

“Management of Blocked Cats under COVID-19 Restrictions”

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Blocked cats can present as a true life-threatening emergency. VVS have produced this advice sheet, to help vets to navigate the decision-making process for these cases during the challenges of COVID-19 restrictions.

The first steps to consider when treating a blocked cat are:

- **Oxygen**
 - Oxygen may need to be supplemented via mask if cases present collapsed.
- **Intra Venous Fluid Therapy (IVFT)**
 - IVFT is essential in all cases. Fluid deficits and electrolyte abnormalities must be corrected.
 - Many vets worry about prioritising fluid therapy, due to the risk of resulting bladder rupture. In fact, the risk of bladder rupture is lower than the risk to the patient associated with not starting IVFT quickly enough.
 - An IV should be placed in a cephalic vein.
 - IVFT can be given either as 0.9% NaCL or Hartmanns.
 - Published work has indicated that there is no significant difference in the rate of potassium normalisation in cats treated with saline vs. Hartmanns IVFT. However, the acid base status was corrected more rapidly in those patients receiving Hartmanns solution and as such it is recommended that Hartmann's be used as a first choice.
- **Analgesia**
 - This is a painful condition and so analgesia should be given.
 - NSAIDs should be avoided in cases of hypovolaemic shock. They do not seem to be required in most cases, and in a previous study, the administration of NSAIDs did not influence the rate of recovery or recurrence rate.
 - Opioids should be the analgesic of choice and either buprenorphine (0.02-0.03mg/kg IV) or methadone (0.2-0.4mg/kg IV) would be appropriate.

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- **Blood work**
 - Blood work is essential to assess renal parameters and electrolytes status. If possible, acid base status should also be assessed. The vast majority of cases will present with a metabolic acidosis.
 - To effectively treat and monitor these patients, being able to assess electrolytes, particularly potassium is essential.
 - Cats with severe hyperkalaemia (>7 , and/or resulting in bradycardia) need additional treatment.
 - Calcium gluconate will not affect the potassium concentration but will stabilise the myocardium.
 - It can be given at a dose of 0.5-1.5ml/kg of 10% solution over 10 minutes with ECG monitoring throughout.
 - Bolus can be repeated if required.
 - If you have a cat presented with a urethral obstruction and associated bradycardia, and you cannot measure potassium then you can consider giving calcium carbonate, but it is not advocated to give any of the additional drugs below without being able to closely monitor electrolytes.
 - Glucose causes the potassium to move intracellularly.
 - Can be given as a 0.5g/kg bolus over 10 minutes which equates to 2ml/kg of 25% glucose solution.
 - 25% glucose solution is made by diluting 50% dextrose in an equal volume of saline.
 - This can be followed by a 2.5% CRI of glucose. This is made by adding 25ml of 50% glucose added to 475ml of saline which can be administered at 2ml/kg/hr.

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- In very severe cases ie. those that haven't responded to glucose alone, then insulin can be given. If insulin is given then it is essential that glucose is given concurrently otherwise hypoglycaemia will occur.
 - Glucose levels must be monitored for the next 24hr.
 - Regular/Neutral insulin is given at 0.25-0.5IU/kg IV.
 - 0.5g/kg bolus of glucose IV and then 2.5% glucose CRI IV.

The next step is relieving the obstruction:

- For placement of a urinary catheter to relieve the obstruction, it is preferable to have the cat anaesthetized, rather than sedated. This means that the urethra is fully relaxed and makes catheter placement easier.
- Ideally, choose an open-ended catheter such as a Slippery Sam. Standard tom cat catheters with side holes can be more difficult to use.
- IV catheter can be used when the obstruction is very distal.
- Clip and prep perineum and lubricate the urinary catheter.
- Once the catheter is inserted and advanced to the base of the penis the penis is released and prepuce pulled caudally and dorsally to straighten the urethra. Do not push against any obstruction.
- Urethra should be flushed with sterile saline. Can increase pressure in urethra by compressing urethra per rectum during hydropulsion or occluding the tip of the penis.
- Once obstruction has been relieved, bladder is flushed with sterile saline
- An indwelling catheter is not required in all cases.
 - It is definitely required if there is severe azotaemia at presentation, difficulty in relieving obstruction, or severe bladder distension.
 - An Atraumatic, soft catheter of sufficient length to reach the bladder should be used. Ideally a Slippery Sam or Mila EZGO.
 - Generally an 11-12cm catheter length is sufficient. You can estimate the length required by measuring the length from the penis to L6 while maintaining sterility.
 - Once urine appears in the hub, then the catheter is advanced 1cm.

