Nursing a patient with feline urethral obstruction a patient care report

Abstract

Feline urethral obstruction is a potentially life threatening emergency which requires immediate attention. A nursing care plan ensures that veterinary nurses are able to tailor care based on the patient s individual needs. Fluid therapy, pain assessments and catheter care are just three of the areas that require particular attention. This report aims to discuss the importance of these nursing interventions in an emergency situation.

Key words: feline urethral obstruction, pain assessments, uid therapy, metabolic acidosis, emergency, critical care, electrolyte imbalances

The patient presented to the clinic with a 3day history of anuria, vomiting, lethargy, and pain. The patient had recently had cystitis which had been treated with meloxicam (Loxicom, Norbrook) for 14 days, presenting signs commenced on completion of the medication.

Signalment

Species: Feline
Breed: Domestic short hair
Age: 3 years 8 months
Sex: Neutered male
Weight: 5.68 kg

Veterinary investigations

The veterinary surgeon (VS) diagnosed a urethral obstruction requiring emergency treatment. The patient was hospitalised and a blood sample was taken which revealed severe hyperkalaemia of 8.6 mmol/litre, hyperglycaemia of 16.55 mmol/litre and severe post renal azotaemia of 65.3 mmol/litre. The ÐÁÔÉÅÎÔ ×ÁÓ ÐÌÁÃÅÄ ÏÎ ÉÎÔÖÁÖÅÎÏÕ ŘÕÉÄ ÔÈÀÁÐÙ 0.9% saline (NaCl) and administered an injection of buprenorphine 20 g/kg (Vetergesic, Ceva).

The bladder was decompressed via cystocentesis ÕÓÉÇ Á άє Ç ÂÕÔÅÀŘÙ ÎÅÄÄÌÅ 4ÈÅ ÕÒÉÎÅ ÏÂÔÁÉÎÅÄ ×ÁÓ blood tinged; a sample was stained for microscopic examination in which no crystals were observed. $ÅÓÐÉÔÅ ŘÕÉÄ ÔÈÀÁÐÙ Ÿ ÈÏÕ £ÏÌÌ £ £

mmol/litre. Heart and respiratory rates marginally improved but the patient remained painful.

The VS made the decision to sedate the patient to enable urinary catheterisation. Sedation in a patient with severe hyperkalaemia increases the risk of catastrophic events; however complete stabilisation of these patients is not always achievable. The following must be present before considering sedation or anaesthesia: normal mentation, sinus rhythm, normal heart rate and a potassium reading below 5.5 mmol/litre (Hibbert, 2013). A combination of 5 mg/kg ketamine (Narketan, Vetoquinol) and 0.3 mg/kg midazolam (Hypnovel, Roche), was selected because they were the practice s safe anaesthetic protocol for cats, and also because midazolam acts as a muscle relaxant, potentially reducing muscle spasm in the urethra in order to facilitate easier catheterisation, relieve the obstruction and promote diuresis. A right lateral abdominal radiograph revealed no uroliths. A 3fg urinary catheter (tom cat catheter, Henry Schein) ×ÁŘÐÌÁÃÅÄ ÁŘÔÅŘ ŘÕÓÈÉÎÇ Á Î ŋÂÓÔÕÃÔÉÏÎ ÉÎ ÔÈÅ ÐÅÎÍÅ ÕŘÅÔÈÒÁ ÁÎÄ ÕŘÅÔÈÒÁÌ ŘØÕÔÅ ÁÒÅÁ 4ÈÅ ÐÏÔÁÓÉÕÍ ×ÁÓ checked and had increased to 8.7 mmol/litre.

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Table 1: Nursing Care Plan						
Patients Name:				Date:		
Age:	Time:		VS:	VN:	I.D No:	
To be completed once daily or more often following dramatic changes in patient s health or following surgery.						
Ability	Normal routine	Grade	Problem list	Nursing interventions (detail on hospital form with times)	Review time/	

Discussion of nursing interventions

Feline urethral obstruction (FUO) is a common but treatable medical emergency (Hetrick and Davidow, 2013). Male neutered cats tend to make up the majority of the cases, due to their long and narrow urethras (Brace et al, 2014). The most common predisposing cause of FUO is idiopathic cystitis (IC) (Balakrishnan and Drobatz, 2013).

1. Currently no problem grooming

Ensure following catheterisation that he is kept clean to avoid scalding. Will be wearing buster collar following catheterisation so ensure he is kept clean around his head and neck area.

Check every 2 hours.

Kept clean throughout day.

1). Other areas such as stress management, behavioural interventions and nutritional management were important, but will not be discussed in this report to allow a focus on the chosen areas.

