New Treatment Option For OCD In Horses

Osteochondrosis is a relatively common developmental disease that affects all types of horses, but particularly larger faster growing breeds. Osteochondritis dissecans (OCD) is the most common clinical manifestation of this. Although the exact aetiology of OCD is not definitively known, the resultant joint abnormalities and the effect on a horse’s performance are understood by most horse breeders.

OCD is thought to occur as a result of a failure of endochondral ossification leading to a disturbance in the formation of joint cartilage and the bone supporting it (Fig 1). The cartilage and subchondral bone is irregular in thickness and weaker than in normally developing areas. When the horse moves forces placed on these abnormal areas may cause further damage to the abnormal tissue. This can lead to local detachment and fracture of cartilage and bone forming an OCD fragment (Fig 2). These detached areas may remain partially attached to the surrounding tissue, existing as loose flaps of tissue, or occasionally may become completely detached, resulting in free-floating islands that can travel throughout the joint. These OCD flaps and islands of abnormal cartilage and bone cause inflammation in the joint thereby resulting in pain and lameness.
Causes And Risk Factors For OCD

Several causes of OCD are known, although the disease is generally considered to be multifactorial. These factors include:

- Rapid growth and large body size: An unusually rapid phase of growth and/or growth to a large size can be associated with OCD formation.
- Nutrition: Diets that are very high in energy or have an imbalance in trace minerals can lead to OCD formation as can general under-nutrition.
- Genetics: Risk of OCD may also be partially inherited, although the mode of inheritance is not fully understood.
- Hormonal imbalances: Imbalance in certain hormones during development, including insulin and thyroid hormones.
- Trauma and exercise: Trauma to a joint, including routine exercise, is often involved in formation and loosening of the OCD flap or fragment.

Since all these factors may be involved in a complex series of interactions it is not possible to predict which horses will develop OCD, and it is therefore difficult to prevent the formation of OCD in individual animals. Clinical prevalence of OCD is usually between 5% and 25% in any given horse population and is considerably lower in pony breeds.

Clinical Signs

OCD can be detected as early as 4-5 months of age or as late as skeletal maturity (approximately 3 years of age). In adult horses signs may reappear at any stage of life when the OCD fragment may move within the joint. The most common sign of OCD is effusion within the affected joint (Fig 3) often first noticed shortly after the horse begins formal training and exercise. Depending on the location and severity of the OCD, the horse may be noticeably lame, may only be lame during high-speed work, or may not have detectable lameness at all but usually shows a reduction in performance.

**Figure 3.** The typical manifestation of OCD in the hock is the formation of a bog spavin.
**Treatment**

The optimum treatment for OCD is dependant on the fragment size. Small fragments can often be treated by rest and anti-inflammatory therapy and may not require surgical removal. Medium to large OCD fragmentation are best treated by surgery (Fig 2,4&5). Until recently the surgery of choice was removal of the abnormal bone and cartilage fragment via arthroscopy.

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**Figure 4.** This is an arthroscopic view of an OCD fragment. A blunt probe is being used to palpate the fragment. Notice how the fragment is slightly raised above the surrounding cartilage and there is a clear line of separation between the fragment and the surrounding tissue.

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**Figure 5.** Removal of an OCD fragment from the stifle joint.

The main fragment has been removed with hand instruments and the underlying bone is being tidied up with a small (3 mm diameter) burr.

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**Prognosis Following OCD Treatment**

Following proper treatment the prognosis for athletic function is good to excellent for many types of OCD, however some locations, particularly the shoulder, have a poor prognosis for soundness.
New Form Of Treatment

The ‘down side’ of arthroscopic OCD removal surgery is that removal of the fragment results in a permanent irregularity to the subchondral bone plate which is then covered with poor quality modified cartilage. A new form of treatment was developed at Cornell University that involves pinning the OCD fragment back onto the parent healthy bone (Fig 6). Currently the pins used are made of variable lengths of absorbable PDS usually with a diameter of 2 mm. These pins become incorporated into the new bone as the OCD fragment becomes reattached to the parent bone, with the end result being a smooth bone contour. This surgery is particularly useful for stifle OCD.

Having undertaken the procedure I have found that whilst the technique is tricky it does result in a smoother bone contour. I suspect that over time the procedure may be expanded and other materials may be used. This surgery is currently not suitable for all horses and can only be undertaken in younger animal with larger OCD fragments. The main indication is in stifle OCD cases in animals under the age of 10 months.

The results so far compare favourably to ‘conventional’ removal and the proportion of horses in the Cornell study able to achieve athletic performance was high.

Figure 6. Pinning the fragments
The new treatment suitable for selected cases of OCD is to pin the fragments back into place with absorbable PDS pins. There are already 4 pins in place in this stifle joint (as indicated by their blue heads) and a fifth pin is being inserted to the right. Over the course of the next few months the pins become absorbed into healing bone.