Hip Dysplasia	Canine Hip Dysplasia (CHD) is a condition that begins in dogs as they grow and results in i**nstability or a loose fit (laxity) of the hip joint**. The hip joint laxity is responsible for potential clinical signs of hip pain and limb dysfunction and progressive joint changes. The hip joint is a ball and socket joint and continual abnormal movement of the femoral head (ball) deforms the acetabulum (socket). The long-term response to this joint laxity is the progressive loss of cartilage, the development of scar tissue around the joint, and the formation of osteophytes (bone spurs) around the ball and socket. The cause of CHD is multifactorial. Hereditary (genetics) is the biggest single risk factor. Rapid weight gain and growth through excessive nutritional intake can complicate the development of CHD. Hip dysplasia occurs most commonly in large breed dogs.  Radiograph of patient with bilateral canine hip dysplasia demonstrating severe degenerative joint disease. Signs and Symptoms: The symptoms of CHD are lameness (limping), reluctance to rise or jump, shifting of weight to the forelimbs, loss of muscle mass on the rear limbs, and hip pain. Generally, dogs with CHD can be divided into two groups showing symptoms of CHD: Group 1: Younger dogs without arthritis, but with significant hip laxity. Group 2: More mature dogs that have developed hip arthritis due to CHD. Dogs may show symptoms at any stage of disease's development, although many dogs with CHD do not have any obvious symptoms.

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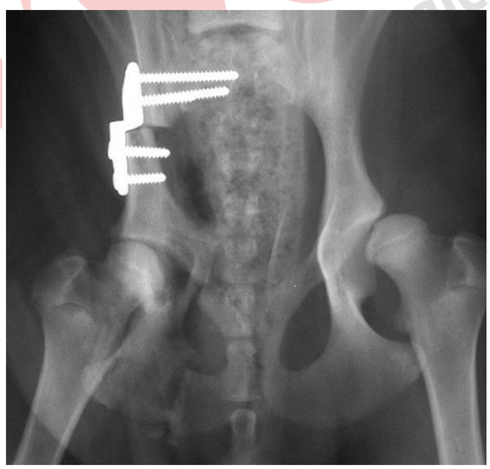
Diagnosis: CHD is diagnosed by a combination of two methods. Specially positioned hip radiographs (X-rays) and special palpation methods that determine abnormal hip joint laxity, both require light sedation. The palpation method is called the Ortolani Sign.

Treatment: Early recognition of joint laxity is the key to preventing cartilage damage from progressive joint laxity. Surgical treatment options will depend on radiographic joint findings. Surgical procedures include:

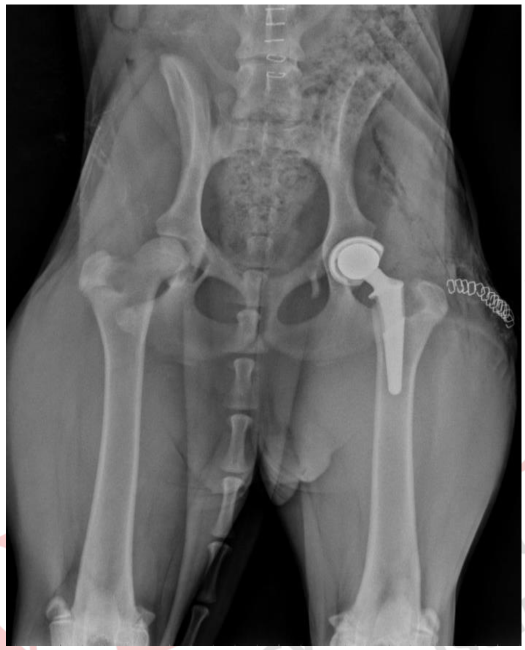
1. Double or Triple Pelvic Osteotomy (DPO/TPO) is an option for immature dogs (ideally less than 8–10 months old) with CHD but no visible radiographic arthritic changes. These surgical procedures involve cutting the pelvic bone in two (DPO) to three places (TPO) and rotating the segments to improve coverage of the ball by the socket and decrease hip laxity. Immature dogs with lameness and early evidence of hip arthritis are not ideal candidates for DPO/TPO, nor are dogs with very severe hip laxity, as some puppies have no functional hip joint by 6 months of age.

   Radiograph of patient with TPO.

2. Total Hip Replacement (THR) can be used in young dogs who cannot be successfully treated with DPO/TPO surgery. They must be managed medically until they are skeletally mature for THR, usually at least a year of age. This surgical procedure eliminates hip pain by reproducing the mechanics of a normal hip joint with a more natural range of motion and limb function. Canine THR involves replacement of both the ball

and socket with metal and polyethylene (plastic) implants. These components are fixated in place with bone cement, metal pegs, or press fit (bone ingrowth) methods.



Radiograph of patient with THR.

3. Femoral head ostectomy (FHO) is a surgical option to alleviate pain secondary to severe hip laxity/dysplasia. This surgical procedure can be done at any age. Young dogs that do not meet the criteria for DPO/TPO or dogs who do not respond satisfactorily to medical treatment alone may benefit from FHO. This technique involves removing the femoral portion of the hip joint (ball) to reduce the pain produced by abnormal hip joint contact that wears away the joint cartilage and the stretching of the soft tissues around the joint due to laxity. Following an FHO, a fibrous joint develops with the muscles around the hip now transferring the forces from the leg to the pelvis during limb movement.

Radiograph of patient with right FHO.

Postoperative care: Following both DPO/TPO and THR, the dog's activity should be restricted to leash exercise outdoors and confinement to a small area indoors until the procedures are healed according to physical examination and radiographs (X-rays), generally 8 to12 weeks. Most pets are weight bearing soon after surgery and require supervision to prevent overuse of the limb during the healing period. Use of a sling for initial assistance with walking or prevention of slipping is recommended. The pet should avoid stairs, slippery surfaces, and interactions with other dogs.

Prognosis: The prognosis for DPO/TPO is expected to be good to excellent for long-term function. The prognosis for THR is expected to be excellent for markedly improved limb function. The prognosis for FHO is variable and influenced by patient size and postoperative physical rehabilitation. Early controlled postoperative exercise and physical therapy are best for ideal outcome after FHO.