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# Approach to urethral obstruction in cats. Part 2: catheterising and postobstruction management

**Background:** Catheterisation is the key definitive emergency procedure in relieving urethral obstruction. However, ensuring that the patient is stable to tolerate the procedure and having a plan in place if placement is challenging is also essential.

**Aim of the article:** This is the second article in a three-part series. The aim of this article is to summarise urethral catheterisation, and immediate postcatheterisation management. The first article discussed presentation and stabilisation (Breheny and others 2022), while the third will focus on home management to prevent recurrent obstruction and on addressing underlying feline idiopathic cystitis.

## Before catheterisation

### Sedation or general anaesthesia

The stability of the cat will dictate whether sedation or general anaesthesia is most appropriate before catheterisation is performed. Before undertaking either, the cat should be as haemodynamically stable as possible.

General anaesthesia is required in all but the most compromised patients, as this ensures the urethra is as relaxed as possible and the cat cannot feel the stress and pain of urethral catheterisation. However, in collapsed cases, a combination of opioids and midazolam may be sufficient to adequately sedate the cat, while causing minimal cardiovascular depressant effects. Although sedating these critical patients can be concerning, attempting to catheterise a conscious cat is unlikely to be successful, and risks additional stress, pain and trauma.

### Preparation

Examine the penis first, as there may be a distal

plug or small urolith that can be easily dislodged, restoring urine flow without invasive intervention.

Before aseptic preparation of the perineum, a rectal examination should be performed in all cases to evaluate the intrapelvic urethra and attempt to determine the cause of the obstruction. In most cases, the obstruction will be secondary to chronic muscular spasm of the urethra and/or plugs associated with feline idiopathic cystitis (FIC). Focal uroliths may also be identified, as can bruising, trauma and neoplasia (either urothelial carcinoma or, rarely, prostatic carcinoma). Per-rectal urethral massage of the urethral spasm may be all that is needed to release the spasm and allow the urine to pass.

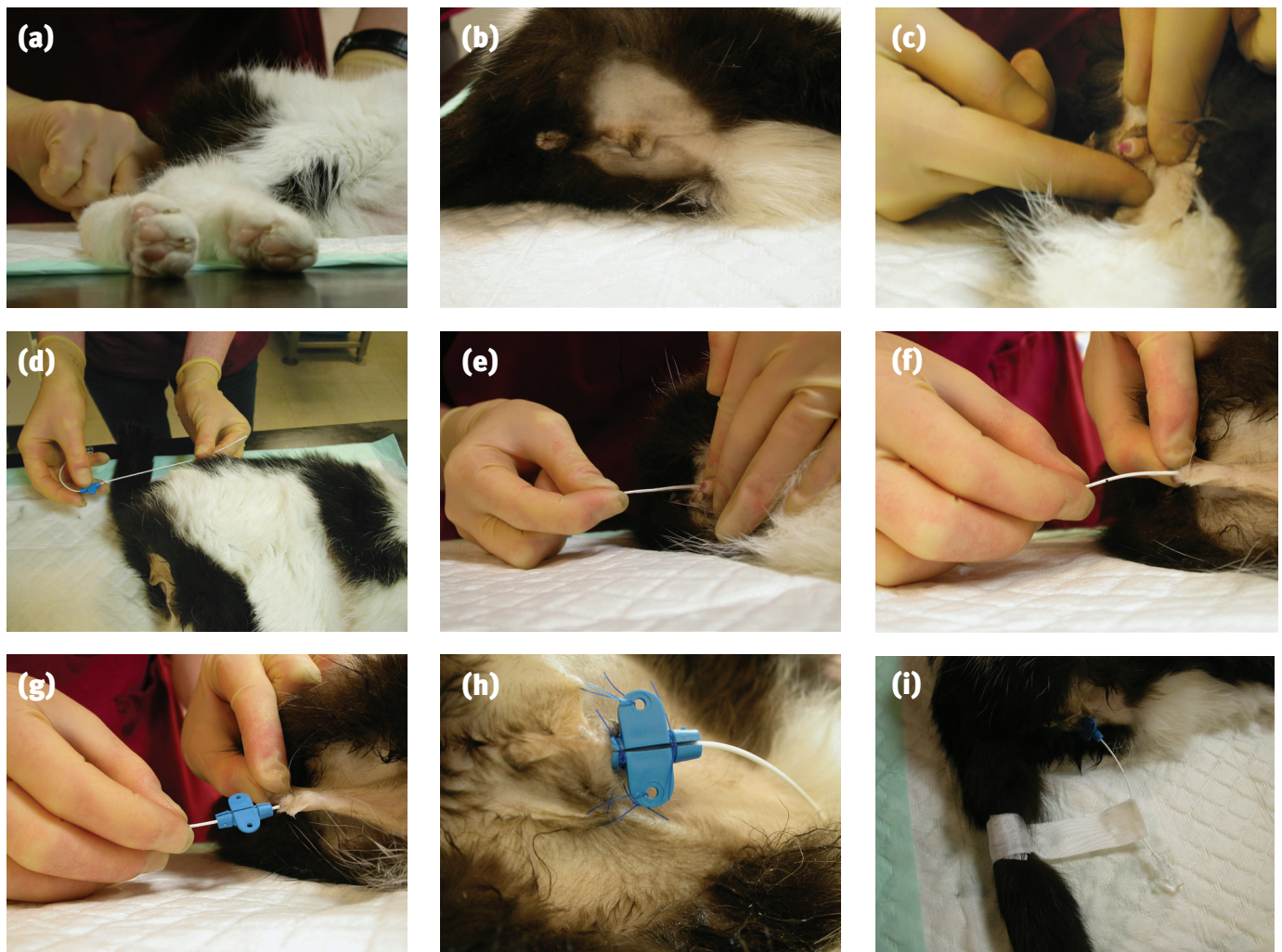
A wide clip to encompass the entire perineum should be performed to minimise the risk of iatrogenic bacterial introduction on catheterisation. The area should then be aseptically prepared and the prepuce flushed with dilute povidone-iodine solution. In cases where only sedation is used, topical local anaesthetics can be applied at this point, such as EMLA cream (Aspen Pharma), allowing the patient to better tolerate suture placement when securing the catheter.

