

## Newfoundland Club of America

# HEALTH NOTEBOOK

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AD is defined as an allergy to environmental allergens such as pollens, molds, dander (shed skin cells), house dust, tobacco smoke, etc.

# What causes it?

The tendency to develop AD is thought to be genetic in nature, since AD occurs more frequently in certain breeds and lines.

# Signs & Symptoms

The main symptom of AD is itching, which typically presents between 6 months and 3 years.

In early, mild cases, this itching can be expressed as foot-licking, face-rubbing, ear problems, and scratching behind elbows, even without visible causes such as fleas or foreign bodies such as plant material caught in the coat.

This itching can be seasonal. As the disease progresses, this itching spreads to other areas of the body, and may become year-round instead of seasonal.

# Treatment:

As mentioned above, treatment begins with minimizing contact with the identified allergen(s), if possible. Also, a series of injections of small amounts of the allergen can be performed to gradually desensitize the dog to the allergen(s).

If superinfection from bacteria or yeast is identified, then eradication or minimizing the presence of the superinfection by using topical (such as shampoo, lotion/cream) or oral antifungal or antibiotic is often used.

## Testing

#### How is it diagnosed?

To a veterinarian, AD is diagnosed when a combination of criteria are fulfilled. There is the typical history of itching, as described above, often seasonal if pollens are involved. Examination reveals typical skin lesions over affected areas of the body. Importantly, the veterinarian also must exclude other primary causes of itching, including mange mites, ringworm, bacterial infection, or fleas, as reasons for itching.

It is noteworthy that dogs with AD are often allergic to many allergens, including food allergy. In addition, added inflammation from scratching and chewing of AD skin makes the affected skin more prone to bacterial or yeast infections, which in turn causes more itching. For the reasons described above, the veterinarian will often do a skin scraping to examine under the microscope and/ or culture during his/her exam. Once the diagnosis is made, he/she may also conduct additional testing to help determine which substance (s) are triggering the symptoms. These tests may include intradermal skin allergy test and serum/blood skin allergy test. The goal would be to minimize exposure to these allergens if at all possible.

Antihistamines can be used to help with the itching. And systemic steroids or the powerful immunosuppressive cyclosporine can also be used. However, it is important to note that all these medications can themselves present with a range of side effects, including drowsiness to renal compromise, and even a higher risk of infections. It is essential to be able to recognize the potential side effects with these medications, and also visit the veterinarian on a regular basis as recommended. The newest agent available is oclacitimib. It is essential to consult with the veterinarian or a dermatologist for evaluation to see whether any of these medications, or a combination thereof, would be appropriate for your dog.

AMD, also known as a "hot spot", is a rapidly growing skin sore, which often occurs in thick-coated and/or long-haired dogs like the Newfoundland. Body sites commonly affected by AMD include the back, base of tail, sides of the things, neck, and face. Even though it can be quite painful, the dog will often scratch and chew at the area, causing further inflammation.

## What causes it?

It is thought that the spot begins with a superficial skin injury, which causes some moisture to collect due to discharge onto the skin, under the coat. The inciting precursor lesion can result from any skin injury, including fleas, tick, mange mites atopic dermatitis, allergies, hair mats, foreign material, etc. Bacteria is thought to grow in the moist environment at the site, eliciting further inflammation. Scratching and chewing can lead to additional inflammation and moisture. This vicious cycle can result in a large and painful lesion in just a few hours.

## Signs & Symptoms

The skin at the site is often moist and red, and there is often a discharge onto the coat and skin. AMD often occurs in hot, humid weather.

### Treatment

Treatment often begins with clipping the hair at the site, extending the clipped area to 1 inch further than the margin of the sore. An electric clipper is recommended, since it is thought that scissors may even cause more damage and inflammation to the skin.

Since the area may be exquisitely tender, the dog may need sedation by a veterinary office. After clipping, the area is cleaned with a mild antiseptic. An astringent drying agent can also be considered to reduce moisture at the site. Additionally, a topical preparation which contains an antiseptic or antibiotic is applied to the area. This may also contain an analgesic for pain, and a corticosteroid to reduce inflammation. Spray on products are preferred.

The healing process takes some days. There are rare instances where the infection is deep, with satellite lesions in the surrounding healthy skin. A veterinarian should be consulted for these (and any which have trouble healing), since an oral antibiotic may also be necessary. When properly treated, the lesion is less red in 48 hours, and there is complete healing of skin in 7-10 days.

# **Prevention:**

Prevention regimens include keeping the dog free of parasites such as fleas, grooming regularly to remove mats and any foreign plant material from the coat, treating skin allergies aggressively, and when a lesion begins, to treat it immediately.

Lack of mineralocorticoid and glucocorticoid production by the adrenal glands. In rarer cases, it can just be a lack of glucocorticoid production. Both are steroids produced by the adrenal glands that maintain electrolyte and glucose balance. Stress can often bring on signs of the disease, but stress does not cause Addison's disease. Cortisol is the main stress hormone in the body and Addisonian patients don't produce it, so they can't physiologically respond to stress.

## What causes it?

Adrenal atrophy usually an immune-mediated destruction of the adrenal glands. Medication can also cause this, specifically lysodren or long term prednisone use. Systemic fungal infections can also rarely cause Addison's disease.

## Signs & Symptoms

Signs are vague and Addison's is often called the great imitator because it looks like a lot of other diseases. An Addisonian crisis can look like an intestinal foreign body (vomiting) or kidney failure. General signs are vomiting without diarrhea, general weakness, increased water intake, weight loss. Ultimately these dogs can end up in hypovolemic shock and die.

# **Prognosis:**

#### Generally good

# Breeding implications/genetics:

## Testing & Treatment

#### How is it diagnosed?

Physical exam can give clues. Heart rates are usually low. There may be rear end weakness. The CBC/chemistry profile can also give clues. The sodium/potassium ratio tends to be below 27 as they are hyponatremic and hyperkalemic (low sodium, high potassium levels). They can also be hypoglycemic and hypercalcemic. There is lack of a stress response in the CBC. Definitive diagnosis is lack of cortisol production in response to an injection of ACtH which should tell the adrenal glands to produce cortisol. Baseline cortisol will be below normal and post-injection cortisol levels will still be below normal.

#### How is it treated?

An Addisonian crisis is an emergency and is treated with IV fluids and steroid injections. They usually respond rapidly to supportive care. Long term maintenance is either with monthly injections of Percorten or daily fludrocortisone. Some dogs require small doses of daily prednisone. Others can get by with receiving prednisone when they are stressed.

There is a genetic test for juvenile Addison's for Portuguese Water Dogs. Standard poodles are often affected. Otherwise, the genetic basis is unclear. Due to the serious nature of the disease, affected animals should not be bred.

# More Information:

https://www.vetmed.wsu.edu/outreach/Pet-Health-Topics/categories/diseases/addison%27s-disease

An allergy is an abnormal immune response to a substance. The dog's immune system ramps up when exposed to the "irritant". Allergies are usually classified as environmental (inhalant) or food related (ingestion).

## What causes it?

Most of our environment and food is tolerated by the general population. But the immune system is very complicated, and can start to develop antibodies to something generally considered safe. Enough of an immune response, and you have an allergy. Environmental allergies usually start to show between 6 months-3 years of age.

## Signs & Symptoms

### Itching (face, ears, front legs and abdomen) and chewing of certain areas (especially feet). Red eyes and runny noses are possible, as is a history of frequent ear infections. You may notice symptoms waxing and waning depending on when pollen is present and pollen counts in the air.

#### How is it diagnosed?

There is no laboratory test to diagnose a food allergy. Blood panels and skin tests can show you that the dog has an immune response to, but they're not considered diagnostic. Diagnostic criteria include age, breed, signs, and disease history. Although allergy testing cannot diagnose, it is useful information to identify the allergens. it is useful information to identify the allergens. Skin testing is the preferred method for developing immunotherapy treatment. Environmental allergies can be well controlled using prescription medication. Apoquel (pill form) is the current standard, and is given once or twice daily. Atopica is another option (also a tablet). Cytopoint is an injection that can provide relief for 4-8 weeks between administrations. If allergic to high-pollen season irritants, medication may not be needed in the winter when those plants are dormant.

Treatment

Immunotherapy (allergy "vaccines") are also a consideration. This treatment consists of exposure to very small amounts of the identified allergen, with the goal being to de-sensitize the dog's immune response.

Minimizing the dog's exposure to the allergen (regular cleaning of carpets, a HEPA filter), wiping the coat with a damp cloth after outdoors exposure to pollen are advisable.

# **Prognosis:**

Prognosis is good, but this is usually a lifelong condition that will require some degree of management for symptoms. There is no way to prevent allergies.

