WEAR REFERRALS
Small Animal Hospital

Breed-specific Internal Medicine Conditions

Dogs are a genetically diverse species due to generations of selective breeding by humans for particular traits. This results in some wonderful characteristics that we know, value and love – like the herding instincts of Border collies, the scent detection abilities of hounds and other breeds used in drug and explosive detection, and the trainability of retrievers for roles such as Guide Dogs. Sometimes this breeding inadvertently selects for linked conditions, which means that particular breeds may be prone to particular diseases. We've outlined a few of these below:

Boxer dogs and French bulldogs – granulomatous colitis

Border collies and beagles– cobalamin (vitamin B12) deficiency

Pugs – portosystemic shunts

Boxer dogs, French bulldogs and granulomatous colitis

Granulomatous colitis is an inflammatory condition of the large intestine (colon), caused by an invasive type of *E.coli* (a bacterium). *E.coli* is a common type of bacteria found in the large intestine in normal animals and the vast majority of strains are completely harmless. Genetic differences in some boxer dogs and some French bulldogs can allow the bacteria to colonise the lining of the colon and trigger a marked inflammatory response.

Clinical signs include, diarrhoea or loose stools, straining to defaecate, often with mucus and/or streaks of fresh blood. With time, dogs with granulomatous colitis may lose body condition. There are many other potential causes of colitis in dogs, that cause identical clinical signs, so the breed association of granulomatous colitis in boxers and French bulldogs is important to consider.

Broader causes of (non-granulomatous) colitis in dogs, include:

- Stress
- Dietary indiscretion
- Gut infection
- Pancreatitis
- Food allergy
- Inflammatory bowel disease (an over-active immune response to normal gut bacteria)
- Intestinal dysbiosis (abnormal balance of gut bacteria)
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How is colitis diagnosed?

Initial signs of colitis are usually managed by primary care vets with dietary changes and supportive or symptomatic treatment (e.g. probiotics, kaolin paste). Dogs are often referred for further investigations if clinical signs are recurrent, severe or don't respond to standard treatment.

Colitis and granulomatous colitis can be diagnosed with imaging and endoscopic biopsy (examination using a video scope). Tiny pinch biopsies are examined under the microscope and show the inflammatory cells. Special fluorescent markers are used to identify in invasive bacteria involved in granulomatous colitis.

Can granulomatous colitis be treated?

Granulomatous colitis can be treated with a course of a specific antibiotics (fluoroquinolones). To avoid antibiotic resistance problems for the patient and for the general population, fluoroquinolones must be reserved for infections that specifically require them. Some dogs also require dietary modification and anti-inflammatory corticosteroids for long-term management.

Border collies, beagles and cobalamin (Vitamin B12) deficiency

Cobalamin (vitamin B12) is an essential vitamin for all animals – it plays a crucial role in the nervous system, intestinal health, blood cell production, DNA synthesis and metabolism.

B12 is derived from the diet and is absorbed from the intestine by a specific receptor/transporter (cubulin) in the small intestine. A genetic mutation in the gene coding for cubulin prevents the receptor from binding B12. This causes a deficiency of the vitamin, which in turn causes failure to thrive, low red and white blood cell counts, and subdued demeanour.

What are the common signs to look out for?

- Lack of energy/not wanting to play or walk
- Loss of appetite
- Confusion
- Difficulty maintaining/gaining weight

Pugs and portosystemic liver shunts

What are portosystemic liver shunts?

Blood returning from the intestines, carrying nutrients and toxins, usually flows through the liver and the liver removes the toxins and handles the nutrients. A portosystemic shunt is an abnormal blood vessel which diverts this blood returning from the intestines, bypassing the liver. This means that the toxins are returned to the main circulation. The toxins (in particular ammonia) cause subdued behaviour, confusion and even seizures. Additionally, the liver does not receive the nutrients and blood supply that it needs, so the liver does not grow or function as well as it should.

What are the common signs to look out for?

- Stunted growth
- Behavioural changes such as disorientation, quiet demeanour, staring into space or head-pressing.
- Seizures
- Excessive urination and thirst
- Straining to urinate (due to bladder stones)

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How can portosystemic shunts be treated?

In all shunt patients, initial medical therapy is required to stabilise the patient and improve their clinical signs. Medical therapy involves:

- A special diet to reduce the levels of toxins absorbed from the intestines
- Lactulose to reduce the absorption of ammonia from the colon
- Antibiotics to reduce the number of bacteria in the intestines producing ammonia

Depending upon the type of portosystemic shunt, and other patient factors, some shunts may be treated surgically. This involves closing the abnormal vessel during surgery by fixing a band of suture material around it, or by putting a device or cellophane band to gradually constrict the abnormal vessel.

Some patients may be candidates for 'coil embolisation' of the abnormal vessel, which involves introducing self-expanding metal coils into the blood vessel under fluoroscopic (video x-ray) guidance.