Caudal epidural blocks should be considered and may facilitate catheterisation, while also providing analgesia to a traumatised urinary tract following the procedure. Blocks have been shown to be safe, and they can reduce the volume of anaesthetic drugs and provide prolonged postprocedural analgesia (Pratt and others 2020). An excellent review and detailed step-by-step guide on how to perform this technique has been published by O'Hearn and Wright (2011).

## KEY LEARNING OUTCOMES

After reading this article, you should:

- Appreciate the preparatory steps required to minimise catheterisation complications;
- Understand the steps involved in catheterisation of the urethra;
- Have an understanding of the available catheter types and their relative merits;
- Be aware of the alternative methods of deobstruction when simple retrograde catheterisation is unsuccessful;
- Understand the postprocedural care and considerations in these cats.



**Fig 1:** Steps in placing a urinary catheter via retrograde urethral catheterisation. (a) Sedate, or ideally anaesthetise, the cat and perform a rectal examination. (b) Perform a full perineal clip and surgically prepare the area, including flushing the prepuce with an iodine solution. (c) Have a gloved assistant evert the penis from the prepuce. Examine the tip of the penis for trauma or easily dislodged urethral plugs or stones. (d) Measure the catheter in a sterile manner, marking it at the level of L6, where the catheter should terminate (ie, within the bladder, not the proximal urethra). (e) Insert the catheter into the urethral orifice. If the obstruction is very distal, an over-the-needle intravenous catheter could be used instead, once the stylet has been removed. (f) The assistant should then pull the prepuce distally, returning the penis within it. The prepuce should then be pulled caudally and dorsally towards the tail. This has the effect of straightening the urethra from its natural 's' shape. (g) Advance the catheter as far in as it will allow. Flushing saline while advancing and performing perrectal urethral massage can enable the passage of the catheter. Retrograde hydropulsion can be attempted if this is unsuccessful (see Fig 2). (h) Suture the catheter to the perineum either directly, or to pre-placed suture loops (see Fig 5) which facilitate re-suturing or catheter replacement without repeatedly traumatising the skin. (i) Tabs can be made from adhesive dressing material around the extension tubing and then anchored to the tail. This should be done with enough of a loop to allow for normal tail movement

### Determining the most appropriate onward approach

There are five major methods of urethral unblocking and catheterisation:

- retrograde urethral catheterisation;
- retrograde urethral hydropulsion;
- antegrade or voiding urohydropulsion;
- percutaneous antegrade urethral catheterisation;
- surgical antegrade urethral catheterisation.

Since the majority of urethral obstructions are due to either urethral spasm or proteinaceous plugs, catheter placement via retrograde urethral catheterisation should be the first approach in these cases (Fig 1).

When urethroliths or clots are present, retrograde urethral hydropulsion may be needed to expel the stone back into the bladder (Fig 2).