Fluid therapy — correcting abnormalities

Fluid therapy plays a vital role in FUO, it is used to improve initial hypovolaemia, correct metabolic

resting membrane potential of the myocardium, potentially resulting in fatal conduction abnormalities (Malouin et al, 2006). Hyperkalaemia occurs when the kidneys are unable to excrete potassium and hydrogen

impaired kidney function as a result of the obstruction (Breton, 2013; Lee and Drobatz, 2003).

Historically it was thought that 0.9% saline was the

which contains a small amount of potassium, were

However more recently it has been demonstrated

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especially as the post obstruction diuresis excretes excess potassium in the urine (Drobatz and Cole, 2008).

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been investigated by both Drobatz and Cole (2008) and Cunha et al (2010). Their studies demonstrated –Šƒ– –Š‡ ƒ†•‹•‹•–”ƒ–‘• ‘^ „ƒŽƒ…‡† ª—‹† ”‡•—Ž–‡† ‹•
more rapid correction of metabolic acidosis compared with 0.9% saline in cases of urethral obstruction. This ‹• †—‡ –‘ –Š‡ ’”‡•‡•…‡ ‘^ „—¡‡”• ‹• „ƒŽƒ…‡† ª—‹†
which are metabolised to bicarbonate resulting in an ƒŽƒ•ƒŽ‹‰‡•‰ ‡¡‡…–ä —”–Š‡”‘”‡ „ƒŽƒ…‡† ª—‹† …‘•–ƒ‹•
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in excess, through limiting the amount of bicarbonate reabsorption in the proximal tubule, worsening the acidosis. Therefore the administration of a balanced ‹•‘–‘•‹… ª—‹† ‹• –Š‹• …ƒ•‡ •ƒ› Šƒ˜‡ ”‡•—Ž–‡† ‹• ƒ •‘”‡
rapid restoration of acid–base balance.

Fluid therapy — selection of rate

The patient was placed on 0.9% NaCl on maintenance rate of 2 ml/kg/hour in order to improve the hyperkalaemia; the VS decided to start on this rate as they were concerned that a higher rate may result in „Žƒ†††” ”—’––”‡ä Š‡ ª—‹† ”ƒ–‡ ™ƒ• ‘Ž› ––”•‡† —’ –‘
twice maintenance following the start of anaesthesia.

Drobatz and Cole (2008) advised that aggressive ª—‹† –Š‡”ƒ’› ‹•’”‘˜‡• ’‘–ƒ••—• ƒ†† ƒ…‹† „ƒ•‡
imbalances more rapidly, •e-J /C2_0 . /Terkalaemia; i 1(•) arishnTf .(h)15(yper)3 1(rption)leviD24( ) 1o14(ed) -20(nclu( ) -5(s) 24 10(h 10(v)

Catheter care and urine collection

A urinary catheter was placed in order to relieve the
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facilitate monitoring of urine output. The collection
bag was placed below the level of the patient to ensure
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urine output is 1–2 ml/kg/hour, however output can be
much higher following relief of the obstruction, and
as a result dehydration may occur. Monitoring of urine
output is an important indicator of kidney function
and hydration status, ensuring the patient is neither
dehydrated nor over perfused (Freitas et al, 2012).

Orpet and Welsh (2011) recommend that urine
output should be monitored every 4 hours and the
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catheter remained patent due to the observed urine
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‹•'—– ƒ•† '——'—– ‹• '"†‡" –' Šƒ˜‡ ƒ •'‡…‹¤… ‹•†‹…ƒ–‹'"
'ˆ –Š‡ 'ƒ–‹‡•–ï• ª—‹† •–ƒ–—•ä

Both the catheter and collection line require
careful management for successful use. Oosthuizen
^\]] ‹†‡•–‹¤‡† –Šƒ– ƒ •—•„‡" 'ˆ …'•'Ž‹…ƒ–‹'•• …ƒ•
occur due to the presence of an indwelling urinary
catheter (IUC) including patient discomfort, urethral
trauma and urinary tract infection (UTI), with the
latter being the most common (Corgozinho et al,
2007). Oosthuizen (2011) stated that IUCs should
always be kept closed, in order to minimise bacterial
infection and decrease the likelihood of urine
scalding. A closed system was employed in this case.
Open urine systems are IUCs left open without the
presence of a bung or collection line, allowing urine
to drain freely into the environment, or where the bag
is disconnected (Bloor, 2013).

Bloor (2013) and Brown (2013) concluded that
closed collection systems were the most appropriate
choice for urine collection. Brown (2013) did however
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bacterial contamination when using open or closed
systems. Barrett and Campbell (2008) cultured 95
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…'•…Ž—†‡† –Šƒ– ª—‹† „ƒ‰• ƒ"‡ ƒ• ƒ''"'''"‹ƒ–‡ •‡–Š'ŽŽ‡… –ei4(ppen) 16(or)Tw