



PATIENT

Fefe Irizarry

SPECIES

Feline

BREED

DSH

SEX

SF

AGE

2 years 2 months

WEIGHT

8.03 lbs.

INTERPRETED BY

R. McKenzie Daniel,
DVM, DABVP
(Canine and Feline)

IMAGING PERFORMED BY

Dr. Rivera

HOSPITAL NAME

DPC VH

REFERRING VET

Dr. Rivera

INVOICE

13286

DATE

2/9/22

PRESENTING CLINICAL SIGNS

Rechecking: BLOODY URINE History: PET IS HERE FOR RECHECK VISIT/ OWNER NOTED THIS MORNING BLOOD ON BED AND PET IS IN AND OUT OF BOX.

Abnormal PE/Chem/CBC/UA Results: Exam Notes: Pet is BAR. Clear OU and AU. Normal on cardiothoracic auscultation. Soft and non-painful on abdominal palpation. Large amount of fecal material on descending colon. Skin: mild superficial dermatitis on lateral aspect of L abdominal wall. 1 lateral view abdominal rad: No evidence of radiopaque urinary calculi

ULTRASONOGRAPHIC EXAMINATION OF URINARY SYSTEM

Urinary System

The urinary bladder was mildly subnormal in size owing to a lack of urine distention. Generalized mildly thickened urinary bladder walls with mild asymmetrical luminal surface contour were present. Areas of suspect accumulated to focal mineral were present in the dependent lumen with potential for small potentially adhered calculus. Concurrent mild nondependent particulate sediment was present. The urethra was normal to a depth of 2.0 cm. The urinary bladder wall width measured 0.46 cm. No overt evidence of neoplastic criteria.

Normal size and margination were present in the kidneys. A normal 1:3 cortex / medulla ratio and normal corticomedullary definition were maintained. The echogenicity of the cortex was similar to or slightly less than normal liver parenchyma while the medulla echogenicity was hypoechoic to the cortex with no evidence of pelvic dilation. A prominent hyperechoic corticomedullary band, consistent with a medullary rim sign, was present. This is a nonspecific finding seen in both normal and abnormal kidneys. It may be associated interstitial renal disease, hypercalcemia, tubular necrosis, lymphoma, and FIP. However, it is a nonspecific finding. The left kidney measured 3.6 cm length. The left kidney measured 3.5 cm length.

ULTRASONOGRAPHIC FINDINGS

Primary Findings

- Generalized moderate cystitis with a mild dependent potentially adhered mineral and mild nondependent particulate sediment
- Bilateral nonspecific yet prominent renal medullary rim sign

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Urine culture and sensitivity on a sterile urine sample +/- baseline UPC if no evidence of significant Inflammatory cells on urinalysis is recommended. Assessment of calcium levels is suggested if not done.

Medical therapy for interstitial / idiopathic cystitis, which may include a urinary or dissolution diet, antianxiety medications, anti-Inflammatories if normal renal function, etc., are recommended with an assessment of clinical response. Sonographic reassessment of the urinary bladder is suggested if persistent or progressive signs of hematuria.