Where urethroliths are small, occur in female cats or in male cats that have had a perineal urethrostomy, antegrade or voiding urohydropulsion may be considered (Fig 3).

If a urethral catheter cannot be placed or stones can neither be expelled nor repelled into the bladder, referral is recommended, where percutaneous antegrade urethral catheterisation or surgical antegrade urethral catheterisation may be performed (Fig 4).

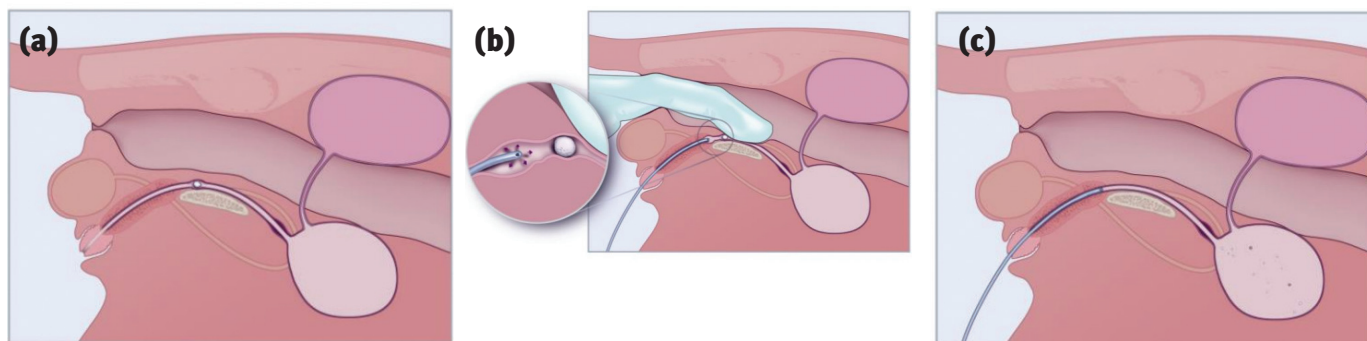


Fig 2: Steps involved in performing retrograde urethral hydropulsion. (a) The urethral stone can be seen lodged within the pelvic urethra. (b) A finger is inserted per rectum, proximal to the obstruction. The urethra is compressed to completely occlude it. The second assistant places the urinary catheter as far into the distal urethra as possible and then gently clamps the prepuce and penis around the catheter to create a seal. Saline is then instilled to distend the urethra, lifting it from the surface of the stone. (c) A coordinated final flush and release of the urethral compression should then flush the stone retrograde back into the bladder. Leave a catheter in place to maintain patency until further methods are employed to manage the urolith more permanently. Pictures: Reproduced with permission from Affinity Petcare

### Methods of urethral unblocking and catheterisation in a primary care setting

#### Retrograde urethral catheterisation

First, select a non-traumatic urethral catheter, which is ideally open ended. In all but the smallest cats, a 10 cm long catheter is not long enough to reach into the bladder; catheters that are 14 cm long are preferred, although adjustable ones can be useful in very large cats. If the catheter comes with a stylet, this should be removed given the risk of perforating the urethra if it is left in. Using 3.5 F rather than 5 F diameter catheters may reduce the risk of reobstruction following catheter removal. Occasionally, it is necessary to use a catheter with a very small aperture; for example, the sheath of a 22 G intravenous (IV) catheter, or even a lacrimal catheter.

While different clinicians will favour different catheters at different times, our current preference is to use the KatKath catheter (Vygon Vet).

The catheters available for retrograde urethral catheterisation include:

- The KatKath catheter, a 14 cm long catheter. There is also an adjustable length version for larger cats. It is sufficiently stiff to be useful for unblocking the urethra and comfortable for leaving in situ. The swivel connection between the catheter and the hub means that the extension set to the closed collection system is less likely to become tangled.
- The Slippery Sam catheter (Smiths Medical), a 14 cm long catheter. It is good for unblocking the urethra but should not be left in situ as there is a tendency for the catheter to become separated from the hub. The hub is rather soft which makes it difficult to use without a Little Herbert connector (Smiths Medical).
- The EASYGO (Mila International), an adjustable length catheter; however, it is too soft to be used for unblocking the urethra and can be difficult to use long term, as it tends to twist and kink.
- The standard (Jackson-type) Tomcat catheters (Buster), often used as they are easy to handle, stiff and inexpensive. They are useful when softer

catheters have not been successful. Most of these catheters have side holes rather than being open ended, so if the obstruction is near the tip of the penis it may not be possible to get the catheter sufficiently far into the urethra to allow flushing with saline. Since these catheters are only 10 cm long, they are too short to reach the bladder in all but small cats so they risk damage to the proximal urethra, which is exacerbated by the rough edges of the side holes which can be very traumatic. They should not be left in situ.

