

Diarrhoea and Haematochezia

■ This chapter covers:

- ✓ General features and differentials of small and large intestinal diarrhoea
- ✓ Differentials for haematochezia and protein losing enteropathy
- ✓ Basic diagnostic pathways
- ✓ Empirical management of diarrhoea patients
- ✓ Treatment for specific conditions

■ History:

- ✓ Duration?
 - Acute or chronic
- ✓ Any weight loss, vomiting, blood in diarrhoea, lethargy?
 - Determine the severity
- ✓ Description of diarrhoea?
 - Determine if small or large intestinal, both
- ✓ Diet history, vaccination, deworming, concurrent medication?
 - Determine the possible cause

Diarrhoea:	
Small Intestinal:	Large Intestinal:
Features: <ul style="list-style-type: none"> ▪ Increased faecal bulk/water ▪ No straining ▪ Projectile ▪ Melaena ▪ Not urgent 	Features: <ul style="list-style-type: none"> ▪ Small amount of faeces ▪ More frequent ▪ Painful straining ▪ Mucous ▪ Fresh blood
Mixed bowel:	
<ul style="list-style-type: none"> ▪ Increased faecal bulk/water ▪ Straining ▪ Fresh blood ▪ Mucous ▪ Not urgent 	

Small Intestinal:	
Acute:	Chronic:
<ul style="list-style-type: none"> ▪ <u>Gastrointestinal disease:</u> <ul style="list-style-type: none"> ➢ Diet: <ul style="list-style-type: none"> • Indiscretion • Diet change ➢ Parasites: <ul style="list-style-type: none"> • Hookworm, roundworms, <i>Giardia</i> and <i>Coccidia</i> ➢ Viruses: <ul style="list-style-type: none"> • Parvovirus (common in dogs, rare in cats) • Coronavirus, rotavirus ➢ Bacterial: <ul style="list-style-type: none"> • Food poisoning • <i>Campylobacter</i>, <i>E. Coli</i>, <i>Salmonella</i>, <i>Clostridia</i> ➢ Toxicity: <ul style="list-style-type: none"> • Drugs (NSAID's) • Organophosphates ➢ Haemorrhagic gastroenteritis ➢ Structural obstructions: <ul style="list-style-type: none"> • Foreign body • Intussusceptions ▪ <u>Extra-gastrointestinal disease:</u> <ul style="list-style-type: none"> ➢ Pancreatic disease: <ul style="list-style-type: none"> • Pancreatitis • Exocrine pancreatic insufficiency ➢ Liver/kidney disease ➢ Hypoadrenocorticism ➢ Ischaemic: <ul style="list-style-type: none"> • Anything leading to shock or ischaemia of the GIT e.g. Heat stroke 	<ul style="list-style-type: none"> ▪ <u>Gastrointestinal disease:</u> <ul style="list-style-type: none"> ➢ Diet: <ul style="list-style-type: none"> • Intolerance • Hypersensitivity ➢ Infectious: <ul style="list-style-type: none"> • Parasites: Hookworm, roundworms, <i>Giardia</i> and <i>Coccidia</i> • Bacterial infection: Antibiotic responsive enteropathy (SIBO), <i>Campylobacter</i>, <i>Clostridia</i>, <i>Salmonella</i> • Fungal: <i>Histoplasmosis</i> and <i>Pythiosis</i> ➢ Infiltrative: <ul style="list-style-type: none"> • Inflammatory bowel disease • Lymphangiectasia • Neoplasia - lymphoma, adenocarcinoma ➢ Breed related enteropathy (German Shepherds and Basenjis) ➢ Structural obstructions: <ul style="list-style-type: none"> • Foreign body/intussusceptions ▪ <u>Extra-gastrointestinal disease:</u> <ul style="list-style-type: none"> ➢ Pancreatic disease: <ul style="list-style-type: none"> • Pancreatitis • Exocrine pancreatic insufficiency ➢ Liver/kidney disease ➢ Structural obstructions: <ul style="list-style-type: none"> • Foreign body • Intussusceptions • Volvulus ➢ Endocrine: <ul style="list-style-type: none"> • Hypoadrenocorticism • Hyperthyroidism (cats)
Large Intestinal:	
<ul style="list-style-type: none"> ▪ Infectious: <ul style="list-style-type: none"> ➢ Parasites: Whipworm, <i>Tritrichomonas</i>, <i>Cryptosporidia</i> ➢ Bacterial: <i>Clostridia</i> ➢ Fungal: <i>Pythiosis</i>, <i>Histoplasmosis</i> ▪ Diet: <ul style="list-style-type: none"> ➢ Fibre-deficiency ➢ Food Intolerance ➢ Indiscretion ▪ Infiltrative: <ul style="list-style-type: none"> ➢ Inflammatory bowel disease ➢ Lymphangiectasia ➢ Neoplasia - lymphoma, adenocarcinoma) ▪ Structural obstructions: <ul style="list-style-type: none"> ➢ Foreign body ➢ Intussusceptions ▪ Strictures 	

