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Familial Renal Disease

Issue Description

Familial renal disease in animals is an uncommon cause of renal failure (kidney failure) in young dogs and cats. Most causes are breed-related (familial) and some are inherited. Some are congenital (present at birth). Renal dysplasia is a type of familial renal disease characterized by abnormal cellular differentiation of renal tissue. Dogs and cats with renal disease caused by these diseases have the typical symptoms of renal failure, including weight loss, loss of appetite, depression, and increased water consumption and urination. A list of familial renal diseases by dog and cat breeds is found below.

Other Names

Familial Glomerulonephropathy, Hereditary Nephritis

Some Breeds That Are Predisposed

Basenji

Basenjis can be affected by a type of renal tubule disease known as Fanconi syndrome. Findings include the inability to concentrate urine, and the presence of glucose, protein, and amino acids in the urine. Fanconi syndrome is also found in humans. It can progress to renal failure. Basenjis are usually affected between the ages of one and five years. In the United States, 10 percent of Basenjis are found to have glycosuria.

Beagle

Beagles can be affected by glomerular amyloidosis, which is deposition of amyloid in the kidney. Findings include protein in the urine. It does progress to renal failure. Beagles are affected between the ages of five and eleven years. Beagles also can have familial polycystic kidney disease.

Bull Terrier

Bull Terriers can be affected by an inherited type of renal disease caused by basement membrane disease. Protein in the urine is a consistent finding. Bull Terriers are affected between the ages of one and eight years.

Cairn Terrier

Cairn Terriers can be affected by polycystic kidney disease. Multiple small cysts are found in the kidneys. Cysts are present by the age of six weeks. It is inherited through a autosomal recessive mechanism.

Chow Chow

Chow Chows can be affected by renal dysplasia that progresses to renal failure and secondary fibrous renal osteodystrophy, causing fractures and "rubber jaw".

Cocker Spaniel

Cocker Spaniels can be affected by glomerular disease before the age of four years. It does progress to renal failure. It is inherited as an autosomal recessive trait.

Doberman

Dobermans can be affected by basement membrane disease of the kidneys that can progress to renal failure.

German Shepherd Dog

German Shepherd Dogs can be affected by multiple cystadenocarcinomas of the kidney. It is inherited and appears between the ages of five and eleven years. Blood in the urine is often seen. It is sometimes accompanied by nodules in the skin or multiple uterine leiomyomas.

Lhasa Apso and Shih Tzu

Lhasa Apsos and Shih Tzus can both be affected by renal dysplasia before the age of five years. It does progress to renal failure. It can be accompanied by fibrous osteodystrophy, caused by calcium absorption from the bone. Signs include bone fractures and "rubber jaw".

Miniature Schnauzer

Miniature Schnauzers can be affected by renal dysplasia before the age of five years. It does progress to renal failure.

Norwegian Elkhound

Norwegian Elkhounds can be affected by renal tubule disease (Fanconi's syndrome) that does not progress to renal failure. A consistent finding is glucose in the urine.

Rottweiler

Rottweilers can be affected by glomerular disease before the age of one year that does progress to renal failure. Findings include protein in the urine and high cholesterol levels in the blood.

Samoyed

Samoyeds can be affected by basement membrane disease of the kidneys. It is inherited through the X chromosome and therefore more severe in affected male dogs. Findings in male dogs include the presence of protein and glucose in the urine and the inability to concentrate urine, and progression to renal failure by the age of nine months and death by sixteen months. Affected female dogs have protein in the urine and a failure to gain a normal amount of weight, but are usually otherwise normal.

Shar Pei

Shar Peis can be affected by glomerular amyloidosis which is caused by deposition of amyloid in the kidney and occurs secondary to Shar Pei fever. It progresses to renal failure by the age of six years.

Shih Tzu

Shih Tzus have a type of renal dysplasia characterized by persistence of the fetal glomeruli. The predominating signs are of chronic renal failure. Severely affected dogs only live for a few months. The mechanism of inheritance appears to be through an autosomal dominant gene with incomplete penetrance.

Soft-Coated Wheaten Terrier

Soft-Coated Wheaten Terriers can be affected by renal dysplasia that progresses to renal failure. It is usually seen by the age of three years.

Standard Poodle

Standard Poodles can be affected by renal dysplasia by the age of two years that progresses to renal failure. Secondary fibrous osteodystrophy can be seen.

Welsh Corgi

Welsh Corgis can be affected by renal telangiectasia between the ages of five and thirteen years. It is characterized by red-black nodules in the kidneys. It can cause hydronephrosis and abdominal pain. It usually does not progress to renal failure.

Diagnosis

Dogs affected with glomerulonephropathy present with weight loss, loss of appetite, apathy, vomiting, increased thirst and urination. Clinical signs include mild to severe proteinuria, microscopic hematuria, and occasionally glycosuria at 6 weeks to 2 months of age and eventually chronic kidney failure near 6-10 months of age.

Treatment

Hereditary Nephritis

In dogs with hereditary nephritis treatment is directed to decreasing proteinuria, improving kidney function. Salt-restricted and protein-restricted diets are also recommended. Despite urine protein loss, dietary protein supplementation is not advisable as proteinuria can worsen. Dogs and cats with fluid buildup (edema) or ascites should be treated with cage rest and dietary sodium restriction. Sometimes, there may be a need for tapping the abdominal cavity with a needle in order to draw off accumulated fluids if animals experience difficulty breathing and abdominal discomfort. Overzealous use of diuretics (furosemide) may cause dehydration and acute kidney insufficiency. Plasma transfusions provide only temporary benefits.

Glomerulonephritis

Glomerulonephritis is an inflammation of the glomeruli. In dogs, infectious diseases such as brucellosis, dirofilariasis, ehrlichiosis, Rocky Mountain spotted fever, borreliosis); tumors, and inflammatory diseases such as pancreatitis, polyarthritis, and prostatitis can cause the disease. As most affected dogs develop proteinuria as puppies, it is important to include urine analysis in their health screening. There are often no clinical signs associated with nephritis. The prognosis for dogs with glomerulonephritis is generally poor, although early recognition and appropriate therapy can extend the lives of these patients.

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