- Olive-tipped catheters, which are rigid with a rounded end, can be useful in cases where the obstruction is in the distal penis.

Fig 1 outlines retrograde urethral catheterisation in step-by-step images. Sterile lubricant should be used and lidocaine can be mixed with this to provide analgesia within the urethra. Some authors also suggest instilling a neuromuscular blocker into the urethra, such as atracurium besilate (Galluzzi and others 2012). An assistant should extrude

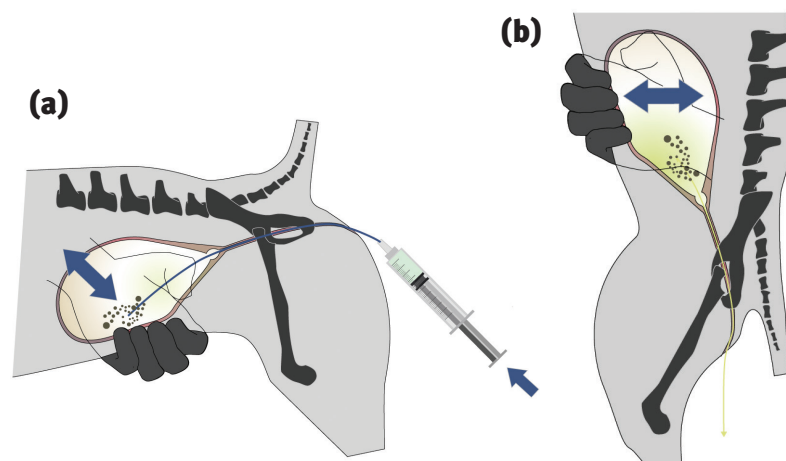


Fig 3: Voiding hydropulsion. (a) A urinary catheter is placed, and the bladder distended with saline. (b) The patient is then held up vertically and even pressure applied to the bladder to express urine. This should result in smaller stones being carried in the urine. Pictures: Brian Mather, The Royal (Dick) School of Veterinary Studies, University of Edinburgh

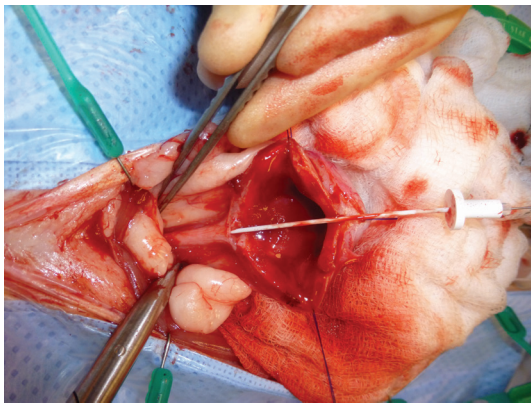


Fig 4: Intraoperative image depicting a urinary catheter that has been placed normograde surgically. This method is only indicated in the rarest of circumstances

the penis from the prepuce. The catheter is then inserted into the urethral orifice until it reaches the base of the penis or the point of obstruction. The assistant should then pull the prepuce caudally and dorsally upwards towards the tail. This is essential, as it straightens out the natural 's' shape of the urethra facilitating catheter placement.

With the majority of urethral obstructions being due to either urethral spasm and/or proteinaceous plugs, catheter placement should be relatively unopposed, although per-rectal urethral massage may be needed, as may gentle flushing with saline. If the saline is cool then this can theoretically encourage vasoconstriction and decrease urethral swelling. Saline is the best fluid to use for flushing; acidic solutions, such as Walpole's solution, give no benefit to unblocking the urethra and are irritating and painful to the inflamed mucosa.

### Retrograde urethral hydropulsion

If there is a focal obstruction, such as a urolith or clot, then retrograde urethral hydropulsion may become necessary. The most commonly encountered uroliths in cats are calcium oxalate and struvite stones. Plain radiographs of the entire urinary tract can be obtained to confirm the number of uroliths and their position, which will aid decision making on whether catheterisation is likely to be possible.

