

Developmental Orthopedic Disease: joint and bone abnormalities of the growing horse

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Developmental orthopedic disease (DOD) can be a significant problem for growing horses. By being aware of the manifestations of DOD, the possible treatments and methods of prevention, the horse owner is posed to limit the adverse effects of these disorders. DOD may result in angular limb deformities such as “knock knees”, osteochondrosis (OCD) and juvenile arthritis. Any of these problems may cause future unsoundness if not treated appropriately.

Although DOD may result in different clinical syndromes, the root problem is usually related to abnormalities of cartilage or skeletal growth. All bones and joints and growth plates (physes) of the growing horse originate as cartilage models. Abnormalities in the maturation of cartilage to bone on joint surfaces may result in OCD. OCD may result in cartilage/bone fragments free in a joint or irregularities of the gliding surface of the joint causing a joint to distend with extra fluid (Figure 1). Abnormalities in the growth plates may result in uneven growth that results in crooked legs--- angular deformity. Inflammation of the growth plates, called physitis (Figures 2 and 3), results in pain in the limb that may result in angular deformity, contracted tendons or both conditions.

The reason these abnormalities occur is complex and may be influenced by many factors. Rapid growth of big foals is associated with DOD, especially when the growth is accompanied by overfeeding of protein or energy. Also, nutritional imbalances of minerals such as calcium and phosphorous, and deficiencies in copper may predispose a foal to have DOD. Genetics may

play a role as there is an increase incidence of OCD in Warmblood breeds, Quarter Horses and Standardbreds.

Nutrition and DOD

Prevention of DOD is the most important step a horse owner can take to limit future issues in a growing foal. The skeleton and joints are nearly mature at two years of age, although growth may continue up to five years of age in some breeds. The most important nutritional advice is to avoid overfeeding energy or protein. Over feeding energy by as little as 150 percent over NRC requirements will result in OCD in a large number of foals. Also, be certain that the calcium/phosphorus balance is approximately 1.6:1. Visit with your veterinarian, the nutrition advisor of your feed company or obtain a copy of the National Research Council (NRC) Equine Feed Requirements booklet to determine the correct nutrition balance needed for your foal. Often the most important nutritional management for your foal occurs during gestation. The mare must have the right balance of nutrients, energy and protein to deliver a strong and healthy foal.

Signs of DOD

Recognition of the early signs of DOD provides more time for correct treatment before permanent damage to the musculoskeletal system occurs. The most obvious sign of DOD involving joints is excessive swelling (effusion). The joints most commonly affected with OCD are: the hock, stifle, and fetlock (Figure 1). Growth plate abnormalities are first evident by enlargement and pain on palpation of affected physes (Figure 2). The most obvious growth plate problems are usually found just above the knee at the distal radial physis or just above the fetlocks at the distal metacarpal or metatarsal physes. These first signs may then be followed by tendon contracture and/or angular deformities of the limb.

If these abnormal signs are noticed, have your veterinarian out to perform an examination of the foal. Your veterinarian may choose to perform radiography of the affected areas (Figure 3). Also, take this opportunity to discuss your foal's current nutrition plan.

Treatment

If necessary, adjustments of the growth rate may be made by modification of the diet. Also correction of any nutritional deficits may be made. If pain and over use are playing a role in the abnormality, decreasing time of free turn out and administering a non-steroidal anti-inflammatory medication such as Banamine or phenylbutazone may be required. If OCD is present, arthroscopic surgery to remove the damaged joint surfaces is usually recommended. In young growing animals results of the surgery are usually very favorable for long term soundness.

Early recognition of developmental orthopedic disease followed by consultation with your veterinarian and appropriate treatment are the keys to preventing long term abnormalities in your growing horse.

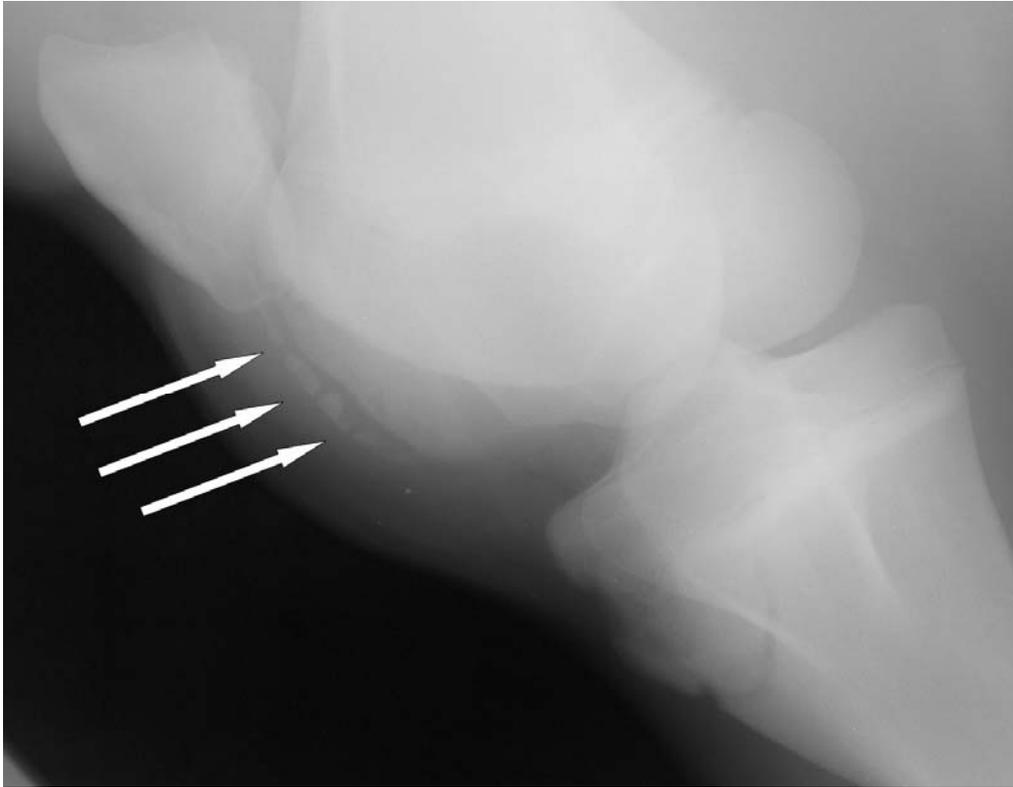


Figure 1: Radiograph of a stifle with osteochondrosis of the lateral trochlear ridge (arrows). This location is the second most common site for osteochondrosis in the horse.



Figure 2: This colt has physitis of the right distal radius (arrow). Normally the thickened growth plate is painful when palpated.



Figure 3: Radiographs of the colt in Figure 2. The left carpus (L) is normal and the right carpus (R) is affected by physitis. The widened, irregular growth plate is identified by the arrow.