



Treatment of hip dysplasia overview and new techniques

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Canine hip dysplasia (HD) is one of the main orthopedic development diseases of the hindlimbs. It is the main cause of osteoarthritis in the coxofemoral joint. Therefore, rapid recognition and diagnosis can help in prevention of osteoarthritis and/or giving the patient a good clinical and functional outcome. The clinical presentation of HD can be subdivided in two groups.

Presentation

First of all, the young animals (+/- <12 months of age), young dogs/puppies can present with bunny hopping, difficulties standing up and a typical slow/dull puppy behavior. Those dogs have clinical complaints of instability which in turn gives discomfort due to synovitis and malformation of the joint. As a differential diagnosis, there should be looked at bilateral patellar luxation, which can present in a similar way. Other development disease like elbow dysplasia can also be present, according prognosis these dogs need a full orthopedic exam.

The other group are older dogs (>1-2 years old) presenting with chronic pain due to osteoarthritis, stiffness, not able to walk long distances. When presenting at an older age (>7y) other orthopedic/neurologic disease should be looked at, because they can present in a similar way; degenerative lumbosacral stenosis, bilateral cranial cruciate disease and iliopsoas muscle strain.

Clinical/orthopedic exam.

In young dogs, diagnosis/suspicion can be performed by a positive ortolani test, and pain during orthopedic examination (flexion/extension). The angle of subluxation and reduction are important to evaluate therapeutic options. Older animals will have a reduced range of motion and show pain during flexion/extension, crepitation is present. The test of instability will be negative due to the amount of osteoarthritis present.

Radiographs

Confirmation can be made by radiographs. Standard straight orthogonal projections (lateral and ventro-dorsal hip extended) of the pelvis are important for good evaluation and diagnosis. Distraction radiographs can be performed to evaluate the degree of subluxation and severity of HD.

Conservative treatment.

Main goal of conservative treatment is supporting the dog in their clinical activity, and assist in good hindlimb muscle development. Dogs can be supported with NSAID's, chondroprotective agents and physiotherapy. Dogs should be functional and be able to walk long distances without pain.

Surgical treatment

Several treatment options are available, choices are made depending on age, financial availability and motivation of the owner. Very young dogs (<12-16 w) can be surgically treated by symphysiodesis, which can result in a better acetabular overlap of the joint, but most of the time they present at an older age.

Young dogs with instability and no signs of osteoarthritis together with a good grade of subluxation and reduction angle and a deep enough acetabulum can be helped with double/triple pelvic osteotomy.

Older dogs with pain due to HD and resulting osteoarthritis, which do not have a good clinical function despite conservative treatment are candidates for arthroplasty techniques. Nowadays total joint prosthesis of the hip can be performed from toy breeds until large breeds, with good clinical outcome due to increasing experience of the surgeons and improvement of the materials.

Other techniques which can be performed in younger and older dogs are salvage procedures like femoral head and neck resection and limb amputation. This can be performed but will result, also in toy breeds/cats in a mechanical lameness, immediate physiotherapy is important to improve outcome. These are good options when the dog is suffering from severe function loss. Amputation of one of the hind limbs, is most of the time not recommended, since HD is high likely bilaterally present. With motivated owners without financial constraints, total hip prosthesis should be recommended. Salvage procedures or euthanasia can be performed when financial restriction is present.



COMPANION ANIMAL

EMERGENCY AND CRITICAL CARE

The other major shipping error is often made with foal fractures. Foals get tired quickly when they are stressed and balancing on three limbs. Place an intravenous catheter. Take the time to get the foal in recumbency on the trailer and, if at all possible, keep an attendant armed with drugs with the foal to maintain it in recumbency during shipping. This is especially important in more proximal fractures that are difficult to stabilize with a splinted bandage, e.g. radius and tibia. Protect the eyes of any recumbent foal/horse during transport.

2- Transportation errors: Clients often make serious errors when shipping an injured horse. The foremost error, *by far*, is made with the best of intentions. The owner/trainer/trucker insists that the injured horse be given “as much room as possible” in the trailer/van. The situation is not like airline seating; more room is not better. Make sure the horse is shipped in as tight a condition as it can be placed. Nearly every adult horse will be able to protect its injured limb optimally if it can lean its body/shoulder/pelvis against firm support.

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If possible, ship the horse with the injured limb closest to the rear of the trailer/van. Smooth acceleration (loading the south end of a horse headed north) is easy. Smooth braking is not always possible.

3- Errors in wound management:

Wound management is usually very difficult in a seriously injured horse. If you have a truly severe fracture that will require emergency surgery it will be nearly impossible to do a meaningful debridement. Valuable time and resources will be spent attempting something that will need to be repeated. It is probably wiser in such instances to wrap the site up in an antiseptic soaked gauze and ship to a referral facility as quickly as possible. Broad spectrum antimicrobials should be administered intravenously if a wound of any kind is evident in a horse with a suspected fracture.

References

1. Smith JJ. Emergency fracture stabilization. *Clinical Techniques Eq Practice*. 2006;5(2):154-60.
2. Mudge MC, Bramlage LR. Field fracture management. *Vet Clinics of NA, Eq Practice*. 2007;23(1):117-33.
3. Lutter JD, Cary JA, Stephens RR, Potts LB. Relative stiffness of 3 bandage/splint constructs for stabilization of equine midmetacarpal fractures. *J Vet Emerg Crit Care*. 2015;25(3):379-87.