▪ **Causes of haematochezia:**

- ✓ Inflammatory – inflammatory bowel disease, histiocytic ulcerative colitis (boxers)
- ✓ Infectious:
 - Parasites: Whipworm, hookworm, *Giardia*
 - Bacterial: *Clostridia*
 - Viral: Parvovirus
 - Fungal: Histoplasmosis, Pythiosis
- ✓ Neoplasia:
 - Lymphoma
 - Adenocarcinoma
- ✓ Trauma and coagulopathy
- ✓ Haemorrhagic gastroenteritis
- ✓ Anal gland disorders

Diagnostics:

▪ **All cases of diarrhoea/haematochezia:**

- ✓ General physical examination and rectal examination
- ✓ PCV/TP
- ✓ Coagulation testing if haematochezia
- ✓ Faecal smears and faecal floatation:
 - Assess for parasitic causes
 - Stained: Normal bacterial population is mixed, uniform population is abnormal, large spore forming gram positive rods (clostridia – look like “safety pins”)
 - Wet preparation: Assess for motile bacteria (shoot through the field)
- ✓ *Giardia* ELISA test
- ✓ Virus testing:
 - Parvovirus/coronavirus antigen test

▪ **Indications for further diagnostics:**

- ✓ Hypoproteinaemia (DDx: protein losing enteropathy/nephropathy, liver disease)
- ✓ Anaemia
- ✓ Systemic signs of illness and abdominal pain
- ✓ Reoccurring after symptomatic therapy
- ✓ Older animal
- ✓ Polyphagia, steatorrhea
- ✓ Weight loss
- ✓ Palpable abdominal or rectal abnormality

▪ **Other diagnostics for chronic diarrhoea/haematochezia:**

- ✓ Biochemistry and haematology, urinalysis
- ✓ UP:C to rule out extra-gastrointestinal causes of hypoproteinaemia
- ✓ Total T4: Hyperthyroidism
- ✓ Trypsin-like immunoreactivity: To assess for exocrine pancreatic insufficiency
- ✓ FIV and FeLV
- ✓ Imagery:
 - Radiography
 - Ultrasound +/- aspirate
- ✓ Serum folate:
 - Decreased can be due to jejunal abnormalities leading to malabsorption of folate
 - Increase can be consistent with increased bacterial population e.g. Bacterial overgrowth

- ✓ Serum cobalamin:
 - Decreased can be due to ileal abnormalities leading to malabsorption of cobalamin
 - Important in feline chronic gastrointestinal disease as supplementation can improve clinical outcome
- ✓ Endoscopy and mucosal biopsy
- ✓ Laparotomy and full thickness biopsy

▪ **Treatment according to clinical signs:**

Acute and not severe, systemically well:

- Symptomatic treatment:
 - Diet change to novel or hydrolyzed diet
 - Smaller meals of increased frequency
 - +/- Fenbendazole 50mg/kg SID for 5 days
 - +/- Antibiotics if large breed or suspecting antibiotic responsive enteropathy
 - Metronidazole 10mg/kg PO BID

Acute and severe, small intestinal:

- Hospitalise: Supportive therapy, IV fluid support and IV antibiotics
- Bowel rest (adults 24 hours, NOT in puppies)
- Further diagnostics

Chronic, large intestinal:

- Rectal examination: Palpate for any abnormalities such as mass lesions or narrowing
- Symptomatic treatment:
 - Fibre supplementation psyllium 1-2 tablespoons per day or low residue diet
 - Fenbendazole 50mg/kg SID for 3 days
- Failure to respond try hydrolysed or novel protein diet
- Endoscopy and biopsy

Chronic, small intestinal:

- Failure to respond to empirical trials:
 - Diet change to novel or hydrolyzed diet
 - Fenbendazole 50mg/kg SID for 3 days
 - Antibiotics for 2-3 weeks if large breed or suspecting antibiotic responsive enteropathy (SIBO)
 - Metronidazole 10mg/kg BID OR
 - Tylosin 20mg/kg BID OR
 - Oxytetracycline 15mg/kg BID
- Blood profile: Assessment of systemic disease
- TLI: Assessment of EPI
- Imagery and endoscopy and biopsy

▪ **Parasitic gastroenteritis:**

▪ ***Giardia* (Zoonotic):**

- ✓ Fenbendazole 50mg/kg PO SID for 3 days
- ✓ Metronidazole 20mg/kg PO BID for 10 days (higher dose required – but beware neurological signs)

▪ **Intestinal worms:**

- ✓ Roundworm, Hookworm, Whipworm:
 - Fenbendazole 50mg/kg PO SID for 3 days, off label in cats
- ✓ Tapeworms:
 - Praziquantel 3-7mg/kg PO
 - 4 times label dose for *Spirometra*

▪ ***Coccidia* spp:**

- ✓ 10 – 40µm in length depending on the species
- ✓ Toltrazuril 20mg/kg PO SID for 2 days

- **Cryptosporidium (Zoonotic) (5µm in length):**
 - ✓ Can be present in low numbers normally, and may be associated with other causes of diarrhoea e.g. parasites (worms and *Giardia*) and viruses but can contribute to the severity of the diarrhoea
 - ✓ Most commonly in young animals
 - ✓ Treat underlying disease process and manage symptomatically
- **Campylobacter (Zoonotic):**
 - ✓ Small, gram negative, curved rod, motile bacteria
 - ✓ Can be present in low numbers normally, and may be associated with other causes of diarrhoea e.g. parasites (worms and *Giardia*) and viruses but can contribute to the severity of the diarrhoea
 - ✓ Erythromycin 10mg/kg PO TID for 1 to 2 weeks
 - ✓ Tylosin 15mg/kg PO BID for 7 days
- **Haemorrhagic gastroenteritis:**
- **Pathophysiology:**
 - ✓ Thought to be due to either a hypersensitivity or Clostridia toxins
 - ✓ Inflammation leads to rapid loss of fluid into gastrointestinal tract leading to marked haemoconcentration and dehydration
 - ✓ Associated with acute vomiting and then diarrhoea with blood, symptoms of shock
 - ✓ Must rule out other causes of haemorrhagic vomiting and diarrhoea
- **Treatment:**
 - ✓ Aggressive IV fluid therapy, correction of perfusion and dehydration deficits and electrolyte abnormalities
 - ✓ Antibiotics: Ampicillin 22mg/kg TID or metronidazole 10mg/kg IV BID
 - ✓ Antiemetic: Metoclopramide CRI 1-2mg/kg/day IV and others
 - ✓ Gastric protectants: Ranitidine 2mg/kg BID, sucralfate 0.5-1gm PO TID, proton pump inhibitors
 - ✓ Anaemia: Blood transfusion, see "Transfusion therapy"
 - ✓ +/- Colloid therapy: If hypoproteinaemia develops either synthetic colloid or plasma transfusion
- **Viral diarrhoea:**
- See also "Viral diseases and Vaccination"
- **Features:**
 - ✓ Typically, in young unvaccinated puppies
 - ✓ Parvovirus is a very severe debilitating disease, coronavirus is usually less severe
- **Parvovirus:**
- **Pathophysiology:**
 - ✓ Parvovirus targets and destroys rapidly dividing cells such as intestinal lining and bone marrow
 - ✓ Typically, in young unvaccinated dogs, but can occur in previously vaccinated animals
 - ✓ False positives: Can occur up to 12 days post-vaccination especially if a modified live vaccine was used. Still manage as a positive if consistent clinical signs and history. Leukopenia can help provide supportive evidence.
 - ✓ Feline panleucopenia virus: Rare in cats, use canine parvovirus test to diagnose
 - ✓ 90% mortality rate without treatment, 80% survival rate with aggressive management
 - ✓ Resilient viruses, persist in the environment for up to 8 months, likely to be a major source of infection
 - ✓ Highly contagious viruses that are spread primarily by ingestion of affected animal's faecal material:
- **Diagnostics:**
 - ✓ Parvovirus antigen ELISA
 - ✓ PCV/TP, haematology, biochemistry
 - ✓ Others listed above (e.g. faecal analysis)

