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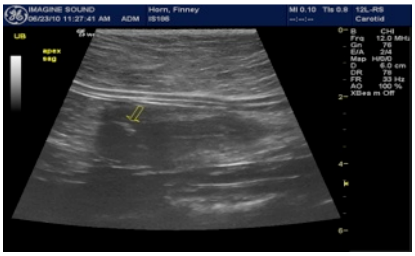
FELINE IDIOPATHIC CYSTITIS – 3 PAGES



Feline lower urinary tract disease has been shown to be associated with 60% feline idiopathic cystitis and 30% urolithiasis (45% struvite, 45% oxalate, 10% other), much of which is not visible on radiographs and often do not show crystals in the urine. The rest of the cases fall into the "other" category including, neoplasia.

Feline idiopathic cystitis may present itself in an acute or chronic form with intermittent lower urinary tract symptoms (LUTS) of **inappropriate urination** (>6 times/week in 70% of cases), **stranguria** (70%), **hematuria** (50%), **pollakiuria** (80%) with absence of cellular or infectious abnormalities in the urinalysis. In the case of hematuria, idiopathic cystitis is an exclusionary diagnosis after radiographs ultrasound, coagulation profile, and aerobic urine culture by cystocentesis have eliminated the possibilities of UTI, urolithiasis, coagulopathies and neoplasia. Dried Solidified Blood Calculi (DSB) are firm and "stone like", however may not show up on traditional radiographs due to lack of mineral core, but on sonography may be identified as clots or clumped crystals. If hematuria seems persistent despite therapy, and does not follow typical idiopathic cystitis pattern (resolving within one week but recurring within a few weeks), cystoscopy or surgical evaluation may be indicated. Biopsies are always recommended at the time of evaluation, as one retrospective study revealed up to 30% of cases suspected to have cystitis or even with diagnosed calculi had underlying neoplasia. Clinical signs generally resolve spontaneously within 3- 7 days, but up to 50% of patients display recurrence within 12 months. Dry food

eaters alone have a recurrence rate of 39% within 12 months. It is very rare to see patients in which clinical signs never resolve.

Persian cats are over represented (any breed may be affected) in the affected population with most frequent occurrence in the **2-6 year** age range. **Overweight spayed females and neutered males in a pride** environment are at higher risk than their lean, solitary, in-tact counterparts. **Indoor, sedentary, dry food** eaters are at higher risk than outdoor subjects who are fed *ad libitum.*

Psychosomatic influence (change of residence, new household members, pet additions, change of household objects) on the urinary bladder has 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 the key toward eventual specific treatment. It is now speculated that stressors present *in utero* and in neonatal life may play a significant role in the development of this condition. There is further thought that the signs presented in cases of FIC are secondary to other bodily processes acting on the urinary bladder, and that the bladder and lower urinary system itself may not be the primary problem. The current thinking is that these patients have an altered "stress response system" (SRS), which can lead to various symptoms during times of stress. In fact, abnormalities in the neuroendocrine-immune axis are suspected, which may help explain to us poor practitioners why cats like to have multiple concurrent conditions.

Given that no specific cause has been cited and FIC is considered a multifactorial disease, **multimodal therapy** is recommended. Generally signs of lower urinary disease present acutely, and resolve within 3-5 days, whether treated or not. Pain management, ideally Buprenorphine, can be initiated for a few days to help overcome the acute exacerbation of this condition. A dosage of 5-10 µg/kg PO bid to qid can be given for 3-5 days. The injectable form of this drug appears to be well tolerated orally by cats. There is no definitive research supporting the use of NSAIDs. **Antibiotic therapy IS NOT indicated** if culture of urine taken by sterile cystocentesis is negative. If the patient has been eating a dry food diet, switching to a canned variety (if the patient will eat it) will intrinsically increase water consumption, and some brands can decrease the urine osmolality, which deters formation of calculi. Environmental stressors are important to recognize such that appropriate changes can be made. Stressed cats may not display obvious outward behaviors. As such, understanding of feline behavior is essential. Cats, although predators, may feel threatened by other pets (dogs) or people in their environment. Ideally a cat's environment should be nonthreatening. This may mean placing food and water up high, or away from household traffic areas. Multiple clean litter pans (one per cat plus one additional per household) should be accessible, ideally in a quiet area. **Feliway,** a synthetic analogue of the natural facial pheromone is suggested as a calming agent in a cat's environment, mimicking the hormone released when a cat marks his/her territory by face rubbing. Environmental enrichment in the form of toys and human interaction is also important in lowering overall stress levels. As a first line of treatment, a combination of decreasing environmental stressors, environmental enrichment, and pheromone therapy is indicated.

