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Feline Idiopathic Cystitis (iCatCare)

Feline idiopathic cystitis (FIC) [1]

Feline lower urinary tract disease (FLUTD) [2] is a term describing conditions that can affect the urinary bladder and/or urethra (the lower urinary tract) of cats.

Although many different diseases can affect the lower urinary tract, frustratingly, a number of cats develop a disease without any obvious underlying cause – so called 'feline idiopathic cystitis' or FIC. This form of disease appears to bear many similarities to a disease in humans called 'interstitial cystitis', but in both cats and humans it can be difficult to manage.

FIC is thought to account for around 2/3 of all cases of FLUTD. As these cats exhibit signs of cystitis but have no obvious underlying cause, it is possible that there is more than one (as yet unidentified) underlying condition that causes FIC. However, detailed studies of a number of cats with FIC has shown that they have many similarities to a condition in humans called 'interstitial cystitis'.

Diagnosis of FIC

Importantly, at present there is no diagnostic test that will confirm a cat is suffering from FIC, and so a diagnosis can only be made by excluding other recognised causes of FLUTD. This means that cats should be investigated thoroughly through:

- Analysis and bacterial culture of urine samples
- X-rays of the bladder (including contrast studies)
- Possibly bladder ultrasound

Only when recognised causes of FLUTD are excluded (see FLUTD – signs, causes and investigation [3]) can a diagnosis of FIC be reached.

In cats with FIC, analysis of a urine sample may show the presence of blood and inflammatory cells, but there is no recognisable underlying cause (e.g., bladder stones or infection) to explain these changes. It is common to also find microscopic evidence of crystals in urine samples (crystals of either struvite – magnesium ammonium phosphate –, or calcium oxalate most commonly). However, these crystals are not the cause of the cystitis (bladder inflammation) and can be found in both cats with FIC and also in perfectly healthy cats, being present because cats often produce very concentrated urine (within which the crystals can form).

What causes FIC?

By definition, FIC is a disease of unknown cause. However, a number of abnormalities appear to be common in cats with FIC and may contribute to the disease:

- **Defective bladder lining** – lining the cells of the bladder is a mucus layer composed of glycosaminoglycans (GAGs) that help protect the delicate cells of the bladder wall. This is important as urine contains a high concentration of many substances that would otherwise be irritant to these cells. In cats with FIC it appears that this GAG layer is defective and deficient. This may allow damage to the underlying cells (the transitional epithelial cells of the bladder) and may permit areas of ulceration and irritation/inflammation to develop.
- **Neurogenic inflammation** – nerves in the bladder wall may be stimulated, either by local irritation to the bladder lining or, sometimes, from stimulation via the brain (for example in response to stress). Stimulation of these nerves causes release of chemicals known as neurotransmitters that can exacerbate local inflammation and pain.
- **Stress** – there is good evidence that stress plays an important role in FIC. In many cats with FIC an episode of disease may be triggered by a stressful event, and even where a direct association is difficult to make it is likely that stress plays a role. Cats kept solely indoors and cats sharing their environment with one or more other cats are typical examples of where stress can occur and influence the disease, even if no other obvious outward signs are present that suggest the cat is stressed.
- **Abnormal stress responses** – not only is there good evidence that stress plays a role in provoking FIC in affected cats, there is also evidence that these cats do not handle stress in a 'normal' way. In healthy individuals, stress results in the release of two types of hormones from the adrenal glands (glands close to the kidneys). Stress normally induces release of both 'catecholamines' (adrenaline and noradrenaline), and also cortisol. However, in cats with FIC, while catecholamine concentrations tend to be high (reflecting an underlying stress response) they actually have *sub-normal* cortisol responses, and are thus not responding in a normal way.

Changes similar to those described above that are seen in cats with FIC are also seen in humans with interstitial cystitis. It is thus currently thought that FIC may develop in certain individual cats that are perhaps genetically programmed to respond to stress in a slightly abnormal way, and perhaps also have some local defect in the bladder lining. However, the precise mechanism by which FIC develops is still uncertain.

What are the clinical signs of FIC?

Clinical signs of FIC are similar to other cases of FLUTD, the most common being:

- **Dysuria** – difficulty or painful urination
- **Pollakiuria** – increased frequency of urination
- **Haematuria** – blood in the urine
- **Periuria** – urinating outside the litter-box
- **Overgrooming** – especially around the perineum

These signs are discussed in more detail in: FLUTD – signs, causes and investigation [3]. In some male cats with FIC, urethral blockage may also occur as a result of severe inflammation and spasm of the muscles surrounding the urethra, or if a urethral plug develops.

With FIC, many cats develop recurrent episodes of clinical signs. They may develop quite rapidly, and then often naturally subside and resolve over 5–10 days, only to recur again later. In severe cases, the signs can recur rapidly and frequently, and in some cats the signs may persist for long periods. FIC can lead to severe bladder inflammation and the thickened bladder wall that develops may be difficult to distinguish from an underlying tumour without a biopsy.

Management of FIC

It has been shown that the best approach to managing cats with FIC is to use multimodal treatment – this simply means making a number of different changes to help reduce the likelihood of recurrent episodes of FIC. Although drug therapy might be used, and might be helpful in some situations, this is not really a drug-responsive disease. Many drugs may initially appear to work, because the clinical signs tend to resolve spontaneously in most affected cats, but long-term studies have suggested few, if any, drugs have any real impact on this disease. Rather, it is important to concentrate on the diet and the environment, recognising that these aspects have a crucial role to play.

