

Diseases Of The Hip And Treatment In Small Dogs And Cats

Small dogs and cats are frequently affected by diseases and trauma that involves the hip joint. There is usually significant pain and discomfort associated with these issues as well as dysfunction that will significantly affect the pet's ability to walk, run and play. This client handout will provide information on these diseases and their treatment.

The hip is a "ball and socket" type joint which allows for a wide range of motion in multiple planes. The head of the femur forms the "ball" that inserts into the acetabulum (the "socket"), which is a spherical recess in the pelvis.



The joint is held in place by a number of structures and surface tension created by the joint fluid itself. The joint capsule acts as a ligament to limit motion and there is a proper ligament connecting the femoral head to the

centre of the acetabulum. Numerous large muscles have attachments very close to the joint or cross over it and are major stabilizers of the joint as well.

Selected Disorders of The Hip

Hip Dysplasia

Hip dysplasia is a developmental disease characterized by laxity of the hip or failure of the "ball" to seat well into the "socket". In young patients this results in subluxation (i.e. partial dislocation) of the femoral head, which results in mild to severe degenerative joint disease and arthritis as the patient ages. Hip dysplasia is a genetic disease that is influenced by other factors such as environment, diet, etc. There is a spectrum of severity in pets with hip dysplasia that can range from very mild to very severe. Hip dysplasia can occur in a dog or cat of any breed and unfortunately both hips are usually affected..

Hip Dysplasia is a painful disease and can affect dogs and cats at any age from four or five months and older. The pain results from traumatic reduction of the head of the femur into the socket when the paw strikes the ground during locomotion. Damage to the cartilage and underlying bone results in degeneration and remodelling of the joint and ultimately osteoarthritis as these patients age.



Radiograph of one-year old cat with severe hip dysplasia and degenerative joint disease.

If detected early, numerous preventive measures can be taken that may dramatically alter the course of the disease. As with all orthopaedic diseases, early detection and treatment can profoundly impact the outcome.

Trauma

Trauma is a common cause of hip problems in pets. These involve either fractures or dislocations of the joint. Any time a joint is involved in a trauma there will be a concern long-term arthritic changes will be a concern and will frequently influence the treatment choice – i.e. primary repair of the trauma vs a joint salvage procedure such as a hip replacement. In smaller patients there is frequently an underlying disease such as hip dysplasia or feline physeal dysplasia and this can greatly impact the treatment options, which will usually involve a joint salvage procedure.



Small breed dog with Legg-Calve-Perthes diseases on the left and a dislocated hip on the right

Feline Physeal Dysplasia

Feline physeal dysplasia is a developmental disease that affects young, large, particularly male cats, often that have been neutered at a young age. This disease affects the cat's growth plates, particularly the growth plate involving the femoral head. This growth plate should close and turn into solid bone at approximately 44 weeks of age. In affected patients the growth plate fails to close and a fracture later occurs at this site, separating the head of the femur from the neck. This is also sometimes referred to as a slipped capital epiphysis or "slipped cap". Maine Coon and Siamese cats are particularly predisposed to this disease.

As this is a pathologic fracture where the cartilage of the growth plate failed to develop into bone, the ability to primarily repair this fracture is questionable. There is also very



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limited bone available in the small femoral head to allow for implant placement. Additionally, as these are very young animals that are likely to develop significant degenerative joint disease over time, a surgical salvage procedure is typically recommended for these patients.

Legg-Perthes Disease/Avascular Necrosis of The Femoral Head

This is a disease that primarily affects young growing dogs, most patients presenting between 4 and 11 months of age. The femoral head and growth plate are affected and undergo fragmentation and collapse in severely affected patients. While patients may be mildly affected, this usually results in severe lameness. This is a disease of small breed dogs and miniature poodles and West Highland White terriers are particularly affected, although any small breed of dog can have this issue.

Conservative management of this disease with rest and NSAIDs is rarely successful even in the short-term. This is considered a surgical disease in the vast majority of cases but has an excellent prognosis with surgery.

Medical Treatment Options for Diseases of The Hip

Medical management of select diseases involving the hip as either a short or long-term treatment option may be appropriate. This may apply to patients with mild or early hip dysplasia or avascular necrosis. Medical management may also be an appropriate short-term option for a patient awaiting a

definitive surgical treatment such as a total hip replacement.

It is also important to understand that arthritis is not a disease. Hip dysplasia, Legg-Perthes, etc., are diseases. These diseases cause inflammation; arthritis is simply inflammation with the addition of time. As such, the goal of **all** of our therapies is to prevent or suppress inflammation, thereby preventing the development of arthritis. Attempting to treat arthritis is unproductive and ultimately unsuccessful.

