Working up the yellow cat

Ed Hall

Signs of illness in cats are notoriously vague, with non-specific lethargy and inappetence being the most common. Therefore a yellow cat is a welcome presenting complaint to the practitioner as it flags up potential differential diagnoses, although it is not such good news for the cat!

Yellow discoloration of the sclera, mucous membranes and even the skin is an indication of hyperbilirubinaemia, and is known as jaundice or icterus. By understanding the metabolism and excretion of bilirubin, it is possible to classify the cause of the jaundice as prehepatic, hepatic and posthepatic. Routine haematological and serum biochemical testing combined with abdominal ultrasonography are the minimum needed to differentiate them. The difficulty in cats comes from the fact that, firstly, causes of prehepatic jaundice are often occult and, secondly, there is often simultaneous hepatic and posthepatic disease and it can be difficult to ascertain which came first and needs primary treatment. Most icteric cats have primary hepatic or posthepatic disease or both. Hepatic lipidosis will also cause jaundice but is secondary to anorexia, and severe cholestasis secondary to sepsis is seen in cats.

Haemolytic anaemia as a cause of jaundice in cats is rare compared with dogs, probably because autoimmune haemolytic anaemia seems to be unusual. Haemolysis in cats is more often associated with *Mycoplasma haemofelis* infection and occasionally with pyruvate kinase (PK) deficiency, but neither of these invariably cause jaundice. Recognition that jaundice may be prehepatic comes from the presence of marked anaemia or the breed (Abyssinian and Somali for PK deficiency). Polymerase chain reaction (PCR) testing for haemoplasma infection will help confirm the cause in the majority of cases.

Lymphocytic cholangitis is a significant cause of hepatic jaundice in pedigree cats and, because ascites may be present, feline infectious peritonitis (FIP) is a major differential diagnosis. Neutrophilic cholangitis typically causes pyrexia with the jaundice. In both forms of cholangitis, abnormal bile may precipitate in the extrahepatic biliary tract causing sludging, cholecystitis and even bile duct obstruction, and such cases requiring surgical intervention have a poorer prognosis. Gall stones are a rare cause of bile duct obstruction, but can lead to rupture of the biliary tract because of necrotising cholecystitis.

Exocrine pancreatic neoplasia and duodenal inflammation can also block the common bile duct, but more often

there is concurrent inflammatory bowel disease, cholangitis and chronic pancreatitis (so-called 'triaditis'). This syndrome is well recognised but the link between them, and the best way to treat them, continues to be debated.

KEY LEARNING OBJECTIVES

- Feline jaundice is most commonly hepatic or posthepatic, or a combination of these mechanisms
- Haematology, serum biochemistry and abdominal ultrasonography are the most cost-effective diagnostic screening tools
- Haemolytic jaundice is seen most commonly with *Mycoplasma haemofelis* infection
- Triaditis is the concurrent manifestation of inflammatory bowel disease, cholangitis and pancreatitis

MULTIPLE CHOICE QUESTIONS

1. Serum biochemistry in a cat with hepatic lipidosis typically shows which of the following patterns?
 - a. Raised alkaline phosphatase (ALP); normal or slightly raised gamma-glutamyl transferase (GGT); hyperbilirubinaemia
 - b. Raised ALP; markedly raised GGT; hyperbilirubinaemia
 - c. Normal ALP; markedly raised GGT; hyperbilirubinaemia
 - d. Normal ALP; normal GGT; hyperbilirubinaemia
2. An empty gall bladder on abdominal ultrasound examination of a jaundiced cat is indicative of what?
 - a. Lymphocytic cholangitis
 - b. A mucocoele
 - c. Common bile duct obstruction
 - d. Biliary rupture
3. Feline neutrophilic cholangitis is most commonly associated with which one of the following infectious agents?
 - a. *M. haemofelis*
 - b. *Escherichia coli*
 - c. *Helicobacter bilis*
 - d. *Campylobacter jejuni*
4. Feline chronic liver disease typically causes which type of anaemia?
 - a. Mild, macrocytic, normochromic
 - b. Mild, normocytic, normochromic
 - c. Mild, microcytic, normochromic
 - d. Mild, microcytic, hypochromic
5. Which of the following is the most sensitive test for feline pancreatitis?
 - a. Spec fPL®
 - b. Lipase
 - c. Trypsin-like immunoreactivity (TLI)
 - d. SNAP fPL®

This dog won't stop coughing

Lynelle Johnson

Delivered by BSAVA
Guest (guest)

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On: Wed, 26 Apr 2023 10:53:54

Control of coughing is best achieved when a definitive diagnosis has been established with imaging and airway sampling, however there are multiple reasons why this is not always achieved. Owners may not understand the value of performing specific diagnostic tests or might not have the financial means to pursue these tests. They may fear placing their dog under anaesthesia for advanced imaging or airway

Medicine on a budget

sampling, and in some cases, the veterinarian shares those fears. Obtaining a complete history and providing a comprehensive physical examination, including assessment of the respiratory pattern, can be helpful in prioritising the list of differential diagnoses and instituting empirical therapy.