To perform hydropulsion (Fig 2), an assistant places their finger per rectum. Digital pressure is applied to the urethra until it is compressed. The second participant advances the catheter into the distal urethra as far as it will pass. The penis is compressed around the catheter entry to create a seal; this is often best achieved with an assistant doing this manually. Saline is flushed into the catheter until it generates pressure within the urethra, appreciated by palpable urethral distension and resistance felt on flushing pulses of saline. The aim of this step is to distend the urethra so that it lifts off from the urolith. When this distension is palpated, the second participant will give a pulse of saline and the rectal urethral compression is relieved at the

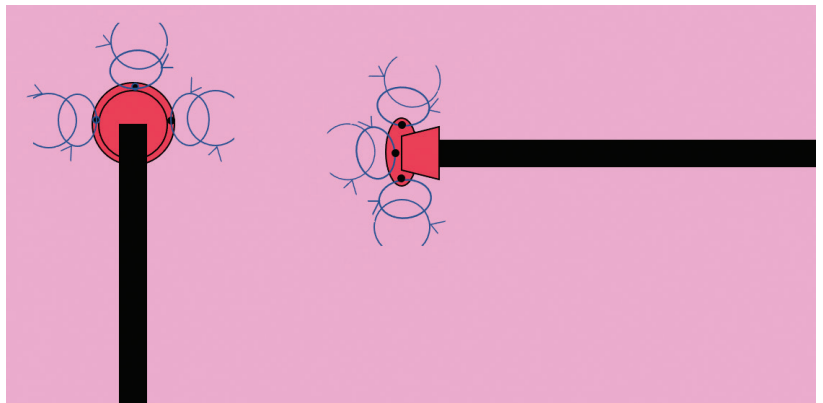


Fig 5: Schematic diagram of how the catheter can be secured to the skin. Sutures with an exposed loop are placed in the perineum at the 3, 6, 9 and 12 o'clock positions. The catheter is then placed and sutures are placed through the holes in the catheter hub, which are then interlocked with the pre-placed skin sutures. This allows the catheter to be replaced and secured with ease

same time. The aim is for the stone to be flushed back into the bladder. This can take several attempts and the bladder should be frequently palpated to ensure it does not become excessively distended requiring cystocentesis. Additional strategies can include altering the patient's position: lateral, dorsal or sternal recumbency.

If there is a large amount of pressure proximal to the obstruction, recognised as urethral distension palpable via rectal examination or when using ultrasound at the pelvic inlet, then decompressive cystocentesis should be performed.

Once the catheter has been placed in the urethra, bladder lavage can be performed, flushing with sterile saline to remove any residual debris. This could be repeated until the returning fluid is clear. In the absence of a randomised controlled study, there is currently no strong evidence that bladder lavage makes a difference in terms of prognosis or hospitalisation time (Dorsey and others 2019). However, first principles suggests that removing plasma proteins, inflammatory cytokines, cellular debris, blood clots and crystals should be beneficial. Dorsey and others (2019) grouped all cases together, so lacked the granularity to see if severe cases benefited from lavage more than mild cases.

If the catheter is to be left in situ it should be secured to the perineum; it is best to place sutures in the perineum close to the prepuce, but not in the prepuce itself (Fig 5). One option to facilitate catheter replacement, if necessary, is to secure looped stay sutures to the perineum. Additional sutures can then be placed through the holes of the catheter hub and attached to the stay sutures in the perineum.

A sterile extension line and closed-collection system should then be attached to the hub of the catheter, and the extension tubing taped to the cat's tail so tension is removed from the sutures in the perineum (Fig 11). Some slack should be left in the tubing to allow the cat's tail to move, and for the cat to ambulate with minimal interference, as this

improves tolerance. However, the tubing should not be so loose that the cat can get a leg caught in it. The urinary bag should be placed in a clear zip lock bag and kept at a level lower than the cat to facilitate bladder emptying. An Elizabethan collar should then be fitted to the cat to prevent it from interfering with the urinary catheter.

### Medical management without catheterisation

Where a cat is known to block because of recurrent urethral spasm, and there is limited systemic biochemical change, Cooper and others (2010) have described a protocol that has been used.

In their study, the cats were sedated with acepromazine (0.25 mg/cat intramuscularly [IM] or 2.5 mg/cat orally [PO] every eight hours), buprenorphine (0.075 mg/cat PO every eight hours) and medetomidine (0.1 mg/cat IM every 24 hours). Decompressive cystocentesis was then performed and subcutaneous fluids given, as necessary. The cats were left in a quiet dark environment to minimise stress. They were intermittently monitored and spontaneous urination occurred in under 72 hours in over 70 per cent of the cases (11 out of 15 cats).

This protocol may have the potential benefit of avoiding hospitalisation times and cost, but there is limited evidence for its benefit over conventional means. However, it is important to note that just because a cat has previously obstructed with an FIC-associated spasm, it does not mean that it does not have an FIC-associated urethral plug this time, or that it could have a urethral stone; cats that have obstructed with one pathology have an increased risk of blocking again for a different reason (Kaul and others 2020).

