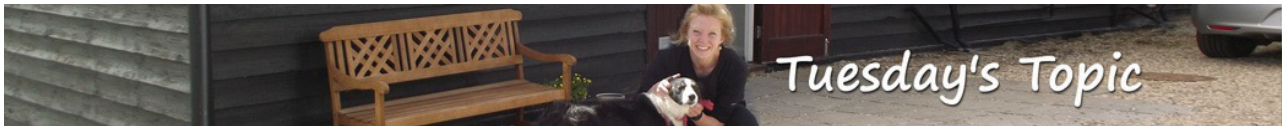

Joint Dysplasia and Osteoarthritis - Part 1

I hope you have enjoyed all the articles so far. In the next series of articles, we are going to look at joint dysplasia and osteoarthritis. Part 1 will cover some of the types of joint dysplasia, their clinical signs and how they are diagnosed; part 2 will cover the management and treatment of joint dysplasia, and osteoarthritis.

Joint Dysplasia (hip, elbow and shoulder)

Clinical Signs and Investigation of Joint Dysplasia

Joint dysplasia is the abnormal development of the joint during growth. It occurs most often in the hips, elbows and shoulders. Unfortunately, all animals with joint dysplasia will go on to develop osteoarthritis in the affected joint/joints later on in life (see part 2), and this can occur at a disproportionately early age. Joint dysplasia is a genetic disease but the mode of inheritance is very complicated and a large number of genes are involved. Environmental factors such as obesity in puppyhood/kittenhood can also play a role.

Joint dysplasia is most common in larger breed dogs, but can happen in any dog of any size. It can also happen in cats, but this is much less common. In these articles, I am going to discuss the condition in dogs only but most of the information also applies to cats in the same way.

Hip Dysplasia

In hip dysplasia, the soft tissues which stabilise the hip joint loosen as the puppy grows, and this prevents the 'ball and socket' joint of the hip fitting together properly. This causes grating within the joint, and sometimes the 'ball' of the hip joint sits completely outside the 'socket'.

The clinical signs of hip dysplasia are a result of pain and reduced range of motion in the hip joint. You may see lameness in one (or both) back legs, stiffness on exercise, reluctance to exercise, muscle wastage in one (or both) back legs, a 'bunny hopping' gait, reluctance to jump or climb stairs, and/or difficulty getting up and lying down. You may not think your dog is in obvious pain, but there are usually signs of discomfort when the hip is manipulated (pulled forward and back). Signs of hip dysplasia are usually first noticed between 6 and 12

months of age but, in some dogs, it does not become apparent until the dog has developed hip osteoarthritis (see part 2).

Here, we compare the hips of a dog with hip dysplasia (left image) to a dog with normal hips (right image). The image on the left shows that the hip joint on the right hand side is very different to the hip joint on the left hand side. The 'ball' of the 'ball and socket' joint has an irregular surface, and is flattened in the middle; the 'socket' of the 'ball and socket' joint is shallow, and also irregular. The appearance of hip dysplasia on x-rays can vary significantly, especially if the dog has developed secondary hip osteoarthritis as is the case here (see part 2).

In the vast majority of cases, hip dysplasia can be diagnosed with an X-ray of your dog's hips and taking some simple measurements on the X-ray. Some dogs require more advanced imaging, such as a CT scan. Note, even if your dog's parents have been 'hip scored' by the breeder, and achieved a 'good' result, there is no guarantee that your puppy will not develop it.

Elbow Dysplasia

Elbow dysplasia comes in a variety of different forms in dogs - coronoid disease (FCP), osteochondritis dissecans (OCD), un-united aconeal process (UAP) and medial compartment disease. The details are too complex to cover here but they do have different treatment options, so it can be very important to establish which one your dog has. There may be one or more different forms of elbow dysplasia in the same joint in the same dog.

As with hip dysplasia, all these forms of elbow dysplasia prevent the three bones which make up the elbow joint (the humerus, the radius and the ulnar) from fitting together properly, which leads to abnormal forces within the joint and further damage.

The signs of elbow dysplasia are lameness in one (or both) front legs, stiffness, outward rotation of the front paw(s), and pain when the joint(s) are manipulated. There may also be slight swelling of the elbow joint. Signs of elbow dysplasia may be intermittent. As with hip dysplasia, it is usually diagnosed between 6 and 12 months, or later in in life following the development of elbow osteoarthritis.

Elbow dysplasia can often be diagnosed with X-rays. However, it can be challenging to fully assess the changes within the elbow joint using X-rays alone, especially with some forms of elbow dysplasia. It may be necessary to refer your dog for a CT scan of the elbow, which gives very accurate 3D images of the joint.

Shoulder dysplasia

Shoulder dysplasia is osteochondritis dissecans (OCD) within the shoulder. It is the same 'disease' as OCD in the elbow (one of the forms of elbow dysplasia mentioned above). In OCD, the cartilage at the end of the bone, which is responsible for growth of the bone in the puppy's early development, does not turn into bone as it should do. This causes the cartilage 'layer' to thicken excessively, and it is unable to receive a good blood supply from the bone beneath. The cartilage 'dies', and eventually a flap of cartilage breaks off into the joint. This flap of cartilage is called a '**joint mouse**'. Before the flap of cartilage breaks off, the disease is called osteochondritis (or OC); once the flap of cartilage breaks off, it becomes OCD.

Genetics play a very important role in shoulder OCD, and it is most common in puppies that grow fast ie. giant breeds dogs. Labradors and border collies are also pre-disposed to shoulder OCD. OCD can cause shoulder pain, stiffness and front leg lameness, and it can, like in hip and elbow dysplasia, lead to secondary shoulder osteoarthritis. As with hip and elbow dysplasia, shoulder OCD can be diagnosed with X-rays alone, or referral for a CT scan may be required.

I hope you have enjoyed the first part of this series. Next time, we shall cover the treatment and management of joint dysplasia, and osteoarthritis. If you have any questions about what we have covered so far on joint dysplasia, please do get in touch.