# **Allergies (Food)**

# What is it?

An allergy is an abnormal immune response to a substance. The dog's immune system ramps up when exposed to the "irritant". Allergies are usually classified as environmental (inhalant) or food related (ingestion). Food Allergies are not as common as environmental allergies.

## What causes it?

Most of our environment and food is tolerated by the general population. But the immune system is very complicated, and can start to develop antibodies to something generally considered safe. Enough of an immune response, and you have an allergy. Food allergies can occur at any time in the dog's life.

## Signs & Symptoms

Itching (face, ears, front legs and abdomen) and chewing of certain areas (especially feet). Red eyes and runny noses are possible, as is a history of frequent ear infections. Possible gastrointestinal symptoms, such as diarrhea.

#### How is it diagnosed?

There is no laboratory test to diagnose a food allergy. Blood panels and skin tests can show you that the dog has an immune response to, but they're not considered diagnostic. The true test for food allergies is an elimination diet

### Treatment

The dog must be fed a limited diet with completely novel ingredients- the dog must never have eaten any ingredient in any form. 12 weeks symptom-free, and those foods are considered safe. One can then introduce other ingredients one by one, carefully noting which provoke an immune response. Alternatively, you can choose a commercial food with hydrolyzed proteins.

The most common food allergies for dogs are: beef, chicken, eggs, corn, wheat, soy, and milk.

Once the offending foods are discovered, treatment consists of complete avoidance of those ingredients.

Food allergy identification is a time consuming process. Diagnosis and treatment becomes significantly more difficult if the dog has environmental allergies as well as a food allergy.

# **Prognosis:**

Prognosis is excellent, provided the allergens are avoided. There is no way to prevent allergies

# More Information:

https://www.merckvetmanual.com/dog-owners/skin-disorders-of-dogs/allergies-in-dogs#v39180074

Bloat occurs when the stomach fills with gas and expands, putting pressure on the surrounding organs and blood supply to the hindquarters and back legs. Blood then pools in those areas, unable to return to the heart, and the dog goes into shock. Gastric Torsion is when the stomach becomes so full of gas that it flips over. A dog has to be bloating already for torsion to occur, but not all bloat cases will lead to torsion. Torsion significantly raises the risk of death from a bloat episode.

## What causes it?

The exact cause of bloat is unknown at this time. It has been observed more often in dogs with a close relative who have also bloated, and existing research supports the theory of a genetic component. Eating a large meal in one sitting and wolfing down food significantly increase bloat risk. It is believed that both genetics and environmental factors contribute to the likelihood of a dog bloating. Bloat is most frequently seen in deep-chested breeds such as the Newfoundland, Great Dane, and St. Bernard.

## Signs & Symptoms

Symptoms of bloat include restlessness, pacing, agitation, whining, retching, and an enlarged abdomen. The dog may have difficulty breathing due to pressure on the diaphragm. The dog may turn to look at its abdomen. As the bloat progresses, the dog may retch up foam. Drooling is also a symptom in breeds who don't normally drool.

# **Prognosis:**

Bloat is a medical emergency. If you suspect your dog is bloating, go to the closest vet or emergency vet without delay. If possible, call the vet from the car and tell them you are bringing in a dog with suspected bloat. Every minute counts.

# **Prevention:**

You can prevent torsion through a surgical procedure called a gastropexy. This is a procedure in which the dog's stomach is "tacked" to the abdominal wall. Owners may opt to have the procedure done along with spay/neuter surgery, as a stand-alone surgery, or if the dog requires surgery following a bloat to prevent future episodes.

## Testing & Treatment

#### How is it diagnosed?

Abdominal x-rays confirm diagnosis.

Additional blood work, including complete blood count (CBC), serum chemistry, blood electrolytes, and tests to assess function of heart and lung, and a urinalysis may be ordered.

#### How is it treated?

Treatment begins with stabilization. Supportive IV fluids and oxygen may be given. The vet will determine if they are able to release the gas using a special tube threaded into the mouth and to the stomach, but this is not always possible. If unable, the gas must be released with a procedure called percutaneous trocarization. An area on the dog's abdomen is shaved and prepped as for surgery, and a large needle is passed through the abdominal wall and into the stomach, releasing the gas.

Not all cases of bloat require surgical interventions, but surgery may be needed if lack of blood supply has caused tissue death. All cases of bloat with torsion require surgery to re-position the flipped stomach.

Heart arrhythmias can be an issue post-bloat, and your vet may want to keep your dog to be monitored. Most heart arrhythmias occur within 36 hours of a bloat episode.

 
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 Newfoundland Dog
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# Cataracts

## What is it?

A disruption of lens fibers causing an opacity in the lens of the eye that may or may not affect vision. Severity can range from stable, pinpoint opacities to diabetic cataracts that can cause rupture of the lens.

## What causes it?

A genetic basis is suspected for most juvenile cataracts which are cataracts that develop under six years of age. Penetrating injury to the lens or nutritional deficiencies can also cause cataracts, but are not nearly as common. A common cause of cataracts is diabetes. The mechanism that causes cataracts in diabetic dogs is not completely understood.

# Signs & Symptoms

Most small cataracts will go unnoticed by owners. The dog's vision is not affected or is minimally affected. Diabetic cataracts cause blindness and are visible to owners. Many dogs don't run into anything unless they are in an unfamiliar area. Nuclear sclerosis is a benign, normal condition of the aging lens that is NOT a cataract. A cloudy cornea is not a cataract.

## **Testing & Treatment**

#### How is it diagnosed?

For small cataracts, by ophthalmic examination.

#### How is it treated?

For dogs with small, static cataracts, do nothing. Mature and hypermature cataract of any kind will require surgery to restore vision.

## **Prognosis:**

Depends on the type of cataract. Diabetic dogs will always go blind from their cataracts.

# **Breeding implications/genetics:**

A genetic basis is strongly suspected for most juvenile cataracts. Diabetic cataracts are only genetic to the extent that diabetes is genetic. Newfoundlands that are being bred should have a yearly eye exam as cataracts can develop at any time. Non-breeding dogs should still have an eye exam at a couple of points in their life to provide statistics on the incidence of ocular diseases in the breed.

# More Information:

https://www.youtube.com/watch?v=AY4Z0bMXDIU (Ocular anatomy) https://www.petmd.com/blogs/purelypuppy/Iradosta/2012/aug/juvenile\_cataracts\_puppy-26754

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# **Cherry Eye**

# What is it?

A pink, reddish mass protrudes between the globe (eyeball) and the third eyelid.

## What causes it?

Cherry eye is caused by the third eyelid gland prolapse (slipping from its usual position). It is also called Haws syndrome. It may be caused by a weakness of the connective tissue which attaches the base of the gland to periorbital structures (tissue around the eyeball).

## Signs & Symptoms

Cherry eye is a round, smooth, red mass that appears at the medial canthus (inner corner) of the eye. It protrudes over the free margin of the third eyelid and may be unilateral (one eye) or bilateral (both eyes).

### Testing

Physical examination is performed. The condition is easily visible.

## **Treatment:**

Surgery is required to permanently repair a cherry eye. The gland is anchored to the orbital periosteum (connective tissue which anchors to bone). Next a pocket is made under the conjunctiva of the third eyelid. The prolapsed gland is then attached to the cartilage of the third eyelid. Excision (removal) of the gland is contraindicated. It may cause decreased tear production and permanent dry eye.

# **Congenital Radial Head Luxation/CHRL**

(Also known as Forelimb Anomaly)

## What is it?

A congenital orthopedic condition causing severely bowed front limbs that appear almost dwarfed. The hind limbs are not affected. It can be bilateral or unilateral and varies in severity. It has been diagnosed in Newfoundlands worldwide. Although seen at a higher rate in Newfs, it can affect many breeds including Bernese Mountain Dogs, Tibetan Mastiffs, Akitas, Chows, Bouviers, and Tollers.

## What causes it?

Genetic basis is very likely, environmental influence cannot be ruled out as a contributing factor. The mode of inheritance is complex; there is no way for a breeder to predict or prevent occurrence in a litter.

## Signs & Symptoms

Can be suspected as early as 5 weeks of age and is usually visually apparent by 8 weeks of age. Some cases may take even longer to "appear". Puppies have difficulty bending their elbows, so they use the shoulder to "stand up", causing difficulty getting around. Dogs that are affected on both forelimbs rarely limp as both legs are bad.

## Testing & Treatment

#### How is it diagnosed?

The forelimb deformity and bowing caused by FLA/ CRHL can be mistaken for other diseases; for accurate diagnosis, x-rays must be taken and correctly interpreted. Flexed lateral and AP views are standard. Your vet may not have extensive knowledge of the disease and you may be referred to a specialist.

#### How is it treated?

Very early surgical intervention can be helpful, but isn't always successful; repeat surgery is not uncommon. Medical management consists of weight control, pain medication as necessary, and modified exercise. Severe cases develop arthritis earlier, but some arthritis will develop eventually in all affected dogs.