With a recent study identifying that 21 per cent of cases have a urethral stricture, either as a response to the obstruction or previous catheterisation (Slater and others 2020), interventional procedures may be considered dependent upon the imaging studies. The risk of a stricture will depend on whether the cat has been previously blocked and the nature of previous intervention.

### Imaging

Abdominal ultrasound is a good first-line diagnostic test. It will provide information about the bladder wall thickness and contours, as well as highlighting uroliths or masses of any radiodensity that may not be visualised on plain radiographs. It also allows for the evaluation of the abdominal cavity and other organs as to whether there are concurrent conditions, such as an uroabdomen or hydronephrosis. The major limitations of ultrasound examination are the inability to evaluate the distal urethra, and results will be dependent upon operator skill level.

Evaluation of the urethra in these cases is essential. Even if catheterisation has been successful, small urethroliths remain a possibility, which could

result in reobstruction following catheter removal. Contrast urethrography is the best method to assess this. The contrast should be instilled with enough pressure that stenotic areas of the urethra can be identified. A double contrast pneumocystogram can then be performed to evaluate for urolithiasis or soft tissue lesions within the bladder if ultrasound is not available (Figs 6, 7). Note that only contrast urethrography and rectal examination can examine the distal two thirds of the urethra. If neither of these procedures have been performed, the cat's lower urinary tract has not been fully examined and underlying problems may have been missed.

### Unsuccessful catheterisation

In cases where a urinary catheter cannot be passed retrograde then there are still alternative approaches. Fluoroscopic or surgical normograde catheterisation can be considered, but these often require specialist equipment, particularly for the less invasive approaches.

For recurrent or refractory cases, surgical intervention to bypass the distal urethra via a urethrostomy could be considered. A recent study evaluating the owner's perception of their cat's quality of life following this surgery demonstrated that the majority had a quality of life comparable to before the surgery or better (Slater and others 2020). This was predominantly performed by specialist surgeons, which may have had an impact on the results achieved. Perineal urethrostomy is a salvage procedure that should not be undertaken lightly. Unless the obstruction is in the penis, it may not provide permanent relief, and the cats are likely to continue to display clinical signs and risk reobstruction in the remaining urethra. It also risks recurrent urinary tract infections (UTIs) and stricture formation.

### Postprocedure care

Daily catheter care involves cleaning the perineal region with antiseptic solutions and wiping down the catheter tubing. The sites of suture placement should be checked for signs of infection or loosening.

### Fluid therapy considerations

Following catheter placement and re-establishment of urine flow, there can be significant changes in urine production. The back pressure will have altered the medullary interstitium and any acute kidney injury will affect the nephrons, consequently reducing their concentrating ability. This can result in the production of large quantities of urine, which is termed postobstruction diuresis.

If not addressed sufficiently quickly this can lead to dehydration as well as potassium loss. Somewhat counterintuitively this can then require electrolyte monitoring and may necessitate potassium supplementation.

Monitoring of fluid balance at this stage is key

## Companion animals

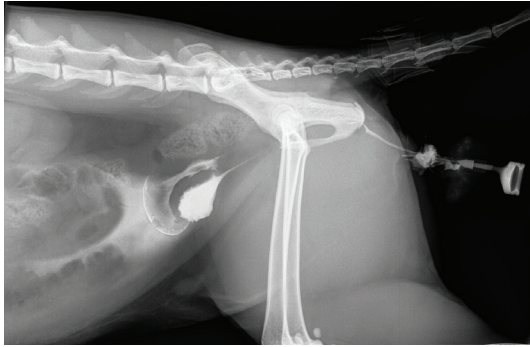


Fig 6: Contrast urethrograms are often necessary to identify the presence and site of urinary tract leakage. A degree of pressure, enough to distend the bladder and urethra, is necessary to ensure that any leaks are apparent. This image shows free contrast within the caudal abdomen

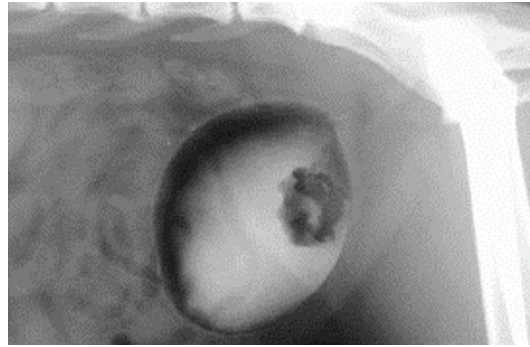


Fig 7: Contrast urethrograms also have benefit in highlighting soft tissue structures that are not apparent on plain radiographs, and their use augmented with ultrasonography

and can be achieved a number of ways:

- hydration status;
- packed cell volume, total solids, azotaemia, electrolytes;
- weighing the patient every eight to 12 hours;
- recording 'ins' (ie, voluntary intake, wet food and IV fluids, including any infusions);
- recording 'outs' (ie, urine production, vomit, diarrhoea).