• Treatment:

- ✓ Isolation and barrier nursing
- ✓ Supportive therapy: Keep warm and quiet
- ✓ Fluid therapy: Aggressive IV fluid therapy, correction of perfusion and dehydration deficits and electrolyte abnormalities
- ✓ Antiemetic: Metoclopramide CRI 1-2mg/kg/day IV, maropitant 1mg/kg SC SID for <5 days
- ✓ Gastric protectants: Ranitidine 2mg/kg BID, sucralfate 0.5-1gm PO TID, proton pump inhibitors
- ✓ IV antibiotics:
 - Broad spectrum bactericidal
 - If not leukopenia: Cephalothin 22mg/kg IV TID and metronidazole 10mg/kg IV BID
 - If leukopenia: Ticarcillin 50mg/kg IV QID
- ✓ Transfusions:
 - Blood if anaemia develops
 - +/- Plasma for oncotic support if hypoalbuminaemia is present
- ✓ Early enteral nutrition:
 - Important, start if anorexic >2 days
 - Micro-ental feeding with electrolyte solutions via tube feeding (naso-oesophageal tubes) then progress to food

• Monitoring:

- ✓ Temperature, pulse and respiration, hydration status QID, body weight, PCV/TP and electrolytes SID-BID

• Prevention:

- ✓ Vaccination is very effective, vaccinate all animals
- ✓ Isolation of infected animal as they can shed virus for up to 40 days after recovery
- ✓ Beware the virus can remain in the environment for up to 8 months, do not allow unvaccinated animals access to that environment
- ✓ Isolation of puppies away from other unvaccinated animals at least 2 weeks after final vaccination
- ✓ Clean and disinfect the environment

• Protein losing enteropathy (PLE):

• Pathophysiology:

- ✓ A cause of hypoproteinaemia, due to a loss of protein through the gastrointestinal tract
- ✓ Always see a loss of albumin but usually also globulin
- ✓ Diarrhoea with hypoalbuminaemia suggests PLE but hypoalbuminaemia without diarrhoea does not rule out PLE
- ✓ May lose antithrombin III and predispose to thromboembolism

• Caused:

- ✓ Generally, by chronic gastrointestinal disease such as inflammatory bowel disease, neoplasia (lymphoma and adenocarcinoma), infectious diseases (parasites, fungal infections), lymphangiectasia, gastric ulcerations, cardiac disease (RHS). May also be caused by acute gastrointestinal disease such as canine haemorrhagic gastroenteritis.