# **Prognosis:**

Very severe puppies are generally euthanized by the breeder. This is a very humane (albeit difficult) thing to do. Severely affected puppies can be in debilitating pain and have a very poor quality of life.

# **Breeding implications/genetics:**

A genetic basis is suspected. The mode of inheritance is complex; there is no way for a breeder to predict or prevent occurrence in a litter.

# More Information:

https://newfdoghealth.org/fla.html email: forelimbanomaly@ncacharities.org

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# **Cruciate Tears**

# What is it?

Cruciate ligaments are found in the stifle (knee) joint of dogs. Surprisingly dog knees are very similar to human knees. Cruciate ligaments are large and strong ligaments in the knee, keeping it stable and prevents inappropriate movements within the knee joint including hyperextension and excessive internal rotation.

## What causes it?

When a cruciate ligament tear, the dog experiences sudden pain and often holds his leg up. The may put the leg down and start using the leg again within a day or so but will continue to limp for several weeks. Normally, at the end of several weeks, the initial pain subsides and the dog is willing to use its leg more, however the joint will remain unstable and the leg will be painful depending of the activity and exercise.

Longer term, when your dog puts his weight on the leg, the tibia (shin bone) slides forward in relationship to the femur (thigh bone). This can be very painful as the joint cartilage wears down, leading to arthritis. This motion can also put excessive stress on the meniscus (C shaped pieces of cartilage within the knee joint), causing damage or further tearing.

## Signs & Symptoms

- Lameness and limping that can be sudden or gradual. onset.
- Decreased weight-bearing on a hind-limb.

• Sometimes there is swelling on the inside of the knee joint.

# How is it diagnosed?

Your veterinarian can diagnose a rupture cruciate ligament by feeling your dog's knee moving abnormally. The knee feels like it is moving like a drawer of a cabinet instead of being locked in place.

# **Prevention:**

- Keep your dogs weight at the proper level
- Use joint support supplements (glucosamine,
- chondroitin, perna mussel etc.)
- Keeping your dog in good physical conditioning with good controlled exercise.

Some dogs are going to have cruciate tears no matter what you do to try to prevent it. The bottom line is to treat it if it happens. Complete tears are usually treated with surgery, which involves using a synthetic suture material, or a portion of adjacent fibrous tissue to basically re-create the ligament. Types of treatment include the extracapsular imbrication technique, fibular head transfer, tibial plateau leveling (TPLO).

The most important thing about the surgery is the after treatment that is required. Your dog's movement must be severally restricted for at least 2 weeks. As the number of days progress your dog will be able to put some weight on the on the affected leg and then want to running (the same way he/she got the tear in the first place) but it is really important to keep them restricted until the healing is complete. You must follow your veterinarian's advice to provide proper healing.

Sometimes a cruciate tear can be healed with medical treatment. Basically, the involves controlled swimming and walking, as instructed by a veterinarian to keep up and improve muscle strength.

Over weight dog need to go on a reduced-calorie diet to lose lose a few pounds and to take pressure off the knees. Your vet may also prescribe nonsteroidal anti-inflamatory drugs (NSAIDS) such as carprofen, etodolac, melosicam, deracoxib, buffered aspirin, or other medication to reduce the inflammation in the joint and relieve pain. Your veterinarian may also recommend products known as joint support supplements.

## Treatment

Cushing's is caused by a pituitary tumor (usually non-cancerous) that triggers excess level of the stress hormone cortisol. The pituitary produces adrenocorticotropic hormone, or ACTH, which stimulates the adrenal glands near the kidneys to produce cortisol. A small percentage of dogs with Cushing's disease have a tumor of one of the adrenal glands which may or may not be cancerous. This form is called adrenal dependent Cushing's and results from a direct increase in cortisol production by the adrenal gland tumor. Cushing disease in dogs generally affects middle-aged dogs to older animals, but can affect any age.

## What causes it?

The most common cause of Cushing's is a benign pituitary tumor. When Cushing's develops as a result of problems within the pituitary gland, the condition is called pituitary dependent hyperadrenocorticism (PHD), which is responsible for 80 – 85% of Cushing's cases. Tumors within the adrenal gland (adrenal dependent hyperadrenocorticism or ADH) are responsible for the other 15 to 20% of Cushing's disease. Long term usage of corticosteroids can predispose a dog to developing Cushing's.

## Signs & Symptoms

Some of the common signs of Cushing's are hair loss, pot-bellied appearance, increased appetite, increased drinking and urination. They may also show lack of energy, muscle weakness, thin skin, bruising and increased panting.

## **Testing & Treatment**

#### How is it diagnosed?

There is no single test to diagnose Cushing's disease. History, physical exam, blood and urine tests often indicate a suspicion for the presence of Cushing's. Some of the specific tests for Cushing's disease include urine, cortisol/creatinine ratio, low dose dexamethasone suppression test, high dose dexamethasone suppression test. Dogs with Cushing's may be more likely to get bacterial infections, particularly bladder infections.

#### How is it treated?

Lifelong oral medication is often prescribed for pituitary dependent Cushing's disease. The most common drugs used are trilostane and mitotane (Lysodren). Radiation may be used to shrink the size of a pituitary tumor, and most effective on small tumors resulting from pituitary dependent Cushing's. Surgery and Transsphenoidal surgery are additional options to remove the tumor.

# **Prognosis:**

Prognosis with treatment of pituitary dependent Cushing's is generally good. Roughly 85-95% of dogs with pituitary dependent Cushing's who have the tumor removed have hormonal remission. Dogs with adrenal tumor surgery can be potentially cured.

# Cystinuria

# What is it?

Cystinuria is a disorder in the urinary system occurring in Newfoundlands and other breeds, though the disease may have different origins between breeds (e.g. Mastiffs, French Bulldogs and other breeds have cystinuria with either dominant, or unknown inheritance. Most fundamentally, there is a higher concentration of the amino acid, cysteine, in the urine which can lead to cysteine crystals (stones). While both males and females are affected, males usually show the most dangerous effects due to the differences in anatomy. In fact, if unrecognized, in males it can lead to life-threatening urinary blockage.

## What causes it?

Many of the fundamental processes in the kidney work on a systematic principle. At the beginning of the process, many chemical byproducts are filtered into the developing urine. In more distal processes constituents which are conserved (e.g. sodium) are "resorbed" into the bloodstream from the filtrate. High concentrations of cysteine in the urine result from the inability to resorb cysteine. A mutation in a specific protein "carrier" which transports cysteine from the urine back into the bloodstream is the culprit. The Newfoundland community was fortunate in that a similar problem occurs in humans. This provided a "candidate" gene that proved the same in the Newfoundland and resulted in one of the early definitive genetic tests. The disease is completely genetic and is inherited as a simple recessive, i.e. it is only if both copies of the gene carry the defect that the disease results. The genetic test can distinguish clears (no mutation), carriers (one normal and one mutated, not showing disease) and affecteds (both copies carry the mutation and the dog has overt cystinuria).

## Signs & Symptoms

Clinical signs often don't appear until the dogs is two years of age or even older. Males have more severe clinical signs than females because of the anatomical differences. Repeated UTI's, blood tinged urine, unsuccessful attempts to urinate are all possible symptoms. In males, the urinary blockade can be fatal.

### **Testing & Treatment**

A test for cystine in the urine is available to test for the disorder even in the absence of overt clinical signs, although by far the most definitive test is direct detection of the mutated gene (see below).

Treatment may consist of a change in diet, urinary alkalinization/pH neutralization, and administration of cysteine-binding agents.

# **Prevention:**

Given the genetic test, there is no reason for a reputable breeder to ever produce Newfoundlands with cystinuria. Although there is always some controversy in breeding carriers, if they are only bred to clear dogs (both copies normal) no offspring will have cystinuria. In theory puppies can be cleared by pedigree (i.e. if they are the offspring of 2 clear dogs, we know they are clear themselves) The OFA will accept one generation of clear by pedigree after which the genetic test must be performed. NCA policy allows the breeding of carriers to avoid removing superior dogs from the breeding genepool. It is expected that over a

period of time carriers will be replaced by clear dogs of equal quality.

DCM is a disease of the heart muscle that results in weakened contractions and poor pumping ability. As the disease progresses the heart chambers become enlarged, one or more valves may leak, and sign of congestive heart failure develop.

## What causes it?

The cause of DCM is unclear in most cases, a number of factors including nutritional, infectious, and genetic predisposition have been implicated. Large breeds are most often affected, among them Newfoundlands.

## Signs & Symptoms

Clinical signs include dilation of the ventricles with ventricular wall thinning, resulting in a diminished ability of the heart to serve as a pump. Early in the disease the dog may show reduced exercise intolerance, and in some cases a soft heart murmur, other irregular heart sound, and/ or irregular heart rhythm. As the disease progresses, blood pressure starts to increase, and congestion and fluid accumulation often develops behind the left ventricle/atrium. Fluid may also accumulate in the abdomen or around the lungs.