In the initial phase of postobstruction diuresis, the volumes leaving the body (outs) are likely to be higher than the volumes administered or taken in voluntarily (ins). Having a record of the ins and outs, and calculating the difference between them, is critical in these patients. At this point, the IV fluid rate should be tailored to match that of the urine output. Once the ins are matching the outs, then the rate of IV fluid supplementation can be gradually reduced. If the postobstructive diuresis is resolving and urine output is being driven by the IV fluid therapy instead, it should decrease as fluid therapy is tapered.

If urine output appears to decrease rapidly or urine production stops, the first step should be 'troubleshooting the urinary catheter'. This involves checking that any clamps on the tubing are open and the urinary bag is lower than the patient. Flushing the catheter with sterile saline can also help, as if there is any debris accumulating it could be causing an obstruction. To check that the catheter is flushing, an ultrasound probe can be placed over the bladder and the catheter tip identified, saline is then infused, and should be seen as fluid disturbance in the bladder, confirming patency.

### How long should the catheter be left in place?

It is not benign to leave a urinary catheter in situ. They risk ongoing urethral and bladder trauma, as well as predisposing the cat to UTIs. If the catheter was easy to place with no resistance and there is no evidence of remaining obstruction, as is often the case with a urethral spasm or mucoid plug, then the catheter can be removed after lavaging the bladder.

The patient can then be monitored to see if they can pass urine for themselves. Incontinence pads can be weighed in and out to give a surrogate marker for urine production, with 1 g equating to 1 ml. IV (or subcutaneous) fluids are maintained during this time and prazosin can be given (see below). These cases usually urinate quite quickly, after which they can be sent home where it is less stressful than in the clinic, with a seven- to 10-day tapering course of prazosin (see below) which, hopefully, prevents immediate reobstruction.

However, the most common approach is to leave the catheter in place until the urine becomes clear. It can be a tricky balance as while the urine will become clear once the initial inflammation resolves, at some point the catheter itself will cause inflammation so the urine becomes cloudy again. The catheter should be removed before this, as soon as the initial signs of inflammation resolve. This typically occurs 12 hours to three days after catheter placement. Urine analysis can be performed to check features such as concentration or crystal presence. The decision as to whether a UTI is present based on urine analysis, and particularly whether it necessitates treatment, is nicely summarised in the International Society for Companion Animal Infectious Diseases (ISCAID) guidelines (Weese and others 2019).

### Medications

#### Analgesia

These patients are unstable and will be so for some time. There is the possibility of dehydration in the postcatheterisation period and reobstruction is most likely to occur in the week following the initial episode. During this period, opioids such as methadone or buprenorphine are appropriate choices to provide analgesia. As these patients are not likely to eat for these initial days, and renal perfusion is not guaranteed, NSAIDs should be avoided. Their use can be reconsidered in the chronic management of these cats, following discharge when they are eating consistently.

## Companion animals

Gabapentin can also be considered, as it may have some beneficial effects in treating a neuropathic component of the pain, and the anxiolytic effect may assist in the postobstructive period.

### Antibiotics

Only a minority of cats presenting with urethral obstruction have a concurrent UTI or have a UTI as the primary cause of their urinary obstruction. Urine sediment evaluation is indicated in all patients to exclude infection, particularly in older cats where the incidence is higher. However, antibiotic therapy is still not indicated without confirmation of a UTI.

Most cats with a urinary obstruction will typically have a urinary catheter in place for two to three days; if they are treated with antimicrobial therapy at this time they are at a higher risk for developing a resistant UTI. Again, the ISCAID guidelines (Weese and others 2019) are very helpful and suggest management approaches when faced with bacterial infection with catheters in place, and when such approaches are indicated.

### Antispasmodics

Medications which act on the urethral muscle to minimise the spasm may help in preventing recurrence during the initial recovery period in cats. These medications are normally started while the patient is hospitalised and improving clinically, with the aim of continuing administration as part of the outpatient regime. There are two broad categories of medication which can be considered, discussed below.

