

Canine Hip Dysplasia

A PowerPage Presented By



Hip dysplasia in dogs is one of the most common orthopedic conditions seen. It is characterized by instability of one or both hip joints which leads to degenerative joint disease, osteoarthritis, and subluxation of the hip. Ultimately, osteoarthritis is characterized by loss of articular cartilage, fibrosis, bone remodeling, and loss of function. Although hip dysplasia can be seen in almost any breed, it is important to understand that it is a polygenic, complex, multifactorial disease with the following breed predilections: German Shepherd, Golden Retriever, and Labrador Retriever.

Key Points

- **Bunny hopping gait** should raise your index of suspicion tremendously
- Positive **Ortolani**
- Radiographically, less than 50% coverage of femoral head, osteophytes, Morgan line
- Most common treatment options are JPS, TPO, THR, FHO, and conservative therapy (NSAIDs)

Clinical Signs

- Typically juvenile diagnosis can be made at 3-8 months of age
- Can have any or all of the following:
 - Pain on extension of hips
 - Positive Ortolani test
 - Perform under sedation
 - Simple test designed to subluxate the hip and feel a “pop” as the femoral head returns into the acetabulum. You should never be able to elicit this in a normal dog
 - Palpable crepitation over the hips
 - Bunny hop gait
- Clinical signs are bimodal in that up to 80% of dogs improve with conservative management. However, clinical signs may return later in life due to progression of degenerative changes.

Diagnosis

- Orthopedic examination
- Radiographs
 - Standard hip extended ventro-dorsal and lateral pelvic radiographs under sedation
 - Morgan line - Osteophyte formation at insertion of joint capsule
 - Less than 50% coverage of femoral head
 - Remodeling, sclerosis and thickening of femoral neck
 - Joint laxity (see Penn HIP)
 - Perichondral osteophyte formation
 - Remodeling and sclerosis of the acetabulum
 - OFA HIP
 - Performed in an effort to screen for hip dysplasia. 7 point grading scheme
 - Need to be 2 years of age to get an official OFA rating
 - This grading scheme is more subjective as opposed to the Penn HIP

Diagnosis (Continued)

- Penn HIP
 - Performed in an effort to screen for hip dysplasia. Based on a distraction index measured by the radiologist. DI of 0.3 or less is best.
 - Can do as early as 16 weeks, but best results are at 1 year
 - Distraction index is a good indication of joint laxity

Treatment

Conservative Medical Management:

- NSAID therapy as needed for discomfort
 - Carprofen, Deracoxib, Firocoxib, Tepoxalin, etc.
 - Can have long term side effects and relevant biochemical parameters should be monitored
 - Can be expensive over the lifetime of the dog
- Weight management
- Chondroprotective agents (nutraceuticals)
 - Glucosamine, chondroitin sulfate, glycosaminoglycans
 - Efficacy is not certain but it may help.
 - It is thought that you will not alter the damage present, but you may be able to slow down ongoing damage
- Conservative exercise
 - Low impact walking and swimming
 - Maintain good muscle tone without impact on hips

Surgical:

- Juvenile Pelvic Symphysiodesis
 - Either cauterize or staple the growth plate so that you encourage more acetabular coverage of the femoral head as the dog grows
 - Perform at 14-20 weeks of age. Difficult to diagnose as a result
 - There is no improvement if dysplasia was severe prior to surgery
 - As with all preventative surgeries DJD still progresses
- Triple Pelvic Osteotomy (TPO)
 - Involves three cuts: the pubis, ischium, and ilium and placement of a special plate on the ileum to rotate the pelvis. This should result in increased acetabular coverage of the femoral head as the patient matures
 - Want to perform at 6mo-12mo of age. Patient is not a good candidate if there is any evidence of DJD or subjectively the surgeon feels there is too much laxity
- Total Hip Replacement
 - Placement of prosthetic acetabular and femoral component
 - Two systems:
 - Cemented
 - Cementless
 - Jury is out on which is better. Success rate is approximately 90%; the problem is that complications can result in complete failure
 - If this occurs, you are left with a very expensive femoral head and neck ostectomy
 - If successful this will result in best functional outcome
 - Can perform at anytime once growth plates are closed
 - Some surgeons hesitate to place on very young dogs b/c we are unsure as to the longevity of the total hip implants



Treatment (Continued)

- In humans, all total hip implants will fail given enough time. Usually need revision surgery in 10-15 years, which may be sufficient for canine patients due to life expectancy
 - Does not matter what the progression of hip dysplasia is since you are using prosthetic implants for a new joint
- Femoral head and neck ostectomy (FHO)
 - Remove head and neck of femur resulting in a “pseudo-joint”
 - If well muscled and at good body weight, expect good to excellent results
 - May have mechanical (not painful) lameness as a result of limb shortening
 - This is considered a salvage procedure in cases of severe hip dysplasia
 - May be preferred in small animals weighing less than 20-30 lbs.
- Denervation of Hip Joint Capsule
 - Denervate the capsule
 - Hip dysplasia still progresses, however dogs don't feel any pain
 - Currently not widely performed although procedure is relatively new

Prevention

- Over-nutrition during growth is related to a higher incidence of hip dysplasia
- Conscious breeding
 - Penn Hip
 - OFA Hip