The **ABCD** approach has been suggested: **A**ccessible litter pan without blocking or cornered areas. **B**ig litter boxes and 1 box per cat, spread out in a quiet area. **C**lumping clay that is clean. "Fresh Step" brand has been shown to be preferred in 1 study. A **D**ifferent location owing to the cat's memory of trauma in the prior location may also be helpful.

To date, the most scientific evidence points to reducing urine concentration. This is achieved via feeding of canned food diets. In multiple studies, simply switching to a canned therapeutic diet has been shown to reduce the risk of recurrence significantly. One study displayed only 11% of cats showing any recurrence in signs over 1 year while on a canned diet, while those on a dry food diet displayed a 39% recurrence rate. For unresponsive or severe cases, **amitriptyline** (tricyclic antidepressant) at 10 mg sid at bedtime has visceral analgesic, anticholinergic, mucosal mast cell inhibition, and anti- noradrenergic properties. Amitriptyline should be considered only after the preceding husbandry/feeding practices have failed. Amitriptyline should be used with ***caution*** in patients with cardiac disease or arrhythmias, and if instituted needs to be used long term. Studies indicate that **short term use of amitriptyline often INCREASES the frequency of urine marking,** especially when used as the first line of treatment. Urine retention may occur while on therapy. CBC and Chemistry panels should be monitored while on

amitriptyline therapy. Clomipramine given at 0.25-0.5 mg/kg PO sid has been shown to decrease urine marking behavior, and as a better serotonin reuptake inhibitor than amytriptyline, appears to have better antianxiety effects as well. Again, any pharmacologic agent needs to be utilized as part of a multimodal therapeutic plan. **Glycosaminoglycan** supplementation (pentosan polysulphate 2-10 mg/kg PO bid) has shown a modest success (10-20%) in human trials for idiopathic cystitis. If utilized, a powder form is

recommended to avoid the stress of pill administration (eg. feline cosequin capsules, powder can be sprinkled onto food). Antiviral agents have not been shown to be effective and no adequate evidence of viral etiology has been demonstrated even though suggestion of a role has been made and concurrent presence of calicivirus and virus-like particles have been identified in urethral plugs and urine. A double blind placebo trial demonstrated that glucocorticoids demonstrated no benefit in clinical response in 12 cases with all cases self limiting whether medicated with cortisones or not. Yet, further studies need to be performed.

(*Lindquist*) Our team is currently studying a significant percentage of these idiopathic cystitis cases that present polypoid mural thickening on ultrasound with often "mass-like" changes in younger to middle aged cats. Many of these in our unpublished study have lympho-plasmacytic infiltrates and often respond to prednisolone therapy. However, we do not recommend prednisolone therapy on these cases without surgical biopsies to support its use as bladder perforation can occur or worsening of the pathology should infectious agents be involved in our experience as the affected portion of the bladder wall is precarious and prone to rupture especially in cases of blind manual hydropulsion for bladder sand without ultrasound examination first.. The image at the top of this text is exactly one of these histopathologically confirmed Lymphoplasmacytic cases that responded to prednisolone therapy. The ventral and apical wall is thickened in a sectorial asymmetric manner but many patterns of mural thickening have been observed by our team

Dietary therapy basically is based on reducing excessive minerals and utilizing canned/moist food to increase water intake.

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