#### Prazosin

Prazosin is one of the most commonly used drugs for this indication. It is an  $\alpha$ -1 receptor antagonist and acts primarily on the smooth muscle of the urethra, reducing muscular spasm which can help to prevent recurrence of obstruction in cats following discharge. Phenoxybenzamine is an alternative, although the limited evidence available suggests that prazosin may be more effective, especially as phenoxybenzamine is believed to take up to five days to start working. These drugs act upon the  $\alpha$ -1 receptors of vascular muscle, so they can cause vasodilation and hypotension. For this reason, it is advisable to measure blood pressure to confirm patients are normotensive before starting this treatment. Azotaemia should also have resolved before they are administered, as the hypotension may incur additional injury to the kidneys.

There have been two recent studies which have failed to show a benefit of prazosin in reducing the risk of reobstruction (Hanson and others 2021, Conway and others 2022). Further work is needed to identify if subpopulations of cats do benefit from the use of this drug to help guide recommendations. It is possible that the failure to see any positive effect was

because the drug was stopped suddenly, rather than weaned down over seven days, which author DGM feels is most effective.

### Skeletal muscle relaxants

Skeletal muscle relaxants, such as dantrolene, can also be considered, although there is less evidence for the use of this drug. Oral diazepam has been associated with idiosyncratic hepatic necrosis, and there is no evidence that it will improve muscle relaxation in these cats, so its use should be avoided.

Antispasmodic medications are typically used for one to two weeks following discharge to prevent patients reobstructing, after which they should be weaned off. Do not stop these drugs abruptly as they may lead to rebound urethral spasms. The long-term effects of their use are unknown. If patients are representing frequently then the current management should be reviewed (eg, multimodal environmental modification and stress reduction for FIC) rather than simply treating the spasm. However, in patients where finances or the owner's wishes will not address the underlying cause, then long-term use of these drugs with unknown consequences should be discussed.

### Discharge

If all has gone well with the initial management and the patient has recovered from the obstruction, going home will usually help their recovery as most cases have FIC, so the stress of the clinic will exacerbate their underlying disease. The plan for discharge should involve continued analgesia (such as transmucosal buprenorphine or NSAIDs), potentially with antispasmodics, and a wet diet should be advised.

Where possible, owners should be encouraged to give phone or email updates about their cat every couple of days in the initial recovery period. The stress of visiting the vets can result in a significant setback, so it is best avoided if possible.

### Long-term management

If episodes of cystitis become recurrent then further investigation is necessary to determine what changes in home management need to be introduced. The nature and history of the urethral obstruction should suggest whether FIC, uroliths or something else appears to be the cause of the cat's bladder and urethral dysfunction. Details about further in-hospital investigation to rule out complicating factors, detailed questioning about the provision of key resources (eg, litter tray, hiding places, food/water sources) and assessment of potential intercat relationships, which is needed to determine the triggers for FIC, will be discussed in the third and final part of this series (due to be published in a subsequent issue of *In Practice*). The multimodal aspects of FIC management are also beyond the scope of this article.

### Prognosis

Whether the cat obstructed because of FIC-associated plugs or spasm, or because of urethral stones, the risk of the cat developing recurrent signs of feline lower urinary tract disease is up to 60 per cent, of developing recurrent urethral obstruction is 30 to 60 per cent and of being euthanased because of recurrence of the obstruction is 5 to 20 per cent (Segev and others 2011, Kaul and others 2020). When urethral obstruction recurs it is commonly within the first seven days of returning home from the clinic. The long-term prognosis is dependent on whether the owners are willing and able to undertake the environmental, nutritional and potentially long-term medical care that cats with FIC need. If they do, the risk of recurrent obstruction can be significantly reduced, with 85 to 95 per cent of cats staying well in the long term (Gunn-Moore and Shenoy 2004, Buffington and others 2006). However, if the owners are unwilling or unable to make the necessary changes, the risk of recurrent FIC, and repeated urethral obstruction, remains. It is important to discuss the prognosis with the owner; some owners may choose to have the cat euthanased rather than try to re-establish urethral patency.

### Summary

Taking the time to stabilise blocked cats can make all the difference, greatly facilitating safe anaesthesia, which allows the best chance of successful urethral catheter placement.

Tips that really help in the management of these cases include rectal examination to determine the nature of the obstruction, allowing for the selection of the most appropriate method for removing the obstruction and straightening the urethra which significantly aids successful retrograde passage of a urethral catheter. Monitoring and addressing postobstruction diuresis is essential. Analgesia and potentially prazosin are needed in the initial days following the treatment of the obstruction. Most cats are able to leave the clinic within one to three days. Counselling owners as to the likelihood of recurrence and the ongoing nature of the underlying condition is essential.

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