Dietary modification for cats with FIC

Encouraging more frequent urination and producing urine that is more dilute (and therefore potentially less irritant to the cells lining the bladder) appears to be helpful in FIC. This can be achieved, at least in part, by modifying the diet. Changing to a wet (tinned or sachet) diet rather than a dry diet is an important management goal, along with other measures to increase water intake.

In addition to the water content of the food, some veterinary therapeutic diets (only available from your vet) are designed to help in cases of FLUTD. These diets include things like added polyunsaturated fatty acids which potentially may help reduce inflammation in FIC, although any additional benefit over routine 'wet' foods is as yet uncertain.

Cats will often develop a strong preference for particular diets, and this means changing cats to a new diet can sometimes be difficult. These tips may help:

- Always make a change in diet gradual – per several days at least and sometimes over a few weeks if your cat is quite fussy
- Start by mixing a *very* small amount of the new food with your cat's old food, and make sure it is well mixed
- Only increase the amount of the new food slowly, once your cat is happy to eat the old mixture. Make each step where you replace old food with a greater amount of new food slow
- Warming the food to body temperature (around 30°C) may help increase the palatability
- If necessary, talk to your vet about using drugs to increase the appetite to make the transition easier

Other measures to increase water intake

- Making sure a good supply of fresh water is always available – cats should be encouraged to drink by offering water from different bowls, etc.
- Using flavoured waters (chicken or tuna, for example) or water fountains to encourage drinking
- Adding further water to the food (if tolerated without affecting the appetite)

Environmental modification – drinking and urinating

Stress plays a very important role in triggering FIC and modifying the environment to help reduce stress and to encourage cats to drink and urinate more frequently are key goals in the management of FIC. It is important that cats are able to take some control of the environment they live in.

To encourage cats to drink, it is important to provide water in different places, where the cat is comfortable to spend time and drink. Avoid noisy places or anywhere close to a litter box. Ideally provide water (and food) in several locations and use ceramic bowls rather than metal or plastic which can leave an unpleasant odour or taste. Try using shallow bowls rather than deep-sided bowls so that the cat can see what is going on around at the same time as drinking and so that the whiskers do not brush against the sides of the bowl (which can be irritating for cats). Also try flavoured or running water (pet fountains) as these are preferred by some cats.

Make sure your cat has every opportunity to urinate frequently. Make sure there is at least one litter box for every cat in the household (and ideally more than this). Try putting litter boxes in different locations and use different types of litter in the box to find the location and type of litter your cat prefers. Avoid putting the litter box in noisy or busy areas as cats will generally try to avoid these places.

Environmental modification – reducing stress

It is important to try to identify and modify or avoid any specific stress triggers in the environment – this could be another pet in the house, abrupt changes in diet, overcrowding, owner stress, or changes to the people in the house. Where possible, if specific stress triggers are identified they should be minimised or avoided.

The single most common cause of stress in cases of FIC is probably conflict with another cat in the household. This may be very difficult to detect, but should always be suspected in a cat with FIC where there are other cats in the same house. Although difficult, in some cases rehoming the cat with FIC to a single cat household should be seriously considered as this may dramatically improve the situation.

Cats that spend a large amount of time indoors are also susceptible to stress. Compared with their close ancestor, the African wild cat, domestic cats often live in exceptionally confined spaces with little to really occupy their time and their minds – this lack of 'environmental enrichment' can cause significant stress. Simple measures may help, such as:

- Spending time playing with the cat on a regular basis – setting aside time each day and using new and different toys
- Allowing the cat some outdoor access, even in an enclosed run if necessary, can provide interest and stimulation
- Modify the environment so that there is plenty of interest for the cat (scratching posts etc) and resting places for the cat. Cats need space, and need to be able to control their environment, at least to some extent. It is important that they can explore their environment and have hiding places – ideally in elevated locations (e.g., on top of furniture or cupboards).
- Using the synthetic feline facial pheromone Feliway® [4], where available, may be of help – either as a spray on bedding and furniture and/or as a plug-in diffuser to help reduce stress and anxiety.

Drugs used for management of FIC

FIC is not primarily a drug-responsive disease, but in some cases drug therapy may have some additional benefits. However, in most cases these should be used only if dietary and environmental changes have failed to resolve the situation.

- **GAG replacers** – in theory, if the GAG layer that lines the bladder is deficient in cats with FIC, then repairing this should be of benefit. There are various oral or injectable forms of GAGs that are available. These are generally safe to use (under guidance from your vet), but there is little evidence yet that this therapy is of real benefit in FIC, possibly because oral or injectable products may have little direct effect on the bladder lining.

- **Tricyclic antidepressants** – drugs such as amitriptyline have been used in some cats with severe refractory FIC, and may be of help. They have a variety of effects in addition to being antidepressants, but can also have side effects so should be reserved for severe non-responsive cases of FIC.

Use of pain-killers (analgesics)

FIC is a painful condition, so in acute episodes and especially if the cat is showing signs of discomfort, the use of an analgesic drug (prescribed by your vet) may be valuable.

Prognosis

Recent evidence suggests that if sufficient emphasis is placed on increasing water intake and enriching the environment for cats to relieve boredom and stress, that most cats with FIC will improve significantly. In general, cats will also spontaneously improve as they get older. Some very severe cases may be more difficult to manage though.

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Author: Kingsbrook Animal Hospital