The most common causes of chronic cough in dogs are airway collapse and chronic bronchitis. Airway infection can occur in any age or breed of dog. Recurrent aspiration events can also lead to coughing, and bronchiectasis can develop as a consequence of any of these chronic airway diseases. Some of these disorders can be present concurrently, which complicates diagnosis and management.

Signalment in the dog with a cough assists in prioritising differential diagnoses. Small-breed dogs develop cervical tracheal collapse, while any size or breed of dog can display bronchomalacia. Similarly, large- or small-breed dogs can cough due to bronchitis. Bronchiectasis is more common in certain breeds of dogs, particularly the Cocker Spaniel, but also the Malamute and Standard Poodle. In general, young dogs are more likely to develop infectious respiratory disease, young adult dogs are more prone to foreign body pneumonia, and older dogs tend to get diseases that lead to aspiration pneumonia. In particular, large-breed dogs can develop recurrent infection or inflammation associated with recurrent aspiration due to laryngeal dysfunction. While some of these dogs might display voice change, gagging or retching, this is not always the case.

Physical examination should focus initially on respiratory rate and effort. Distinguishing inspiratory from expiratory effort is crucial, as inspiratory effort reflects disease outside the thorax while expiratory effort indicates intrathoracic disease. Crackles can indicate opening and closing of airways with airway collapse or can be heard with mobilisation of secretions in bronchitis or pneumonia. Expiratory wheezes are considered typical for bronchitis but are heard in a minority of patients. An expiratory honk is consistent with intrathoracic collapse of a large airway. Finally, accurate assessment of body condition score (BCS) is very important in devising a therapeutic plan. On a scale from 1–9, 5/9 is considered ideal, however most respiratory patients will have improved clinical signs at a BCS of 4/9. For each point above the ideal, a dog can be considered 10% overweight. With a weight loss goal of 1–2% per week, it can easily take months for appropriate and sustainable weight loss to be achieved. Frequent follow-up with owners and encouragement improves compliance.

KEY LEARNING OBJECTIVES

- Compare the contribution of airway collapse and chronic bronchitis to cough in the dog
- Defend the use of bronchodilators versus cough suppressants in dogs with cough
- Rationalise the role of weight loss in the management of cough

MULTIPLE CHOICE QUESTIONS

1. Which of the following characteristics is present in a dog with either airway collapse or chronic bronchitis?
 - a. Expiratory effort
 - b. Diffuse crackles on auscultation
 - c. Worsened by weight gain
 - d. All of the above
2. A middle-aged German Shepherd Dog cross presents to your clinic with a 1-day history of a dry, honking cough. The owner rescued the dog 1 week ago as a stray and has no other history on the dog. The dog is kept outdoors, is normothermic with a pulse of 100 bpm, respiratory rate of 24/min and BCS of 5/9. Physical examination is within normal limits except for tracheal sensitivity. Which of the following differentials is least likely in this case?
 - a. Tracheal collapse
 - b. Kennel cough
 - c. Tracheal trauma
 - d. Irritant tracheobronchitis
3. A 10-year-old MN Shetland Sheepdog presents to your clinic for evaluation of a cough of 4 months' duration. On physical examination, you note the following: T: 38.8°C (101.8°F), heart rate 108 bpm, respiratory rate 30/min, BCS 7/9. During respiration, the dog has increased abdominal effort. There is mild tracheal sensitivity, and on thoracic auscultation you note harsh crackles and expiratory wheezes. The dog is bright and alert, and the remainder of the examination is within normal limits. What is your most likely diagnosis?
 - a. Cervical tracheal collapse
 - b. Bronchiectasis
 - c. Pneumonia
 - d. Chronic bronchitis
4. Which statement is true regarding bronchiectasis?
 - a. It is characterised by airway dilatation, decreased mucociliary clearance and recurrent infection
 - b. It causes ciliary dyskinesia through rearrangement of microtubule formation
 - c. Treatment includes use of empirical antibiotics for Gram-positive organisms and cough suppressants to reduce airway irritation
 - d. It is a normal ageing change seen in elderly Labrador Retrievers in conjunction with mega-oesophagus
5. Which of the following should be considered as first-line therapy for a dog with chronic cough?
 - a. Antibiotics
 - b. Cough suppressants
 - c. Corticosteroids
 - d. Weight loss

Feline chronic diarrhoea

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Vomiting is considered the most common sign in feline gastrointestinal (GI) disease, but the true incidence of diarrhoea may be underestimated because of the secretive nature of cats' toileting habits. In reality, hyperthyroidism is probably the most common cause of chronic diarrhoea in older cats and, if the budget is limited, then first measuring T4 in any cat