### Testing & Treatment

#### How is it diagnosed?

A cardiac exam by a veterinarian can detect abnormal heart sound and many signs of heart failure. Chest x-rays and an electrocardiogram performed by a Board Certified Cardiologist will confirm the suspected diagnosis and assess the severity. An echocardiogram can be used to screen for early DCM in breeds with a higher incidence of the disease.

#### How is it treated?

Treatment of DCM is directed at improving the pumping function of the heart, dilating the peripheral blood vessels to decrease ventricular workload, eliminating pulmonary congestion and controlling heart rate and cardiac arrhythmias. ACE inhibitors or other cardiac medications can be use orally or by injection to slow the disease.

# **Prognosis:**

The prognosis is variable depending upon the breed and status at time of examination. Dogs with congestive heart failure generally have a worse prognosis than those who are not, but medical therapy can improve the lifespan and quality of life in affected dogs.

# **Prevention/Breeding implications:**

There is currently no scientifically proven way to prevent. There is a genetic component, so a heart check on both sire and dam prior to breeding is recommended. Recent research shows a correlation between taurine and DCM, but more studies are needed to fully understand the connection.

# **Ectropion**

# What is it?

A condition which consists of eversion of part or the entire eyelid, away from the eye. The lid of the eye turns outward.

## What causes it?

Developmental: Certain breeds (bloodhound, Saint Bernard, Great Dane, bullmastiff, Newfoundland, and some spaniels) are prone to ectropion. It can be related to abnormal skull or eye shape, or macroblepharon (large eyelids).

Acquired: Eyelid Trauma, blepharitis (inflamed eyelid), old age and loss of muscle tone around the eye, and facial nerve paralysis can cause ectropion. Transient ectropion can be caused by laxity of the eyelid following excessive exercise in breeds with long lower eyelids or relaxation.

## Signs & Symptoms

There may be ocular discharge, "Red Eye", or droopy/long lower lids.

### Testing

Physical exam will show an everted eyelid. There may be conjunctivitis or lagophtalmos (incomplete closure of the eyelid). Ectropion is clearly visible. The veterinarian may perform a complete ophthalmic examination, the Schirmer tear test, Fluorescin dye application and intraocular pressure reading.

## **Treatment:**

Mild ectropion may be desired in some breeds such as the bloodhound, and can be left alone. Surgery is rarely needed unless the ectropion severe or entropion is concurrent. In severe cases the eyelids are shortened. In cases where scars cause entropion, a V-Y blepharoplasty (eyelid surgery) may be used.

# Entropion

## What is it?

A common condition where part or all of the eyelid folds inward toward the eye. As a result the cornea may become scratched or ulcerated by the eyelashes and hair around the eyes.

## What causes it?

Developmental: Certain breeds are predisposed to entropion. It can be related to abnormal conformation around the eye, small eyelids, or excessive dorsal (top of the head) skinfolds (upper eyelid entropion). Acquired: Entropion can be caused by excessive scarring and contraction of the eyelid, resulting from an injury or inflammation. Eye abnormalities that contribute to decreased orbital support, can lead to the loss of lid support and result in entropion. Ocular conditions that contribute to blepharospasm (squinting or blinking spasmodically), such as conjunctivitis, corneal ulceration, eyelid trauma, old age, blepharitis (inflamed eyelid), phthisis bulbi (shrunken, non-functional eye), and enophthalmos (neurological disorder which causes a sunken eye) may lead to entropion.

## Signs & Symptoms

Many dogs with entropion will squint and tear excessively. Eyes may be excessively red and lids may look puffy. Ulcerative or non-ulcerative keratitis (inflammation of the cornea) may be present.

## Testing

Upon examination, abnormal lid conformation will be confirmed: eyelid and facial hair will be directed toward the conjunctiva and cornea. The veterinarian may perform a complete ophthalmic examination, the Schirmer tear test, Fluorescin dye application and intraocular pressure reading.

## **Treatment:**

Resolve any underlying painful ocular disease and restore normal lid conformation. Topical anesthetic is applied to evaluate the degree of spastic entropion (entropion caused by pain vs primary ocular disease such as keratitis). Spastic entropion will temporarily resolve or decrease in severity after application of an anesthetic. If the entropion is not caused by an ocular disease, but is developmental, it will have to be surgically corrected. Temporary correction, until adult conformation is reached, consists of rolling the eyelid away from the eyes and placing a temporary suture in the eyelid. Sometimes this is enough. Permanent correction can be done once the dog is an adult, and involves surgically correcting eyelid conformation.

Idiopathic epilepsy is characterized by chronic recurrent seizures for which there is no identifiable cause. There are two types of seizures: status epilepticus, a seizure which lasts more than five minutes, or two or more seizures where there is an incomplete recovery of consciousness, and cluster seizures (serial or acute repetitive seizures), when three or more isolated seizures occur within a short period of time.

## What causes it?

There is no known cause. It is hereditary in some dog breeds. The most common ages when affected are 1-5 years old; males are slightly more affected than females. Congenital abnormalities in neuronal excitability, or neurotransmitter or receptor function may be the cause of idiopathic epilepsy.

## Signs & Symptoms

There is a loss of consciousness and sustained contraction of all muscles, followed by paddling motions of the limbs or rhythmic muscle contractions, especially of the limbs and masticatory muscles. Milder tonic-colonic seizures, where the dog is conscious, and focal seizures where only part of the body is involved (fly biting movements) can occur. With idiopathic epilepsy the dog acts normal between seizures, and there is no evidence of ongoing neurological defects.

### Testing

Sources of intoxication must be ruled out (lead, ethylene glycol, organophosphate, carbamate, metaldehyde). Physical exam is usually normal unless the after effects of a seizure are documented: generalized ataxia, abnormal behavior, temporary blindness. The after effects may last minutes to hours. If there is a neurological lesion causing the epilepsy, there will be persistent symptoms such as abnormal behavior, vesical defects, or hemiparesis (paralysis of one side of the body). Blood tests are usually normal in idiopathic epilepsy. Non-idiopathic epilepsy can be caused by: metabolic disorders, toxins, brain malformations, inherited degenerative diseases, encephalitis, neoplasia, vascular lesions, and head injuries.

Brain computed tomography, magnetic resonance imaging and cerebrospinal fluid analysis are normal in patients with idiopathic epilepsy. Electroencephalography may show abnormalities associated with seizure activity, but are not abnormal in idiopathic epilepsy.

## **Treatment:**

Status epilepticus or cluster seizures require emergency treatment to prevent hyperthermia and brain damage. Long term treatment involves anticonvulsant drugs. Daily anticonvulsant is not indicated if the dog has only one seizure or has isolated seizures separated by a long period of time. Daily medication is given if more than one seizure per month occurs, there are clusters of multiple seizures per day or the seizures increase in frequency.

Acute treatment: Diazepam is given to stop an active seizure. If the seizure continues after three doses of Diazepam, Levetiracetam or Pentobarbital or Propofol is given. If seizure stops with aforementioned therapy but recurs soon after, phenobarbital is administered followed by a maintenance dose or Diazepam is given with dextrose and saline.

Chronic treatment: Initial therapy given is either phenobarbital or bromide. Phenobarbital and potassium bromide are adjusted based on clinical effects and therapeutic monitoring. Serum concentrations are reached after ten days on Phenobarbital and 2-3 months with potassium bromide. Patients on either

drug should be monitored on a regular basis.

# **Ectopic Ureter**

# What is it?

Ectopic ureter is a condition present at birth characterized by an abnormality whereby the ureter opens to the skin surface, causing a leakage of urine onto the skin.

## What causes it?

The condition is more common in some breeds of dogs, including Newfoundlands, and is thought to be hereditary, even though the genetics is not yet understood.

## Signs & Symptoms

A Newfoundland typically has 2 ureters, which essentially are tubes connecting each kidney to the bladder, with no direct connection to the skin. In ectopic ureter, either one or both of the ureters are malformed during embryogenesis, leading to the ureter's abnormal direct connection to the skin.

This abnormal connection causes leakage of urine onto the skin in females; but less commonly in males, due to the difference between male and female anatomy. (Therefore, this condition is more rarely detected in males.) This leakage can be intermittent or continuous. This condition is often suspected when hair around the genital region is moist or stained with urine. There could be a rash due to frequent exposure of skin to urine. This condition is also associated with frequent urinary tract infections.

## **Testing & Treatment**

#### How is it diagnosed?

The diagnosis is often made by a veterinarian. Besides the findings above, the veterinarian's exam may reveal that the bladder is often small, there may be inflammation and strictures in the vulva-vagina. The diagnostic procedures to confirm the presence of ectopic ureter(s) include abdominal ultrasound, excretory urography, CT scan with contrast, and transurethral cystoscopy.