Medical management may consist of one or more of the following: NSAIDs, laser therapy, joint diet/dietary management and chondro- protectants. Which therapies are chosen depends on the particulars of the case, the degree of disease present, the size of the patient and the client's preferences. A brief description of these therapies is listed below.

Weight, Diet and Hip Problems

In any patient with any orthopedic disease, the most important factor impacting the development of disease, prognosis and treatment is the weight of the patient. This is true with respect to the relative weight of the dog (St. Bernard v. Chihuahua) but especially with respect to obesity. **Regardless of the orthopedic condition, failure to recognize and address issues of diet and obesity will result in treatment failure, no matter how much is invested in treatment and surgery.** In some cases treatments such as hip replacement have to be delayed until a patient's weight problems have been addressed. Your veterinarian should provide

specific dietary recommendations including a specific diet(s), strict feeding guidelines that include specific measuring instructions and complete diet counselling. Any complicating medical conditions such as hypothyroidism need to be diagnosed and treated.

Joint Diets – Therapeutic diets are very commonly employed in the treatment of many diseases in veterinary medicine. These diets are intended to produce a clinically measurable impact just like any other treatment that we prescribe to treat disease. In the case of the diet we prescribe for joint disease, multiple outcome measures have been described in the veterinary literature.

These diets are designed not only to deal with inflammation associated with joint disease but are excellent at addressing weight issues that will have the most impact on patient outcomes. The product that we use in our hospital is j/D®, produced by Hills. There is a companion diet, Metabolic plus Mobility® that we use to manage dogs with significant weight problems. We use these diets for specific reasons that are discussed in detail during our orthopedic consults. This is an essential component of the long-term care for these patients and will determine their outcome.



Joint Supplements - Recent large-scale studies have shown that glucosamine and chondroitin have no therapeutic value unfortunately. However, since it is important that patients be on an effective long-term joint supplement, most surgeons have shifted their recommendations to a product called Flexadin, which has good evidence to support its use. This usually prescribed and supplied in our hospital at the initial visit.

NSAID's - All patients initially start on NSAID's as this is our primary means of immediately addressing pain and inflammation. While our other therapies can

also address these issues, they all take a significant amount of time to start having an effect – drug therapy is immediate. A number of options are available, including some newer products that have a reduced incidence of adverse effects

Monoclonal Antibody Therapies – these are new therapies that employ immunotherapy to help manage pain. These treatments employ antibodies targeting nerve growth factor, which is involved in precipitating a chronic pain response. These products are marketed under the brands Librela® (dogs) and Solencia® (cats). They are monthly injectable treatments labeled for use in treating pain associated with chronic joint disease. While these are promising new therapies which have a place in the treatment of joint disease, there is very little data available about these products at this time. There is great potential for abuse and mis-use of these products and they should be used with caution.



Surgical Management of Hip Diseases

Femoral Head Ostectomy (FHO)

Femoral head ostectomy involves removal of the femoral head and neck and interposing soft tissue between the femur and acetabulum. This procedure was originally developed to treat human patients with tuberculosis and was first published in 1928. It was quickly abandoned in the early 1960s when hip replacement became available as it was associated with extremely poor outcomes.

The majority of cats and dogs will be able to walk after this procedure. No patient that receives an FHO has a normal gait afterwards. Most patients who receive an FHO will be able to function acceptably however 25% will have clinically detectable pain. The only study published to date on FHO that used objective gait analysis was published in 1978 and showed a good or excellent outcome in 52% of patients. A 2024 study showed that 8/9 cats had persistent pain and all had gait abnormalities.

Despite this, it is true that if cases are being selected appropriately a patient receiving an FHO or who ends up with an FHO due to failure of a hip replacement will have a better outcome than would have been the case without surgery. Our hospital does not offer FHO as a primary treatment option and its use is restricted to patients who are not hip replacement candidates, patients where a hip replacement was attempted but could not be executed or a patient had a hip replacement but had to have the implants removed.



Improperly performed FHO in a cat that resulted in significant discomfort and chronic lameness. This is unfortunately extremely common with this procedure.

