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Emergency medical management of urethral obstruction in a tom cat

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Abstract
Acute kidney injury (AKI) is one of the commonest reasons for nephrology consultation. A two and half year old tom cat was presented to Small Animal Medicine Referral Clinic of VCC, Veterinary College and Research Institute, Orathanadu with the history of anuria, inappetence, abdominal pain, dull and depression for past three days. There was no history of recurrent urinary tract infection. Clinical examination revealed enlargement of bladder and upon physical palpation pain evinced on left abdomen. Investigation involved haematology, serum biochemistry, radiology, ultrasonogram and urinary catheterization. Urine sample observed under microscope to rule out the biological cause for the blockage. Client education about feline stress and diet changes were utilised post-operatively.

Keywords: urethral obstruction, catheterization, tom cat

Introduction
Feline lower urinary tract diseases, and urethral obstruction (UO) in general are common clinical conditions in cats. Urethral obstruction (UO) is a relatively common condition in domestic male cats that typically requires emergency medical treatment. The pathophysiology of UO, expected physical examination findings, biochemical and acid-base abnormalities, and typical treatment course have been reviewed. Urethral catheterization is the method most commonly used to remove a urethral obstruction. If urethral catheterization cannot be performed immediately, or if the patient is too unstable with severe pain, the urinary bladder can be emptied through cystocentesis to help stabilize vital signs and to relieve discomfort. Standard treatment for UO in male cats includes stabilization of cardiovascular and metabolic derangements, correction of electrolyte abnormalities through parental administration of fluids, and relief of the obstruction through urethral catheterization.

Case observations and Investigations:
A 2.5 years old tom cat presented with a complaint of anuria, inappetence and abdominal pain to the Small Animal Referral Unit of the Veterinary Clinical Complex. The temperature was 100.1°F and perfusion parameters were adequate. The patient had a respiratory rate of 36/min, and clear lung sounds were auscultated throughout all lung fields. Abdominal palpation elicited a moderate pain response, and the abdomen was markedly distended. Clinical findings were anuria, distension of the pelvic abdomen; extension of the forelimbs cranially and the hindquarters extended caudally tending the animal toward sternal recumbency. Blood was collected for haematology and serum biochemistry. Abdominal Radiography taken was suspicious for radiopaque substances within the urinary bladder and urethra. Ultrasonogram revealed Pyelectasia & Hydronehrosis of the left kidney and normal right kidney echotexture (Fig.1). The abdominal distension, anuria and pain evinced on palpation provoked immediate emergency urinary catheterization. For catheterization, the cat was positioned on the lateral recumbency and lubricated sterile 3 Fr catheter inserted into the penile urethra and hydro propulsion was given until urine noticed in the catheter lumen. Urine sample was collected for investigation and diagnosis.

Fig 1: Pyelectasia & Hydronehrosis of the left kidney in a tom cat

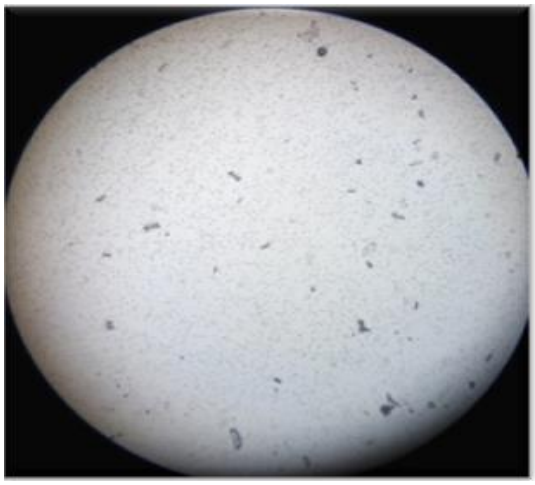

Fig 2: Triple phosphate crystals on microscopic examination

Results

Serum biochemistry revealed increased BUN (94 mg/dl) and Creatinine (3.84 mg/dl) values. Radiographic examination of the abdomen revealed radio opaque substances within the urethra and urinary bladder. Abdominal ultrasonography with Esaote Lab version ultrasound machine (Fig.1). No aerobic or anaerobic bacterial growth observed on culture whereas triple phosphate crystals observed on microscopic examination of urine sample (Fig.2). The cloudiness of urine is not necessarily a pathological condition and many samples may become cloudy upon standing due to the presence of sediments.

Treatment and Discussion

The cat was treated with supportive parental therapy consisting of 5% DNS @10 ml/ kg, IV, Pantoprazole @ 1 mg/kg IV (as GI Protectants), Ondansetron @ 0.5 mg/ kg IV, Vitamin B Complex @ 2 ml IV, Ceftriaxone @ 25 mg/kg IV after catheterization. The next day animal showed clinical improvement of normal voiding of urine with pain mitigation and the same treatment was followed for another four days. On third day onwards eventual clinical recovery was noticed and complete recovery was observed on day 5th with resumption of normal BUN and creatinine values.

In this case, though late presentation, the history, clinical findings, ultrasound scan, X-ray and chemical pathology results, have guided to the clear evidence of complications of urethral plug sequel to triple phosphate crystals. Whereas, Microscopic examination of the urine sediment examination and culture of infective organisms could be used as most important diagnostic tools for urinary tract infections (Yogeshpriya *et al*., 2015) [5]. Thus, urethral catheterization was the method opted to remove the urethral obstruction (Shaw *et al*., 2005) [3]. The short-term prognosis for cats treated for urethral obstruction is good when appropriate treatment and supportive care are provided as soon as an obstruction is suspected. Cats that have predisposed to urethral obstruction are at increased risk for reobstruction. Long term preventive care should be initiated for cats following urethral obstruction with mineralised plugs and pain is a complex process, consisting of both physiological pain in response to a disease process and emotional pain (Cherry, 2014) [1]. Yogeshpriya *et al*., (2013) [4] also stated that 10% of the small animal patients seen by veterinarians for any other reason also have Urinary Tract Infections in addition to the problems for which they are presented. Thus, client education about feline stress and diet changes were utilised post-operatively.

Conclusion

In the present study it was concluded that life-threatening illness is ultimately treated by placing a urinary catheter to relieve obstruction. Unless the patient is unstable, urethral catheter placement is impossible and in severely azotemic, hyperkalemic, and obtunded patients, limited chemical restraint may be required.

Acknowledgement

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