#### How is it treated?

Treatment of this condition is often surgical, and the procedure chosen depends on the abnormal anatomy found. In certain instances, laser ablation can also be performed. If there is a urinary tract infection, that must be treated before a repair procedure.

# **Prognosis:**

It is important to note that even with successful surgical repair, in 40-70% of cases, the urinary incontinence persists due to a defective urethral sphincter. Ongoing post-surgical medical management of this complication. Frequent urinary tract infections is also reported as another common post-surgical complications.

# **Breeding implications/genetics:**

A hereditary basis is suspected, but the genetics are not understood. Affected dogs should not be bred.

# **Elbow Dysplasia**

## What is it?

Elbow Dysplasia occurs when elbow joint has been damaged through either cartilage loss, the presence of medial coronoid fragments or and ununited anconeal process, vicious circle of inflammation and further cartilage damage begins. Ultimately this causes progressive arthritis of the elbow joint leading to pain and loss of function.

### What causes it?

Elbow dysplasia is most often seen in large to giant breed dogs, particularly in Labradors, Golden retrievers, German Shepherds, Newfoundlands and Rottweilers, but can occur in most other breeds of dogs. Different breeds have predispositions to different forms of the disease. Ununited anconeal process is largely a problem in German Shepherds and Newfoundlands, medial compartment disease (medial coronoid injury) is seen in many other breeds of dogs. Sight hounds seem to free of the disease.

## Signs & Symptoms

Dogs affected by elbow dysplasia often show signs from early age, typically from 5 months on, but some may first be diagnosed after 2-4 years. Affected dogs develop a front limp from lameness that worsens over a short period of time. Lameness is usually worse after exercise and typically never resolves itself with rest.

Often both fore legs are affected which can make detection of lameness difficult as the gait is not asymmetric. When both elbows are involved the dog usually become unwilling to exercise for long periods of time or in severe cases may even refuse to walk.

## Aftercare and Outcome:

Obviously, the aftercare will depend on the type of surgery performed, and your veterinarian will advise you of exactly what is required. In general your dog need to quiet and confined for a period of time, usually 2-8 weeks or more.

## Testing & Treatment

#### How is it diagnosed?

Diagnosis of elbow dysplasia is usually performed with a combination of clinical examination and x-rays. Usually the dog has pain on fully bending or fully extending the elbow and often your veterinarian will want to watch your dog walk or trot to detect any lameness.

X-rays will typically show signs of arthritis but may also show the signs of small bone fragments in a ununited anconeal process. Your veterinarian may also choose to refer you to a specialist veterinary surgeon for more advanced diagnostic procedures to be performed. This may include CT scans, MRI scans or arthroscopy.

#### How is it treated?

Treatment depends on the severity of the disease in the elbow. In many cases surgery is recommended. The earlier the disease is diagnosed and treated the better results for the dog. Your veterinarian may recommend medical management of the problem by surgery. Treatment can be divided into the correction of the joint step between the radius and if present and treatment of any other joint damage. Often surgery is best performed arthroscopically, but conventional surgery can be an option also.

The outcome will vary between dogs, but in general the more mild the case the disease the better long term outcome. Most dog will benefit from surgical treatment even the disease is more advanced, but unfortunately once arthritis is well established it will progress regardless of treatment. The aim is to slow progression of arthritis and prolong the patient's use of the elbow.

Early diagnosis and treatment is one of the main keys to control the development of arthritis.

FCE, also known as Fibrocartilaginous Embolic Myelopathy, causes sudden weakness or unbalanced gait, or even paralysis, of the hind leg, or the hind leg and foreleg, often on one side of the body. The condition sometimes causes brief pain, which resolves within minutes or a few hours. The symptoms rarely worsen after the first day, and often partially or completely reverse with time, with supportive therapy.

## What causes it?

The cause is due to tissue from the intervertebral disc of the vertebral column dislodging and causing a blockage (clot or embolus) of the blood vessels which feed the spinal cord. This can be thought of as a "stroke" or "heart attack" of the spinal cord.

## Signs & Symptoms

Typically, this condition occurs suddenly and after physical exertion. The classic report is that the Newfoundland was playing outside, yelped, then was loses control and falls over, unable to get up. These symptoms may worsen in the first few hours, then stabilizes, then as mentioned above, may partially or completely improve in days or weeks. If this "stroke" occurs in the neck area, then it may affect the front and hind legs. If it occurs in the ribcage or lower back areas, then often only the back leg is affected.

In mild cases, the spinal cord is not severely injured, the dog often will appear weak, unbalanced and unstable, and may trip often. In more severe cases, the dog may be partially or completely paralyzed, and may lose control of his/her bladder, and lose pain sensation. The dog should not lose consciousness throughout this episode.

### Testing

When the dog is brought to the veterinary clinic, the veterinarian will do a careful neurological exam, including assessing the dog's mental status, gait, balance, sensation, reflex, and ability to feel pain. The ability to feel pain is often thought to be an important prognostic Indicator of how likely and completely is the dog likely to recover. (The complete loss of pain sensation is thought to portend a poor prognosis of recovery). The veterinarian will often do a series of tests, including blood work, X-rays, pyelogram, CSF tap, CT scan or MRI, to rule out (or prove the absence of) other conditions which affect the spinal cord and thereby produce similar symptoms. FCE is said to be a diagnosis of exclusion, which means that in order to make a diagnosis of FCE, the veterinarian has to rule out these other disorders (such as slipped disc or intervertebral disc disease, tumors, etc.).

# **Prognosis:**

Prognosis depends on the severity of the signs and, to some extent, the location of the FCE within the spinal cord. Most dogs with FCE will begin to show improvement within 24-48 hours. Full recovery may take many weeks to months.

## **Treatment:**

In the first days, it is likely that the dog will be hospitalized for observation, testing, and general supportive care. Surgery is not indicated for FCE. Treatment is in general supportive, and based on the severity of symptoms. Treatment may include anti-inflammatory medications in the first hours, strict crate rest in the early period, and later physical rehabilitation, which may include water therapy, and even acupuncture.

# Hip Dysplasia (HD or CHD)

# What is it?

A malformation of the hip socket that can cause arthritic changes, pain, and lameness.

## What causes it?

There is a genetic component, but exact genetics are unknown at this time. It is certainly polygenic, meaning that several genes are responsible.

Dysplasia starts with just a small amount of looseness (laxity) in the hip joint. When that joint is loose, it leads to more wear and tear, which remodels bone, making the joint even looser. It is a vicious circle, and is considered degenerative.

Environmental stressors such as age-inappropriate exercise, carrying extra weight, repetitive motion, rough playing, jumping on hard surfaces are all implicated in increased risk of developing HD.

Signs & Symptoms	Treatment
Restricted movement walking/running and/or fumping, bunny-hopping, stiffness or abnormal posture in the spine and difficulty standing back up from a position of laying down. A dog in pain can be irritable, stiff, reluctant to engage in activity (especially if previously enjoyed), lethargic, and might shy away from having the area flexed or touched.	Treatment goals are to reduce pain, and maintain or increase mobility.
	Weight must be kept lean, excess weight exacerbates symptoms and pain and can contribute to added wear and tear. Supplements that support joint health may be given.
	Pharmaceutical options can be recommended by the vet. Pain relievers, anti-inflammatories, and mild opiates are the most common medications used.
Diagnosis:	Surgical options consist of hip replacement. Mesenchymal stem cell treatment and platelet-rich plasma injections are non-surgical options.
Confirmation of hip dysplasia is done via radiographic imaging.	Exercise is good, but must be low-impact and easy on the dog's joints. Swimming is a great option, as are slow walks.

## **Prevention:**

Puppies should have age-appropriate exercise. Keep your puppy lean as he grows. Excess weight has been proven to increase risk of HD. Prevent putting your dog in a situation where slippery surfaces could precipitate a fall, slick wooden or tile floors are better off with a few area rugs.

IBD is a term used to describe symptoms of gastrointestinal upset caused by inflammation in the bowel.

## What causes it?

Many things can cause inflammation in the bowel. IBD can result from autoimmunity, ingestion of irritant, dietary indiscretion, and stress/anxiety, among other etiologies.

Symptoms usually manifest as persistent, intermittent loose stool and/or diarrhea. In some cases, the dog may go off her food or lose weight.

## Tests/Diagnosis

Tests/Diagnosis:

IBD is a possible diagnosis when other causes of diarrhea have been tested for and ruled out. It can be a lengthy process of exclusion. Canine diarrhea can be caused by worms, giardia, food allergy/intolerances, bacterial infection and situational stress/anxiety. Once these are crossed off, your vet may suggest an ultrasound of the intestines to observe abnormal thickness of the intestinal walls and bloodwork.