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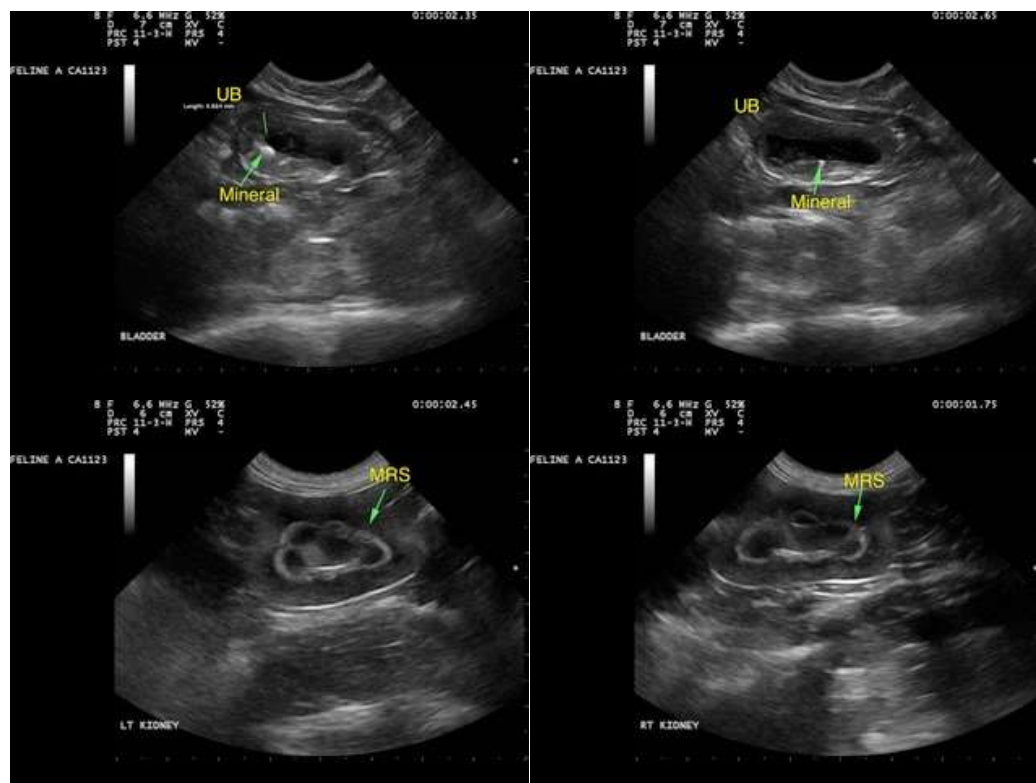
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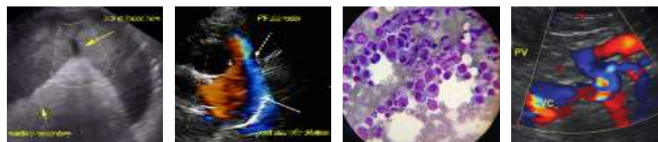
The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.

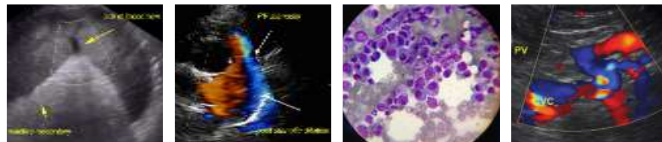
R. McKenzie Daniel, DVM, DABVP (Canine / Feline Practice)
info@SonoPath.com

<http://www.sonopath.com/FelineCystitis>

Description: Feline idiopathic cystitis (FIC) is defined as recurrent stranguria and hematuria in cats in the absence of an underlying cause. It is considered to be an exclusionary diagnosis once radiographs, ultrasound, coagulation profile, and aerobic urine culture by cystocentesis have eliminated the possibilities of urinary tract infection, urolithiasis, coagulopathies, and neoplasia. Clinical signs may resolve spontaneously within 3-7 days, with 30-50% recurrence within a year. Cats most frequently acquire the disease between the ages of 2 and 6, and although any breed is susceptible, Persian cats are overrepresented among those affected. Overweight spayed females and neutered males in a multi-cat household are at higher risk than their lean, solitary, or intact counterparts. Indoor, sedentary, dry-food eaters are at higher risk than outdoor cats that eat *ad libitum*. Psychosomatic influences—change of residence, new household members, pet additions,