• Clinical signs:

- ✓ Weight loss
- ✓ +/- Diarrhoea, +/- vomiting
 - Lack of vomiting or diarrhoea does not rule out PLE
- ✓ +/- Abdominal or pleural effusions, peripheral oedema

• Diagnostics:

- ✓ Require full diagnostic work-up, including biopsies (via endoscopy or laparotomy) and histopathology

- **Inflammatory bowel disease (IBD):**

- ✓ Inflammation of the small and large intestine
- ✓ Diagnosis is based on biopsy and histopathology
- ✓ Types of Inflammation:
 - Small Intestine: Lymphocytic plasmacytic (most common form in both dogs and cats), but can be eosinophilic
 - Large Intestine: Lymphocytic plasmacytic, eosinophilic, histiocytic ulcerative colitis (boxers and French bulldogs), fibre-responsive
- ✓ Feline IBD is commonly associated with chronic pancreatitis or cholangiohepatitis

- **Lymphocytic plasmacytic Inflammatory bowel disease:**

- ✓ **Small Intestinal:**

- Diet change to novel or hydrolysed diet:
 - Important in cats
- Immunosuppressive therapy:
 - Prednisolone at 1-2mg/kg PO BID until resolution, then 20% reduction every couple weeks
 - Dogs: Azathioprine or budesonide can be used for long term control or adjunctive therapy
 - Cats: Chlorambucil good for long term but monitor for immunosuppression
- +/- Metronidazole 10mg/kg PO BID
- Supplement:
 - Omega 3/6 fatty acids
 - Vitamin B12 injection at 250µg SC weekly or fortnightly

- ✓ **Large Intestinal:**

- Diet change to novel or hydrolysed diet
- If no response:
 - Trial fibre supplementation and sulfasalazine
 - Prednisolone at 1-2mg/kg PO BID until resolution, then 20% reduction every couple weeks

- **Eosinophilic inflammatory bowel disease:**

- ✓ Must rule out hypersensitivity, hypereosinophilic syndrome and parasites
- ✓ Immunosuppression therapy and novel or hydrolysed diet

- **Histiocytic ulcerative colitis:**

- ✓ Usually in Boxers and French Bulldogs, associated with haematochezia
- ✓ Responsive to enrofloxacin 5mg/kg/day PO 6-8 weeks

Dysphagia and Oral Disease

▪ This chapter covers:

- ✓ Dysphagia clinical features, differentials and general treatment
- ✓ Basic information on common oral tumours

▪ Dysphagia:

▪ Clinical signs:

- ✓ Inappetence, weight loss, halitosis, pawing at mouth, hypersalivation, facial swelling, oral haemorrhage, nasal discharge

▪ Differentials:

- ✓ Dental disease:
 - Feline odontoclastic resorptive lesion (FORL), see following pages
 - Abscessation
 - ✓ Trauma
 - ✓ Foreign bodies
 - ✓ Neurological:
 - Cranial nerve dysfunction:
 - CN V: Trigeminal to pharynx
 - CN VII: Facial to oral voluntary muscles
 - CN XII: Hypoglossal to tongue
 - CN IX: Glossopharyngeal to pharynx
 - CN X: Vagus to pharynx and oesophagus
 - Myasthenia gravis (focal)
 - ✓ Temporomandibular joint disease
 - ✓ Fractures
 - ✓ Masticatory muscle myositis, see following pages
 - ✓ Abscessation:
 - Oral and retrobulbar
 - ✓ Neoplasia, see following pages
 - ✓ Oral ulceration, see following pages
 - ✓ Oesophageal disease
 - ✓ Salivary gland disease, see following pages
- ### ▪ Diagnostics:
- ✓ History
 - ✓ General physical examination:
 - Able to open and close mouth properly
 - Signs of systemic disease
 - Palpation of the muscles of mastication and temporomandibular joint
 - Cranial nerve function
 - ✓ Oral examination (under general anaesthetic if required)
 - ✓ Imagery:
 - Radiology, scoping, CT, MRI
 - ✓ Biopsy and histopathology
 - ✓ FeLV, FIV, FHV, FCV (PCR on secretions and ELISA testing)