The definitive diagnosis of IBD can only be confirmed via biopsy of the intestinal wall, a surgical procedure. However, specimen quality can vary, pathology can come back inconclusive.

### Treatment

Treatment for IBD consists of therapies to reduce diarrhea/vomiting, promote appetite, and decrease inflammation. If any cause of irritation was identified, it should be eliminated.

Your vet may recommend a diet trial, or prescription diet, medication, and probiotics. Recent studies have suggested fecal transplant therapy from a healthy donor can have beneficial effects on dogs with IBD.

## **Prevention:**

The disease is not preventable, but flare-ups can be minimized through diet, proper exercise, stress reduction, and medication.

An autoimmune disease. The dog's immune system attacks the dog's red blood cells, resulting in anemia.

## What causes it?

IMHA (Primary) is diagnosed when a dog's immune system starts to produce antibodies that attack the red blood cells. This is also referred to as idiopathic (of unknown origin) IMHA. 60-75% of IMHA diagnoses fall into this category.

Secondary IMHA is diagnosed when an underlying disease causes changes to red blood cells. The immune system no longer recognizes the red blood cells and begins to attack them.

Secondary IMHA can result from underlying cancer, toxins, snake bites, stings or other allergic reactions, drug reactions and parasites of the blood.

## Signs & Symptoms

Symptoms can include (but are not limited to) acting tired or lethargic, weight loss and/or loss of appetite, pale gums, black or tarry stool, and increased heart rate.

IMHA affects the whole body, exact symptoms can vary widely by individual, as can symptom severity. Dogs in early stages of IMHA may even be asymptomatic.

## Testing & Treatment

#### How is it diagnosed?

IMHA diagnosis is made on basis of excluding other possible ailments and bloodwork to check if the dog is anemic. This is not a single diagnostic test, many tests may be ordered before a diagnosis is made.

Secondary IMHA requires diagnosis and treatment of the underlying issue.

#### How is it treated?

Care for a dog diagnosed with IMHA varies depending on how advanced the disease is. 24 hour intensive care and hospitalization may be necessary to stabilize the dog, and your vet may recommend a specialist.

Treatment may include blood transfusions, immunosuppressive medications, steroids, and supportive care.

## **Prognosis/Prevention:**

IMHA is a serious, life threatening condition. Prognosis for a dog with IMHA is dependent on how early the disease was diagnosed, any possible underlying cause, and overall health. There is no prevention, only early detection. IMHA is one of the most expensive diseases to diagnose and treat, running well into the thousands. Although you cannot prevent the disease, you can make sure you are prepared by insuring your pet early in life and having savings or a line of credit free for emergencies.

# More Information:

http://scvsec.com/wp-content/uploads/2014/04/Immune-Mediated-Hemolytic-Anemia-Canine.pdf

# **Laryngeal Paralysis**

## What is it?

Ascending neuropathy affecting the recurrent laryngeal nerve. The muscles that hold the larynx open against air pressure when the dog breathes in become atrophied allowing the larynx to shut on inspiration. Rear limb weakness and megaesophagus is also associated with this disease. It is seen mostly in older Newfoundlands and Labrador Retrievers.

## What causes it?

A neuropathy of the recurrent laryngeal nerve causes the inability of the muscles to function. Masses in the neck or chest that affect the nerve can also cause this.

## Signs & Symptoms

Loud breathing on inspiration. Some dogs retch or cough randomly. Affected dogs have difficulty in the heat because they can't pant. This can quickly become an emergency situation as the dog panics when it can't pant, causing their temperature to rise and increasing their need to pant. The larynx closes down and the dog can't breathe.

# **Testing & Treatment**

#### How is it diagnosed?

Mostly by clinical signs. The breathing noise is classic. Formal diagnosis is by examining the laryngeal folds for lack of movement while the dog is just barely under anesthesia.Thoracic radiographs can diagnose masses.

#### How is it treated?

Laryngeal Paralysis can be managed by keeping the dog cool in the summer and not exercising them excessively. Usual treatment is surgery. The most common surgery is to "tie back" one of the laryngeal cartilages to allow for more airflow. Aspiration pneumonia is a possible side effect of surgery.

# **Prognosis:**

Even with surgery on the larynx, the hind limb weakness is progressive until the dog can't get up. Without complications, the tie back is generally very beneficial to the older dog with good improvement in their quality of life.

# Breeding implications/genetics:

While a genetic basis is suspected, diagnosis is generally much later in life after a dog has produced offspring, so recommending not breeding isn't very helpful.

# More Information:

https://cvm.msu.edu/scs/research-initiatives/golpp

# Lymphoma

## What is it?

Lymphosarcoma, also known as Lymphoma, is the third most common cancer diagnosed in dogs. It is a cancer of lymphocytes (a type of blood cell) and lymphoid tissue. The lymphoid tissue is found in the lymph nodes, spleen, liver, gastrointestinal tract, and bone marrow. The cause of lymphosarcoma is unknown.

## Who is at risk?

The average dog with lymphosarcoma is between 6-9 years of age (although any age can be affected). Males and Females are equally at risk. Breeds most at risk include: Boxer, German Shepherd, Golden Retrievers, Scotties, Westies, and Pointers.

### Diagnosis

Dogs suspected of having lymphoma undergo a series of tests. Biopsy or aspirates are performed on suspected tissues. Complete blood counts, chemistry profiles, and urinalysis provide important information of how cancer affects the body, and helps to determine if the patient can handle chemotherapy.

### Treatment/Prognosis

Chemotherapy is the primary treatment for lymphosarcomas and 80% of dogs go into remission (complete disappearance of detectable cancer). Remission is not a cure but it does provide dogs with quality of life for about 8-10 months with an overall survival time of about one year. The length of remission is determined by the type of chemotherapy and its protocol. Dogs tolerate chemotherapy well and have minimal side effects. Side effects are minimal but include: vomiting, nausea, loss of appetite, diarrhea, lethargy, and infection. Dogs rarely lose their hair.

# More Information:

https://www.akc.org/expert-advice/health/lymphoma-in-dogs-symptoms-diagnosis-and-treatment/

https://wearethecure.org/learn-more-about-canince-cancer/canine-cancer-library/lymphoma/

# Mega-esophagus

## What is it?

A condition affecting the musculature of the esophagus. Food is not moved down the esophagus and into the stomach and stays in the esophagus. As more food is ingested, the esophagus gets larger and more full of food.

## What causes it?

Causes are varied. Infectious disease is unlikely. There are congenital causes of megaesophagus. Trauma from a foreign body can cause mega-e. Secondary causes are related to nerve function and include laryngeal paralysis and myasthenia gravis. Many cases are idiopathic and a cause is not identified.

## Signs & Symptoms

Regurgitation is commonly seen. That is vomiting without effort and the food generally comes out in a tube shape. Aspiration pneumonia is a common sequela of mega-e.

### Testing & Treatment

#### How is it diagnosed?

Thoracic radiographs show a large, food filled structure in the chest on both survey films and contrast. Fluoroscopy can diagnose abnormal movement of food through the upper GI tract.

#### How is it treated?

Address the underlying cause, if one can be identified. Medical management consists of elevated feeding, feeding a gruel or meatballs (depends on the dog) and pro-motility drugs. Surgical management will depend on the condition. Persistent right aortic arch is a band of tissue around the esophagus and is seen in puppies and kittens. If cut early enough, the esophagus should return to normal.

## **Prognosis:**

If an underlying disease can be identified and treated, generally the prognosis is good unless it has been long standing. Idiopathic megaesophagus can only be treated with management and generally cannot be cured.

## **Breeding implications/genetics:**

Affected dogs should not be bred, especially if a cause for the mega-e can be identified.

## More Information:

https://www.animalimaging.net/pet-owners/small-animal-services/fluoroscopy/ https://bluepearlvet.com/blog/what-is-megaesophagus-in-dogs/

Osteochondritis Dissecans (OCD) is a disease of cartilage that can affect various joints in the dog. Cartilage is found between two bones and acts as a cushion and protects the underlying bone. With OCD, the cartilage is damaged or grows abnormally, which results in pain. The cartilage can loosen and become a flap or an entire piece of cartilage can break off in the joint and become known as "joint mice".

## What causes OCD?

OCD is a disease of large or giant breed dogs. It is more prevalent in males than females and often presents between 4-10 of age. The cause of OCD is considered to be multifactorial. OCD lesions can result from trauma, genetics, rapid growth, hormone imbalances, and nutrition.

## Signs & Symptoms

OCD can affect the following joints: shoulder (most common), elbow, knee, or hock. It can present with signs such as a mild limp to non-weight bearing on a limb. It is worse after exercise and improves after periods of rest. Both limbs can be affected at the same time.