PATIENT	<p>change of household objects—on the urinary bladder have been shown to play an important role in the pathophysiology of the disease. Neurogenic inflammation, decreased glycosaminoglycan concentration, and increased bladder permeability are tissue alterations found on histopathological review of affected bladders. Neurotransmitter P is increased in affected tissue and may be specifically targeted in eventual courses of treatment.</p> <p>Clinical Signs: In the absence of an underlying urinary tract infection or evidence of neoplasia, FIC may present in an acute or chronic form with the following intermittent lower urinary tract symptoms: inappropriate urination (> 6 times/week in 70% of cases); stranguria (70%); hematuria (50%); and pollakiuria (80%).</p> <p>Diagnostics: Since FIC is a diagnosis of exclusion, abdominal radiographs, abdominal ultrasound, blood pressure, coagulation profile, and urine culture are all required to rule out other differentials. Biopsy of the bladder wall can be useful to evaluate for lymphocytic plasmacytic inflammation, which can occur in some cases. Taking a history and having a thorough conversation about the cat's environmental stressors are imperative.</p> <p>Treatment: Given that no specific cause has been cited and that FIC is considered a multifactorial disease, multimodal therapy is recommended. To date, no specific therapeutic has been effective in treating FIC. Palliation with pain management can be achieved with buprenorphine (0.02 mg/kg PO, IM, or IV BID-TID for 3-4 days). Practitioners have attempted the following with varying results: the introduction of a strict canned food diet; a change of feeding location in multi-cat households; and stimulating increased water intake using tuna or clam juice additives or circulating water fountains. To date, the most scientifically valid evidence points to the need for reducing urine concentration, which is achieved with canned food diets. In multiple studies, the simple act of switching to a canned therapeutic diet has been shown to reduce the risk of recurrence significantly. One study showed that only 11% of cats on a canned diet exhibited recurrent signs after a year, while those on a dry food diet displayed a 40% recurrence rate. Urine concentration can be reduced further by adding additional water into servings of canned food. Reduction of stress may be achieved by increasing litter box hygiene, placing the litter box in a quieter environment, and providing separate food, water, and litter areas for the affected patient in a multi-cat household. It has been suggested that Feliway, the feline facial pheromone, can be used as a calming agent for cats when they are in unfamiliar surroundings. Feliway mimics the natural facial hormone released when a cat marks his or her territory by face rubbing. For unresponsive or severe cases, amitriptyline (10 mg PO Q24hr at bedtime) has been shown to have visceral analgesic, anticholinergic, mucosal mast cell inhibition, and anti-noradrenergic properties. Amitriptyline is considered standard therapy, but is only pursued once the preceding husbandry and feeding practices have proven to be ineffective. Amitriptyline should be used with caution in patients with cardiac disease or arrhythmias, and if instituted, should be used long-term. Studies indicate that short-term use of amitriptyline can result in faster recurrences. Note: Urine retention may occur while therapy is being administered. Biochemical panels should be monitored while a patient is undergoing amitriptyline therapy as liver enzyme elevation can occur. Glycosaminoglycan supplementation (pentosan polysulphate 2-10 mg/kg PO BID) has shown modest success (10-20%) in human trials for idiopathic cystitis. If used, a powder form is recommended to avoid the stress of pill administration (feline Cosequin capsules contain a powder that can be sprinkled onto food). Antiviral agents have not been shown to be effective, and even though researchers have suggested</p>
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BREED	If hematuria seems persistent despite therapy and does not follow a typical FIC pattern (i.e., resolving within one week but recurring within a few weeks), cystoscopy or surgical evaluation may be indicated. Biopsies can be obtained, which allows for histopathology and bladder wall culture.
DSH	
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WEIGHT	Conclusion: Effective treatment of FIC involves a multi-modal approach with a strong emphasis on husbandry. Pet owners should focus on the fastidious upkeep of litter boxes and feed their cats canned food to both increase dietary water intake and maintain their cat's lean body weight. Stress management is also key and can be facilitated with environmental enrichment as well as an understanding of feline behavior.
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INTERPRETED BY	References:
R. McKenzie Daniel, DVM, DABVP (Canine and Feline)	Buffington CA, Westropp JL, et al. Clinical evaluation of multimodal environmental modification (MEMO) in the management of cats with idiopathic cystitis. <i>J Feline Med Surg</i> 2006;8:261-68.
IMAGING PERFORMED BY	Chew DJ, Buffington CA, Kendall MS, et al. Amitriptyline treatment for severe recurrent idiopathic cystitis in cats. <i>J Am Vet Med Assoc</i> 1998;213(9):1282-86.
Dr. Rivera	Defauw PAM, Van de Maele I, et al. Risk factors and clinical presentation of cats with feline idiopathic cystitis. <i>J Feline Med Surg</i> 2011;13(12):967-75.
HOSPITAL NAME	Kraijer M, Fink-Gremmels J, Nickel RF. The short-term efficacy of amitriptyline in the management of idiopathic feline lower urinary tract disease: a controlled clinical study. <i>J Feline Med Surg</i> 2003;5(3):191-96.
DPC VH	Kruger JM, Conway TS, Kaneene JB, et al. Randomized controlled trial of the efficacy of short-term amitriptyline administration for treatment of acute, nonobstructive, idiopathic lower urinary tract disease in cats. <i>J Am Vet Med Assoc</i> 2003;222(6):749-58.
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