Total Hip Replacement (THR)

As the name implies, total hip replacement involves replacing the acetabulum (socket) and femoral head and neck (ball) with artificial implants. The diseased femoral head and neck are cut off, the acetabulum and femoral shaft are reamed out and replaced with artificial implants. These implants may be press-fit in-growth (biological fixation or BFX) or cemented (CFX) or a hybrid of both. The smaller implant systems available for small dogs and cats are called micro- or nano-THR. They require more skill and experience to implant and there are far fewer surgeons who are qualified to do this procedure. Our hospital is currently one of 2 facilities in Canada that offers micro- and nano-THR and we have one of the highest caseloads in the world for this procedure currently.

Indications for THR include unsalvageable trauma, such as badly healed fractures and hip dislocations that are unable to be repaired, severe hip dysplasia with or without chronic degenerative changes, several diseases previously discussed and FHO revision. THR can be performed on any dog or cat from 2Kg to 80Kg. Exclusions for surgery include obesity, unmanaged cruciate ligament disease or other orthopedic disease, incomplete or successful medical management of hip dysplasia, and skin infection. Obviously most of these exclusions are temporary and allow surgery to occur on resolution. Age is not an exclusion; any healthy dog or cat may be a candidate for THR. Dogs and cats up to 14 years of age have received successful hip replacements in our hospital.



Total Hip Replacement in a one year old cat for severe hip dysplasia.

THR is the only joint surgery in veterinary orthopedics where the expected outcome is completely normal function post-operatively.



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The goal of surgery is to return an injured or chronically lame patient to normal or near-normal function, including athletic, sporting and working dogs. A 2010 study using objective gait analysis demonstrated normal weight-bearing as early as 12 weeks post-operatively. Other more recent evidence also supports this finding. Compared with most other surgical options, particularly FHO, THR is clearly a superior option in most cases based on currently available evidence.

Complications can be serious and lead not only to loss of the arthroplasty but may include fracture of the femur or pelvis, neurological injury and infection. Reported complications also include dislocation, implant loosening, embolism, and implant displacement or subsidence. While some of these complications would result in removal of the implants, it has also been demonstrated that the outcome after implant removal is (in general) identical to that which would be seen with an FHO. Most complications can be successfully resolved without implant removal. Our hospital's current complication rate for this procedure is 4.8%. All of our complications to date have been successfully resolved with a good outcome.

Post-Operative Care

Client compliance with post-operative care is extremely important – **failure to meticulously follow instructions can, and usually does result in severe complications and treatment failure.** It is our preference whenever possible to provide complete and comprehensive case management for the entire post-op period. Pain management such

as NSAIDs, opioids (codeine) etc., is provided as is a short course of antibiotics. Physiotherapy is a crucial component of post-op management and instructions are given at discharge.

Other than prescribed physiotherapy, absolute exercise restriction is necessary and off-leash activity is strictly forbidden. Unrestricted access to flights of stairs in the house is to be avoided, however going up and down exterior stairs to get in or out of the house is permissible (on-leash only!). As these are smaller patients, they need to be confined to a small space such as a single room of the house. It is extremely important that cats are housed so that they are unable to jump on objects or into window sills, etc.

Sutures are removed after 14 days and post-op x-rays are taken at 6 weeks. If post-op x-rays are within expectations, owners are instructed to continue with prescribed treatment and physiotherapy until 12 weeks post-op, at which point normal activity may be resumed. For THR patients, radiographs are obtained again at six months post-op, then annually thereafter. Annual rechecks (radiographs) are strongly recommended as, although uncommon, implant loosening, subsidence and infection can occur long after implantation.

THR patients are usually able to walk on the affected limb within hours after surgery with discharge the following morning. For THR patients, radiographs are obtained 6 and 12 weeks post-op then annually thereafter. Annual rechecks (radiographs) are necessary as, although uncommon, implant loosening,



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Cost

The cost of these procedures is as follows:

Orthopedic exam: \$750 + HST
(includes consult, sedation and whatever x-rays are necessary)

Surgeries:

Micro- or Nano-Total Hip Replacement (THR) \$5500 + HST

Complicated THR or FHO revision – priced on an individual basis

Note that these fees may be subject to change and should be confirmed at the time of the procedure.

Note that post-op x-rays are **not** included in the cost of surgery.

****A non-refundable deposit of \$250.00 is due at the time of booking any orthopedic work-up. Deposits for Total Hip Replacements are \$1000.00 due at time of booking and are 100% non-refundable.**

****Financing options are available. Please contact reception for further details.**

NOTE: Surgical discharge with Dr. Rocheleau is scheduled for 8:30am the morning following surgery (unless otherwise stated). It is imperative that a patient's owner(s) be present at the

hospital at this time. Failure to do so will result in a missed surgical discharge and is highly likely to lead to post-operative complications which will be at the expense of the owner(s).