### Testing & Treatment

#### How is it diagnosed?

Diagnosis is based on patient history, physical exam, and radiographs. Lesions of OCD can present in an affected shoulder when the limb is flexed and extended resulting in crying out in pain or reluctance to move. Radiographs should be taken of the affected joints and normal joints. Affected joints reveal a change of the bone underneath the damaged cartilage. If no abnormality is found, radiographs should be taken again in 2-3 weeks.

#### How is it treated?

There are two ways to treat OCD and they are: conservative medical treatment or surgical removal of the lesion. Conservative treatment involves strict rest for 4-8 weeks, short leash walks and Rimadyl. Surgery is indicated for severe symptoms in cases where radiographs revealed large lesions, and conservative treatments fail. With surgery, the affected joint is opened and the defect (cartilage flap or joint mouse) is removed.

## **Prevention:**

Prevention consists of selected breeding of animals that do not have a history of OCD. Young large and giant breed dogs should avoid strenuous activity. A well-balanced diet that promotes even, sustained growth is recommended.

Osteosarcoma is bone cancer and is the most common type of bone tumor seen in canines. It is highly aggressive and metastasizes easily, making it challenging to treat.

## What causes it?

The exact cause is unknown, but a genetic predisposition is suspected and environmental influences such as foreign objects embedded in bone (bullets, bone transplants, etc.), healed fractures, and chronic osteomyelitis cannot be ruled out. Bone continuously regenerates throughout an animal's lifespan. It is hypothesized that a "misfire" in this normal process starts the proliferation of the cancerous cells.

## Signs & Symptoms

OSA usually presents as a progressive lameness and/or swelling of the affected limb in middle-aged (6-8 years old), large or giant breed dogs. Osteosarcoma can occur in any bone, but is frequently seen in the extremities. OSA "hates the elbow and loves the knee". It is usually found in the shoulder (proximal humerus), the wrist (distal radius), in the front leg and at the stifle in the rear leg (distal femur, proximal tibia). It is less commonly found in the hip and hock.

Cancerous bone is abnormal bone and is prone to breaking with everyday forces such as walking. Dogs with pathologic fractures present with sudden, acute lameness and no history of trauma.

### Testing

Complete physical, orthopedic, and neurologic exams are required to rule out other potential causes of lameness. Diagnostic imaging (x-rays) show a pattern characteristic of OSA, but are not definitive. A bone biopsy can definitively diagnose cancer and not another, benign process with a similar radiographic appearance. Once a diagnosis is confirmed, further imaging may be recommended to determine if the cancer has spread.

## **Treatment:**

Due to aggressive, local growth and rapid spread to other parts of the body, this is a very difficult disease to treat. Pain management is critical to quality of life. There are multiple classes of pain drugs available but can also include radiation therapy, limb sparing surgery, and certain osteoporosis drugs as options. These are not cures.

Depending on location and severity, amputation may be considered as a pain management option. Amputation with chemotherapy has the potential to extend the dog's life more than just amputation alone. Unfortunately, this is a devastating disease with a poor prognosis; comfort and quality of life for the dog should be a primary consideration.

## **Prevention:**

There is currently no way to prevent osteosarcoma, although a relatively new "vaccine" is promising and may slow progression of the disease. It is not a vaccine in the sense of

vaccinating to prevent a disease. It is immunotherapy to teach the immune system to reject cancer cells. Newfoundland

 

 by to teach
 This information is not meant to be a substitute for veterinary care. Always follow the instructions provided by your veterinarian.

 Newfoundland Dog
 Health Fact Sheet produced by the NCA Health & Longevity Committee written by T. Lewin, copyright Newfoundland Club of America 2020

# Panosteitis (Pano)

## What is it?

Panosteitis is a bone disease of puppies and young dogs characterized by bone proliferation and remodeling. It is a painful disease that can last as long as 18 months (often lasts 2-5 months). Dogs with panosteitis present with acute lameness that comes and goes and will change from leg to leg. They can present with fevers, tonsillitis, or an elevated white blood cell count. Panosteitis is a common problem of large breed dogs and the cause is unknown. Treatment is symptomatic but the outcome is usually very good.

## What causes it?

The cause of Panosteitis is unknown. Some theories include infection, viral disease, genetics, and nutrition (involving protein and fat in a dog's diet).

## **Risk Factors**

Panosteitis is a disease of large breeds, mostly males, that presents between 6-18 months of age. Some breeds, like German Shepards, can present later on in life with panosteitis. Breeds most likely affected by the disease include: German Shepards, Great Danes, Doberman Pinschers, Golden Retrievers, Labrador Retrievers, Rottweilers, and Basset Hounds.

## Testing & Treatment

#### How is it diagnosed?

Panosteitis is diagnosed based on dog symptoms (discussed above) and radiographs. Radiographs should be taken of all affected limbs. Radiographic findings such as: early disease shows a subtle increase in bone density in the center part of affected bones, middle disease reveals bones that are patchy or mottled with the outer surface of the bone looks roughened, and late disease shows the bone is slightly modelled but it is returning to a normal appearance.

#### How is it treated?

Although there is no specific treatment for the disease, drugs such as Rimadyl are used to control the pain. The disease is self-limiting and after it runs its course, there are very few long-term side effects or need for further treatments.

## **Prevention:**

Currently there is no prevention for panosteitis. Since there is a genetic link, breeding animals should be screened to ensure that they are not carriers of the disease. There are large breed puppy foods available, however, there is no current evidence that confirms that these diets lower the incidence of the disease.

The ductus arteriosus is a short blood vessel that provides a communication between the aorta and the pulmonary artery. Before birth, this connection allows blood to bytass the lungs as the fetus' blood is oxygenated by the placenta. Normally, the ductus arteriosus closes within 3 to 4 days after birth. A patent ductus arteriosus results when the duct fails to close or closes incompletely. Atypical right to left shunting of a PDA can cause the aorta to carry blood that is low in oxygen, sending a signal to the body to produce more red blood cells, making the blood too thick. PDA is the most common congenital cardiac malformation in dogs, and more prevalent in Toy breeds. Females are most often affected.

## What causes it?

At birth the connection is usually no longer open. When the newborn has begun to breathe on its own, the pulmonary artery opens to allow blood to flow from the right side of the heart into the lungs to be oxygenated, and the ductus arteriosus closes. With PDA, the connection remains open, and consequently blood is diverted in abnormal patterns in the heart. PDA allows blood to flow from the aorta into the pulmonary artery and then to the lung. Genetic predisposition is suspected.

## Signs & Symptoms

- Respiratory distress
- Coughing
- Exercise intolerance
- Increased breathing

Right to left shunting PDA

- Hind legs are weak during exercise
- Blood is thicker than normal
- Arrhythmias
- Right to left blood clot
- Pink or bluish gums, and bluish skin around the anus or vulva
- Possibly left sided congestive heart failure
- Rapid irregular heart beat
- Stunted growth

## Testing & Treatment

#### How is it diagnosed?

PDA's can be detected as early as a week of age by using a stethoscope to listen to the heart. A machinery like murmur is heard continuously as the heart contracts and relaxes. This is loudest over the left base of the heart and heard best with the stethoscope in the patient's armpit.

#### How is it treated?

There are three methods for surgical repair: complete ligation of the duct, placement of a coil in the ductus via a catheter in the femoral artery of one of the hind limbs, and placement of an Amplatzer Canine Ductal occluder in the ductus via catheter in the femoral artery.

# **Prognosis:**

Uncorrected, the prognosis with PDA is poor. Of all the congenital malformations in companion animals, PDA is the one most amenable to complete repair. With surgical intervention, many have a normal life expectancy following surgery.

# Pyometra

## What is it?

One of the most common reproductive emergencies seen in a veterinarian emergency room is a condition called pyometra. The name of this disease is Latin for "pus-uterus" and dscribes a life threatening uterine infection that most typically affects older, intact female dogs.

## What causes it?

As intact female dogs (bitches) age, the hormones that fluctuate during each heat cycle change the uterus - it becomes thicker and engorged with tissue to support pregnancy. As these changes occur year after year the uterus can become permanently changed, especially prone to developing infection and quite poor at fighting off infection when it does occur. The uterus is most susceptible to infection I-2 months after each heat cycle. While the uterus is normally a sterile internal organ, the healthy vagina is full of bacteria. When colonizing external organs, these bacteria cross the cervix, though, and enter the uterus. Infection may take hold. If this happens pyometra develops.

## Signs & Symptoms

If an intact female dog come the emergency room for changes in energy level, change in appetite, "seeming sick" of increased thirst and urination, pyometra would be one of the top concerns.

Some bitches will have pus coming from the vagina, a sign of an "open pyometra". There is infection in the uterus, and the pus is able to exit the uterus via the cervix to the vagina.

