL CAUSES

### Obstruction of the birth canal

Congenital uterine malformations

- Aplasia of the cervix
- Aplasia of the corpus uteri
- Aplasia of the uterine horns

Fibrosis of the birth canal

Narrow pelvic canal

- Congenital
- Fracture\*
- Immaturity\*

Neoplasia

Uterine malposition

Uterine rupture

Uterine torsion  
Vaginal septa

## **Uterine inertia\***

### *Primary uterine inertia*

Fatty infiltration of the myometrium  
Hormonal deficiencies  
Hypocalcaemia\* *q.v.*  
Inherited  
Maternal systemic disease  
Overstretching of the myometrium, e.g.  

- Excessive intrauterine fluids
- Large foetuses\*
- Large litter\*

 Poor diet  
Senile changes\*  
Single puppy syndrome\*

### *Secondary uterine inertia*

Exhaustion of the myometrium\*  

- Obstruction of birth canal\*
- Prolonged labour\*

## **FOETAL CAUSES**

### **Malpresentation\***

Backward flexion of front legs  
Breech  
Lateral or downward deviation of the head  
Posterior  
Transverse  
Two foetuses presenting simultaneously

### **Oversized foetuses**

Physically normal but large puppy\*  
Monstrosities  

- Duplications
- Hydrocephalus
- Oedema

### 1.8.8 Neonatal mortality

#### **Congenital abnormalities\*, e.g.**

Congenital heart disease  
Hydrocephalus  
Hypothyroidism

#### **Infections\*, e.g.**

Feline calicivirus\*  
Feline herpesvirus\*  
Feline infectious peritonitis\*  
Feline parvovirus\*  
Septicaemia

#### **Maternal/management factors\***

Asphyxiation  
Euthanasia for reasons of congenital deformities or undesirable cosmetic features  
Hypoglycaemia *q.v.*, e.g.

- Secondary to sepsis

Hypothermia  
Inadequate lactation  
Poor environment, e.g.

- Draughts
- Heating

Poor hygiene  
Poor mothering  
Poor nutrition/health of breeding stock

#### *Miscellaneous*

Fading puppy syndrome\*  
Low birth weight  
Neonatal isoerythrolysis  
Stillbirth

## 1.9 Urological historical signs

### 1.9.1 Pollakiuria/dysuria/stranguria

#### Normal urine

- Behavioural\*
- Feline lower urinary tract disease
- Idiopathic detrusor-urethral dyssynergia
- Neuromuscular

#### With haematuria, pyuria or bacteriuria

- Diabetes mellitus\*
- Feline lower urinary tract disease\* (C)
- Hyperadrenocorticism/corticosteroid treatment
- Iatrogenic disorders
- Infection
- Infiltrative urethral diseases
- Neoplasia
- Neuromuscular disorders
- Prostatic disease
- Renal disease\* *q.v.*
- Structural abnormalities
- Trauma/bladder rupture
- Urolithiasis\*

### 1.9.2 Polyuria/polydipsia (see Section 1.1.1 for full differentials)

- Diet
- Drugs/toxins
- Congenital lack of ADH receptors
- Electrolyte disorders
- Endocrine disease
- Hepatobiliary disease
- Hypothalamic disease
- Infectious disease

Metabolic (e.g. hypercalcaemia)  
Neoplasia\*  
Pericardial effusion  
Physiological  
Polycythaemia  
Psychogenic  
Renal disorders

### 1.9.3 Anuria/oliguria

#### Pre-renal

Dehydration\*  
Hypoadrenocorticism (D)  
Shock *q.v.*\*

#### Renal

Acute kidney injury *q.v.*  
Chronic kidney disease\*

#### Post-renal

Prostatic disease\*  
Urethral spasm

#### Neoplasia

Bladder  
Extra-urinary tract  
Urethra

#### Trauma

Avulsion of ureters  
Ruptured bladder/urethra

#### Urolithiasis\*

Nephroliths  
Ureteroliths  
Uroliths in the bladder or urethra

### 1.9.4 Haematuria

#### Extra-urogenital disease

Coagulopathy *q.v.*

Drugs/toxins

- Paracetamol

Heatstroke

Thrombocytopenia/thrombocytopathia

#### Penile disease

Neoplasia

Trauma

#### Physiological

Pro-oestrus

#### Prostatic disease

Abscess

Benign prostatic hyperplasia\* (D)

Cysts

Neoplasia

Prostatitis\*

#### Pseudohaematuria (non-haematuria-related red urine)

Bilirubinuria *q.v.*

Food pigments

- Blackberries
- Beets
- Rhubarb

Haemoglobinuria *q.v.*

Myoglobinuria *q.v.*

Phenazopyridine

Phenolphthalein

Phenothiazines

#### Renal disease

Cysts

Glomerulonephritis

Iatrogenic

- Biopsy
- Fine-needle aspirate

Idiopathic renal haematuria

Infarction, e.g.

- Disseminated intravascular coagulation

Neoplasia\*

Parasites

- *Dioctophyma renale*

Pyelonephritis

Renal telangiectasia

Trauma

Uroliths\*

## **Ureteral, urinary bladder and urethral disease**

Drugs

- Cyclophosphamide

Feline lower urinary tract disease\*

Iatrogenic

- Cystocentesis\*
- Forceful catheterisation\*

Neoplasia

Parasites

- *Capillaria plica*

Polyps

Trauma\*

Urethritis

Uroliths\*

## **Uterine disease**

Metritis

Neoplasia

Pyometra\*

Sub-involution\*

## **Vaginal disease**

Neoplasia

Trauma

## 1.9.5 Urinary incontinence/inappropriate urination

### With bladder distension

#### *Detrusor atony*

- Bladder over-distension
- Dysautonomia
- Lower motor neurone disease
- Neoplastic infiltration of the bladder wall
- Upper motor neurone disease

#### *Functional obstruction*

- Reflex dyssynergia\*
- Upper motor neurone disease
- Urethral inflammation\*
- Urethral pain

#### *Partial physical obstruction*

- Granulomatous urethritis
- Neoplasia
- Prostatic disease\*
- Retroflexion of the bladder into a perineal hernia
- Urethral fibrosis/stricture
- Urolithiasis\*
- Vestibulovaginal stenosis

### Without bladder distension

#### *Bladder hypercontractility*

- Chronic partial obstruction\*
- Detrusor instability
- Inflammation\*
- Neoplasia

#### *Miscellaneous*

- Behavioural
- Ectopic ureters

Iatrogenic

- Ureterovaginal fistulation

Secondary to polydipsia/polyuria

Ureterocoele

Urolithiasis

*Reduced bladder storage*

Fibrosis

Hypoplasia

Neoplasia

*Urethral sphincter incompetence*

Congenital

Hormone responsive\*

Intersex

Prostatic disease\*

Urethral inflammation\*

Urethral neoplasia

Urinary tract infection\*