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- 3.5Fr catheter has been shown to result in reduced risk of recurrent obstruction vs placing a 5Fr catheter.
- A closed urinary system should be used to reduce risk of infection and to allow for monitoring ins/outs.
 - A buster collar should be placed to prevent self-removal.
- Antibiotics are not indicated unless UTI is confirmed on culture and sensitivity.
 - Published work found 0% positive cultures on presentation & 33% positive cultures post catheterization.
 - Submission of urine when removing catheter may be indicated.
- Muscle relaxants should be considered for cats with idiopathic urethral spasm. This is a diagnosis of exclusion, so ideally ultrasound and retrograde urethrograms should be performed to rule out other causes such as stricture, neoplasia or calculi.
 - Prazosin
 - Smooth muscle relaxant
 - 0.5mg per cat BID-TID, increasing up to 1mg per cat.
 - Dantrolene
 - Skeletal muscle relaxant
 - 0.5mg BID increasing up to 2mg BID.

If the blockage cannot be relieved, then decompressive cystocentesis can be performed. However there is an associated risk of bladder rupture, so this is not done unless it is deemed essential. If a cystocentesis is performed, it can reduce the pressure in the bladder and therefore make subsequent catheterisation easier, so catheterisation should be attempted once more. If it is still not possible to catheterise the patient then there may be a urethral stone that cannot be dislodged or a severe stricture, and referral should be strongly advised. In these cases, it is likely that a retrograde urethrogram will be performed and if a physical obstruction is present which cannot be dislodged then an emergency urethrostomy or tube cystotomy may be required. If referral is not an option then a surgical specialist should be contacted for advice.

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If iatrogenic bladder rupture occurs secondary to emergency cystocentesis, then a uroabdomen will result which is a surgical emergency. Referral to a specialist soft tissue surgeon should be considered. If this is not possible then an ex lap should be performed, and the damage to the bladder repaired. The abdomen should be fully lavaged. Under the same anaesthesia, a urethral catheter should be placed once the obstruction has been relieved.

After blockage is relieved

- Keep on IVFT until ins/outs stabilise and the cat is eating. Remember that some cats will have a post-obstructive diuresis and therefore it is necessary in some cats to have high fluid rates initially which can then be tapered. When on IVFT it is important to regularly weigh cats and check respiratory rate and effort to try to avoid fluid overload.
- Recheck renal values and electrolytes every day.
- Measure urine output per 24hours and match IVFT to this.
- Continue opioid pain relief until pet is discharged. Meloxicam can be considered once the renal parameters have normalized, the patient is well hydrated and is eating.
- Urinary catheter is generally removed after 2-3 days. It is important to keep the cat in for a further 24 hours to ensure they are urinating normally.
 - If outdoor cat, consider adding soil to the litter tray to help encourage them to urinate.
- Tempt to eat, and any food is fine in the short term.
 - In the longer term it is important to stress the importance of increased water intake, potential change in diet and environmental modification (more litter trays in household, and Feliway use) reduces risk of reoccurrence. Warn owners re chances of re-blocking.

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Specific notes re COVID-19:

- This information sheet was published on 15/04/20. BVA and RCVS guidelines may be subject to regular change over the coming months. Please check for updates at:
BVA: <https://www.bva.co.uk/>
RCVS: <https://www.rcvs.org.uk/home/>
- Blocked cats may require intensive nursing care and this often requires more than one staff member to be working in close proximity.
- Ensure that social distancing guidelines are maintained and/or that appropriate Personal Protective Equipment (PPE) is supplied to staff, to minimise transmission of COVID-19.
- If staffing levels or staff safety cannot be maintained to enable appropriate levels of care for the patient, then it may be necessary to consider alternative options.
- Animal welfare should be a priority, but so should human safety in these challenging and unprecedented times. Look after yourself and your team, as well as your patient.

If you would like to speak to a VVS Specialist about any of your cases, please do not hesitate to contact us:

T: 020 7043 2283

E: admin@vvs.vet

VVS Specialists are here to help and can review clinical history and test results and advise you on your cases as and when you need support.

You may be working sole charge, but you are not alone.