Unfortunately, other times the cervix is tightly shut and does not allow the pus to leak out of the uterus, which is considered a "closed pyometra". Closed pyometras are significantly more challenging to treat. As there is no external discharge to alert the owner, they often don't know it's an emergency until they bring a bitch into the vet for other, more obvious symptoms. By that time, the infection has had opportunity to grow more profuse.

## **Testing & Treatment**

#### How is it diagnosed?

If your dog come into the hospital with the above described signs, often the first steps will to do a physical exam, do the necessary lab work, and get x-rays. Lab work may show dehydration, high white blood cells (indicating an activated immune system) and if your dog is very sick, she may have significant changes in electrolytes, blood sugar, kidney, and liver values.

X-rays can show a distended, fluid and/or gas filled uterus. If the uterus is draining pus, it may appear normal. If the diagnosis is not confirmed by physical examination, lab work, and x-rays, an ultrasound can be done to more directly visualize the uterus and determine its degree of abnormality.

#### How is it treated?

While surgical removal of the infected uterus is the treatment of choice for this condition, dogs with a "closed pyometra" need surgery sooner and need more aggressive treatment and management.

# **Breeding implications/genetics:**

Rarely, nonsurgical options will be discussed as management of pyometra. This option reserved mostly for dogs with open pyometra (the dogs which the pus is leaking out of) who have a high breeding value. Certain hormones can be given by injection to help the uterus contract and expel the infection. These contractions, are quite uncomfortable for the dog and increase the risk for uterine rupture.

This treatment requires a week of hospitalization and is often more expensive than surgery. It is essential that the dog is bred during the next heat cycle. Many dog are unable to carry pregnancy due to the scaring of the Uterus. The rate of having another pyometra is quite high, so the decision to pursue medical therapy must be very carefully considered.

# Subaortic Stenosis (SAS)

# What is it?

Subaortic stenosis is a common cardiac disorder in many large dog breeds, including the Newfoundland. It is characterized by a restriction of blood flow from the left ventricle of the heart through the aorta. The decreased blood flow is the result of a stenotic ring below the aortic valve, decreasing the diameter of the left-ventricular outflow pathway. In moderate and severe cases, this can cause life-long problems, including sudden death.

## What causes it?

Subaortic stenosis is thought to be primarily of genetic origin in the Newfoundland. Even so, it is not a simple thing to breed against. It was originally classified as dominant with incomplete penetrance, meaning that only one parent need contribute the defective gene to produce the disease, but dogs with the defective genotype do not necessarily develop SAS.

## Signs & Symptoms

Most signs and symptoms are consistent with cardiac insufficiency, e.g. exercise intolerance, difficulty breathing, etc. However, even severely affected dogs may show no signs for a few years, only to be followed by sudden death from a cardiac arrhythmia.

SAS is usually graded as mild, moderate or severe. It is important to distinguish these grades vs rating of murmurs. A heart murmur is a symptom, not the disease. Murmurs are often graded from I to VI.

## Testing

The most definitive test for SAS is an echo-cardiogram. During this ultrasound test, the blood flow through the heart, velocity through, and pressure across the aortic valve can be characterized. The most common, standardized criteria are either pressure readings or velocity. These are mathematically related, so they are really both measurements of the disruption of normal blood flow. With a mildly\* affected dog (and some moderately affected) we can expect to see a normal life-span with few, if any, activity restrictions. With moderate to severe, treatment with a beta-adrenergic blocker will usually be prescribed and is believed to increase the post-diagnostic life span and quality of life by decreasing the work-load of the heart and reducing the probably of turbulent blood flow resulting in fatal arrhythmias.

# **Experimental Treatment:**

Experimental treatment with balloon valvoplasty has been tried. In theory, this would widen the Left-ventricular outflow pathway, decreasing the pressure gradient and decreasing velocity. Though initially improving pressure measurements, the treatment did not increase lifespan. More recently, a cutting balloon valvoplasty has been attempted. With this technique, the stenotic ring is scored with very sharp blades incorporated in the balloon valvoplasty. Initial results are promising, though not well characterized yet and the instrumentation for the echnique is very expensive.

# **Prevention:**

By far the most important prevention is via selective breeding. Even very mild dogs with no symptoms and good quality of life should not be bred. Most SAS puppies can be detected by 10-12 weeks, particularly if echo-cardiogram is used. It is important that breeders clear their puppies at 10-14 weeks with a veterinary cardiologist before placement. For the breed the most important thing is a full cardiac clearance at more than a year of age in breeding dogs, prior to breeding.

# **Von Willebrand's Disease**

## What is it?

Von Willebrand's disease (vWB) is a blood disease caused by a deficiency of von Willebrand factor (vWF), an adhesive glycoprotein in the blood required for clotting at the sites of small blood vessel injuries. In addition, vWF is a protein for coagulation Factor VIII, a protein essential for blood to clot. Similar to hemophilia in humans, this condition can lead to excessive bleeding following an injury.

## What causes it?

vWB is an autosomal (non-sex linked) trait. Non-sex linked means that both males and females express and transmit vWB genetically and with equal frequency. The expression pattern of the severe forms (Type IvWD) appears to be recessive or incompletely dominant. This the most common hereditary blood clotting disorder in dogs, occurring with frequency in some breeds, including German shepherds, Doberman pinschers, Standard poodles, Shetland sheepdogs and Golden Retrievers.

## Signs & Symptoms

Spontaneous hemorrhage from mucosal surfacesHNosebleedsABlood in the feces (black or bright red)CaBloody urineisBleeding from the gumsHExcessive bleeding from the vaginaTrBruising of the skinCrProlonged bleeding after surgeryCaBlood loss of anemia if there is prolonged bleedingCaanan

### Testing & Treatment

#### How is it diagnosed?

A clinical diagnosis is usually confirmed with a blood test called a von Willebrand factor antigen assay (vWF:Ag). A genetic test is available in for some breeds, but there is currently no test available for Newfoundlands.

#### How is it treated?

Transfusion of fresh whole blood, fresh plasma, and cryoprecipitate will supply vWF to the blood. Component therapy (fresh frozen plasma or cryoprecipitate is best for surgical prophylaxis (prevention) and non-anemic patients, to prevent red cell sensitization and volume overload. Patients with severe vWD may require repeated transfusion to control or prevent hemorrhage. If a dog lacking vWF requires surgery, a pre-operative transfusion should be give just before the procedure.

# **Prognosis:**

Most dogs with mild to moderate vWD will continue to have a good quality of life, requiring minimal or no special treatment. Dogs with more severe forms require transfusion for surgery, and should transfused if supportive care fail to control a spontaneous bleeding episode. Most of these dogs can be maintained comfortably, but their activities will need to be monitored and limited.

# More Information:

https://ahdc.vet.cornell.edu/sects/coag/clinical/vonwill/

# **Yeast Infection**

## What is it?

An overabundance of yeast populating the skin, including inside the ear.

## What causes it?

Yeast infections can be very serious. It is could be an indication that your dog is battling other underlying issues. A yeast infection can be brought on by an allergic reaction, or could be brought on by an object caught in your dog's ear.



Ordinarily, yeast is a completely normal part of your dog's skin flora. It only becomes dangerous when it begins to reproduce at a massive rate, overtaking the amount it would normally produce in manageable quantities.

## Signs & Symptoms

In most cases, yeast infections tend to occur in dogs that have had their immune systems compromised in some way, such as:

- I) Cancer
- 2) Allergies
- 3) Hormonal disorders
- 4) Drugs that suppress the immune system
- 5) External skin parasites
- 6) Prolonged use of antibiotics or steroids

Dogs that have floppy ears, such as Golden Retrievers, Newfoundlands, some Hounds and Spaniels are at higher risk for yeast infections of the ears.

Another common cause of yeast infections in dogs is bacterial skin infections. As the skin produces excessive oil due to the overgrowth of yeast, causes the dog to scratch and causing secondary sores for the yeast to further thrive in.

### Testing & Treatment

Yeast Infections are characterized by skin irritation, Extreme scratching and itching, inflammation around the ears, the chest and groin of the dog, red skin, open sores, greasy coat, hair loss, foul smelling skin-odor, hearing loss.

#### How is it diagnosed?

Your vet will take a sample. Skin scraping is a common diagnostic procedure.

#### How is it treated?

It is important to find the underlying cause in order for treatment to be successful long term. Your vet may recommend topical creams, drops, a change in diet, and further testing.

# Prognosis:

Good with treatment and addressing any underlying condition that is causing yeast to proliferate.

# **Prevention:**

There is no prevention, but you can prevent it from becoming serious with prompt vet visits if yeast is suspected.

This health notebook was compiled by the members of the Newfoundland Club of America (NCA) Health & Longevity Committee.

For more information on health issues affecting Newfoundland dogs, please visit the health center:

www.newfdoghealth.org

If you have questions or concerns regarding a health issue with your newfoundland dog, please check first with your veterinarian. You can also email health@ncadogs.org for additional support and information.