- **Oral ulceration:**
- **Clinical signs:**
 - ✓ Clinical signs of dysphagia
- **Diagnostics:**
 - ✓ History and general physical examination
 - ✓ Haematology, biochemistry and urinalysis
 - ✓ Biopsy
 - ✓ Feline virus testing (PCR on secretions and ELISA testing)
- **Differentials:**
 - ✓ Caustic substance ingestion
 - ✓ Immune mediated diseases:
 - Systemic lupus erythematosus, vacuities, pemphigus, ulcerative gingivitis/stomatitis (Maltese)
 - ✓ Inflammatory:
 - Feline eosinophilic granuloma complex, see following pages
 - Feline gingivitis-stomatitis, see following pages
 - ✓ Infectious diseases:
 - FIV, FeLV
 - FHV, FCV: Clinical signs of upper respiratory tract (sneezing and nasal discharge), also +/- ocular discharge
 - Fungal (*Candida sp.*)
 - ✓ Palatine ulcers:
 - Ulcerative lesion on the roof of the mouth usually due to **over grooming**
 - Present for anaemia due to blood loss and erosion of palatine blood vessels
 - ✓ Neoplasia, see following pages
 - ✓ Systemic disease: E.g. renal failure
- **Masticatory muscle myositis:**
- **Pathogenesis:**
 - ✓ Immune attack on the type 2M fibres present in the temporalis and masseter muscles
 - ✓ Aggressive forms seen with Dobermans and Rottweilers
- **Clinical signs:**
 - ✓ Acute stage: Inflammation
 - Clinical signs of dysphagia, pain on opening of the mouth, swelling and pain of the masticatory muscles exophthalmos
 - ✓ Chronic stage: Fibrosis
 - Unable to open mouth, bilateral masticatory muscle atrophy
- **Diagnostics:**
 - ✓ Clinical presentation
 - ✓ Absence of temporomandibular joint disease
 - ✓ Difficulty in opening the mouth under general anaesthetic
 - ✓ Biopsy:
 - Histopathology
 - ✓ Positive serum 2M-antibodies
- **Treatment:**
 - ✓ Immunosuppression: Prednisolone 1-2mg/kg PO BID until resolution, then 20% reduction every couple weeks
 - ✓ Nutrition: Nasoesophageal/gastric or oesophageal tube

Salivary gland disease:

Types:

- ✓ Sialoceles aka "salivary mucocele":
 - Enlargement associated with a salivary gland due to accumulation of saliva within the surrounding tissue
 - Idiopathic (usually), trauma around that region
 - Ranula, under the tongue
- ✓ Sialoadenosis:
 - Bilateral non-inflammatory enlargement that is non-painful
- ✓ Sialoadenitis:
 - Bilateral inflammatory enlargement that is mildly painful
 - Typically, secondary to prolonged vomiting or regurgitation
- ✓ Salivary gland necrosis:
 - Bilateral inflammatory enlargement that is very painful
 - This condition is particularly associated with oesophageal disease such as *Spirocercosis*

• **Clinical signs:**

- ✓ Clinical signs of dysphagia and uni/bilateral enlargement of salivary glands

Diagnostics:

- ✓ General physical examination, FNA, radiographs +/- iodine contrast

Feline eosinophilic granuloma complex:

Pathogenesis:

- ✓ Causes indolent ulcers on the lips or oral mucosa
- ✓ Unknown cause possible hypersensitivity

Diagnosis:

- ✓ Biopsy and histopathology
- ✓ +/- Intradermal skin testing, food elimination trial

• **Treatment:**

- ✓ Prednisolone 2-4mg/kg/day PO BID until resolution, then 20% reduction every
- ✓ Good ectoparasite control
- ✓ Food elimination trial

Feline odontoclastic resorptive lesion (FORL):

Pathogenesis:

- ✓ Common in older cats
- ✓ Odontoclast cells become reactivated (cause unknown)
- ✓ Odontoclast attack the roots of the teeth, leading to cavities and gingival hyperplasia and pain

Diagnosis and treatment:

- ✓ Visual examination and probing under gums
- ✓ Dental radiographs
- ✓ Removal of all affected teeth

Feline chronic gingivitis-stomatitis:

• **Pathogenesis:**

- ✓ Immune mediated, possible calicivirus infection
- ✓ Typically, lymphocytic-plasmacytic inflammation

Clinical signs:

- ✓ Clinical signs of dysphagia
- ✓ Ulcerations of the gingiva, buccal mucosa, tongue, pharynx

Diagnostics:

- ✓ Biopsy and histopathology