MOUNTAIN VIEW
VETERINARY CLINIC
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Osteochondrosis, osteochondritis dissecans (OCD)

OCD, osteochondrosis, osteochondritis dissecans,
shoulder/elbow/stifle dysplasia, joint mice

Affected Animals:
Dogs, humans, pigs, horses, cattle, chickens, and turkeys.

Overview:
Osteochondrosis is a disease that affects cartilage formation; the cartilage, due to an abnormal thickening, is unable to receive a normal supply of nutrients from the joint fluid, causing it to become weaker and more susceptible to damage. Cartilage provides a protective gliding layer between the bones in a joint, and when it is injured and lesions form, the dog will experience pain, lameness, and arthritis. Lesions may occur on one or both sides of the body.

In all animals, osteochondrosis can affect many different joints, but in the dog, the most common sites of disease are the shoulder, elbow, stifle or knee joint, and tarsus or hock. Generally, osteochondrosis occurs in young, large to giant breeds, although it is also seen in mixed breeds. The most commonly affected breeds include the German shepherd, golden and Labrador retriever, Rottweiler, Great Dane, Bernese mountain dog, and Saint Bernard.

Clinical Signs:
Lameness, pain, crepitus, and swelling of the affected joint(s).

Symptoms:
Lameness and pain.

Description:
Osteochondrosis, or OCD, is a disease of cartilage formation that results in weakened cartilage. Because cartilage is the contact layer between bones forming a joint, joint pain, lameness, and progressive arthritis result when the cartilage is damaged. A form of the disease called osteochondritis dissecans (OCD) occurs when a weakened layer of cartilage forms a flap that becomes elevated because of joint fluid dissecting between it

and the surrounding cartilage and bone. Mineralization can occur when the flap breaks off and floats around in the joint. This complication, called a joint mouse, can result in a "pebble-in-the-shoe" feeling of irritation for the dog, as well as intermittent or persistent lameness.

Osteochondrosis can affect any joint, but generally, there are four commonly affected joints in the dog:

- Shoulder osteochondrosis, or shoulder OCD, causes a lesion to develop on the head of the humerus, which is the bone in the upper front leg. Although this condition occurs while the dog is growing, some animals will not show signs of disease until they have matured fully and more advanced disease is present. However, the majority of animals show lameness early on, between the ages of five and 10 months. In 25 to 75 percent of the cases, both shoulders are affected. The lameness is usually one-sided and tends to improve with rest. With exercise, though, the lameness recurs. Pain is seen on extension of the shoulder. The amount of arthritis present depends on the size and duration of the lesion. Because osteochondrosis is often bilateral, it is necessary to take x-rays of both shoulders to evaluate the extent of the disease.
- Primarily occurring in large to giant breed dogs, elbow osteochondrosis is one of three diseases that are grouped under the term elbow dysplasia. The other diseases, ununited anconeal process and fragmented medial coronoid process, are described under separate encyclopedia headings. With elbow osteochondrosis, the lesion is usually seen on the inside of the humerus. Most dogs with elbow osteochondrosis are presented for lameness at less than one year of age. As with the shoulder form of the disease, some animals may not be seen until they are much older, after the onset of significant arthritis. The lameness may be intermittent or persistent, tending to improve with rest and worsen with activity. Because it can be difficult to differentiate between elbow and shoulder osteochondrosis, x-rays of both joints may need to be taken. Even with x-rays, though, it can be difficult to detect a lesion in the elbow. Exploratory surgery may be needed in some cases before arrival at a definitive diagnosis.
- Stifle osteochondrosis, which occurs in the knee joint, affects the same breeds and types of dogs that develop shoulder and elbow osteochondrosis, but it is much less common. Dogs with this disease usually show a slow onset of lameness that worsens with activity. The lesion will occur on the femur, the large bone in the thigh -- usually on the outer part of the bone. The degree of arthritis depends on the size and duration of the lesion.

Tarsal or hock osteochondrosis occurs in large dogs, most commonly the Labrador retriever and rottweiler. Hind-limb lameness and a straight-hocked stance are the most common signs. The joint will appear thick and will be painful on manipulation. With this form of the disease, arthritis tends to develop more rapidly and become more severe.

Diagnosis:

The veterinarian may presume a diagnosis of osteochondrosis if the dog shows signs of disease and is a commonly affected breed. A definitive diagnosis requires analysis of x-rays.

Prognosis:
The prognosis for shoulder osteochondrosis is excellent. Dogs with this disease often become normal after surgery, unless the lesion has been long-standing and arthritis has set in. The prognosis for elbow osteochondrosis is good but becomes guarded if significant arthritis is present. The prognosis for stifle osteochondrosis is good unless the lesion is very large or significant arthritis is present. The prognosis for tarsal or hock osteochondrosis is guarded because most of the dogs with this form of the disease already have significant arthritis. If the arthritis is severe, surgery may be no more effective than medical management.

Transmission or Cause:
The cause of osteochondrosis is unknown, but because the disease is primarily seen in large and giant breed dogs, a genetic component is suspected. Other factors, such as a high calorie diet, and diets that promote rapid growth, are also thought to be significant.

Treatment:
The treatment of osteochondrosis is surgical. A chondroplasty procedure, in which the cartilage is reshaped, involves opening up the affected joint to expose the lesion, removing the abnormal cartilage, and exposing the deeper blood vessels. Scar cartilage will fill in the defect, decreasing or eliminating the pain caused by the lesion.

Medical management of osteochondrosis consists of weight loss and non-steroidal anti-inflammatory medications, such as aspirin, carprofen, or etodolac.

Prevention:
Prevention generally includes avoiding calorie-dense diets in large to giant breed dogs. Puppies should be fed adult diets or giant breed growth formulations, and vitamin over-supplementation should be avoided. Maintaining a lean body condition also seems to decrease the risk of osteochondrosis.