CASE REPORT

Pericatheter encrustations: an unusual cause of a retained Foley catheter

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SUMMARY

Urethral catheterisation is a common bedside procedure in hospitals. After they have served their purpose, indwelling Foley catheters can be removed by deflating their balloon. The incidence of a retained Foley catheter, however, is not uncommon, failure to deflate the intravesicular balloon being the most common reason. Causes of retained Foley catheters are many and the method to deal with each varies with the inciting cause. Pericatheter concretion or encrustation, an unusual cause of difficulty in removal of the catheter, is often difficult to recognise and hence is prone to faulty management. We report a case of a patient with a retained Foley catheter due to pericatheter encrustations; multiple attempts to remove it were made before the patient presented to our hospital. The case is being reported for the unusual location of retention, and the associated diagnostic and therapeutic dilemma.

BACKGROUND

Urethral catheterisation is a procedure very frequently performed on hospitalised patients.¹ Complications associated with the use of Foley catheters include infections, catheter encrustation, catheter blockage, bladder spasms, balloon rupture, leakage and retained catheters.^{2 3} These complications are usually associated with prolonged use of indwelling catheters, although short-term use of Foley catheters is not necessarily free of problems. Physicians and surgeons are likely to often face the problem of a retained Foley catheter in their career, and knowledge of the possibilities and their management is essential. The purpose of this article is to report an unusual case of a retained Foley catheter due to pericatheter crusting (figure 1), which was perplexing due to the unusual site of the retention, posing a diagnostic and therapeutic dilemma.

It also aims to highlight the potential pitfalls in diagnosis and management if not properly recognised.

CASE PRESENTATION

An 80-year-old ambulatory man presented with a retained 16 French Foley catheter. He had been catheterised for acute urine retention 1½ months before. The catheter stopped draining urine and there was continuous pericatheter leakage of urine thereafter, for which he sought medical attention. By the time he came to us, multiple efforts to change the catheter had already been made at several centres, by deflating the balloon of the catheter, but in vain. The patient was not aware if any fluid was aspirated from the balloon at any of these centres. The balloon of the Foley catheter was not palpable on digital rectal examination. No fluid could be aspirated from the balloon of the catheter using a syringe. Sonography of the urinary bladder did not reveal the presence of any intravesicular balloon. Efforts to push the catheter further inside, into the urinary bladder, caused pain to the patient. The possibility of the balloon having slipped into the urethra was conjectured. The perineum and penile portions of the urethra were palpated to look for any palpable balloon in the urethra. As the balloon could not be located even on palpation, it was thus inferred that the it had already deflated and slipped into the urethra. Gentle sustained traction was applied and the catheter slipped out of the urethra. The catheter tip was blood-stained and there were encrustations all around the tip. The balloon of the catheter was found to be completely deflated but there was concretion on its intravesicular part that had prevented its earlier removal (figure 1). After removal of the catheter, the patient was able to pass urine spontaneously, and was managed with oral antibiotics and tamsulosin.

INVESTIGATIONS

Failure to deflate the balloon is the most common cause of a retained Foley catheter. Abdominal sonography is quick to diagnose the status and location of the Foley balloon and can guide needle puncture of the balloon for removal. The balloon may sometimes get accidentally pulled into the urethra, for example, in irritable patients. This is again best documented by the absence of an intravesicular balloon on sonography, and the balloon being clinically palpable along the course of the urethra. Ultrasound of the abdomen can also help in detection of any concretions or adherent stone along the

Figure 1 Foley catheter with encrustations surrounding the catheter tip.

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intravesicular portion of the catheter. Although not in routine practice for work up of retained Foley catheters, the case being reported strongly supports the use of X-ray of the pelvis in such patients, which could have clinched the diagnosis in our case.

DIFFERENTIAL DIAGNOSIS

The differential diagnosis of the cause of catheter retention was failed deflation of the intravesicular balloon or the balloon having slipped into the urethra—failure to demonstrate the intravesicular balloon on sonography raised this suspicion. But with the balloon not being palpable in the urethra on clinical or digital rectal examination, a completely deflated balloon within the urethra with some adhesion to the catheter was conjectured. Keeping in mind the short history of 1½ months, concretion as a cause of retention was not kept as a possibility.

TREATMENT

With a short history of 1½ months, the chance of urethral concretion as a cause of a retained catheter was low in our assessment. A possibility of a catheter tip having slipped into the urethra was thought of. Gentle sustained traction was applied to see if the catheter could be removed. The catheter slipped out, but the tip was stained with blood, suggesting some degree of urethral mucosal injury. Any urethral injury during the entire process, from catheter insertion to removal, would carry a long-term risk of a urethral stricture.

OUTCOME AND FOLLOW-UP

At follow-up of over 6 months, the patient was on tamsulosin and passing urine with an average flow rate of 10 mL/s and a maximum flow rate of 28 mL/s on uroflowmetry.

DISCUSSION

A retained urethral catheter is not uncommon. Failure to deflate the retention balloon is the most common cause and its management has been frequently described.⁴ An encrusted urethral catheter balloon left for a long duration is an uncommon cause of retention of a Foley catheter, for which removal may necessitate as much as a suprapubic cystostomy and cutting of the intravesicular portion of the catheter. Patients with retained encrusted Foley catheters usually complain of pain in the genitalia, strangury, bladder irritability causing spasm and urinary leakage. The coarse and irregular surface of the concretions may cause trauma to the urethral epithelium, if removal is attempted, even after complete deflation of the balloon. In our case, the catheter had already slipped into the urethra due to multiple previous manipulations before referral to our hospital. The cause of retention could not be made out with certainty even after an ultrasound. The catheter was ultimately removed with gentle sustained traction. The authors, however, emphasise the fact that application of any force to remove the catheter can cause urethral injury, leading to stricture and infection, and such a practice is strongly discouraged. This is underlined by the fact that, on removal of the catheter, blood staining was seen on the catheter tip, suggesting a urethral injury, however, small it might have been. Suprapubic cystostomy should be opted for where the Foley catheter has extensive encrustations or when it is associated with intravesicular calculi. Many minimally invasive

techniques have been described for removing encrusted Foley catheters without causing additional morbidity to the patient. Intraluminal pneumatic lithotripsy (Swiss lithoclast) for the removal of encrusted urinary catheters has been described by Canby-Hagino *et al.*⁵ This technique has been used for intraluminal encrustations of nephrostomy tubes and ureteral stents, but its efficacy in removing external encrustations of Foley catheters has not been well studied. Extra corporeal shock wave lithotripsy has proven to be beneficial in breaking and removing intravesicular calculus.⁶ This principle can be used to fragment stone-like encrustations over a retained Foley catheter balloon.⁷ The technique is simple, rapid and non-traumatic and provides instant relief.

Learning points

- ▶ Encrustation surrounding a catheter tip should always be kept as a possibility in cases of retained Foley catheters where the balloon has been confirmed to be deflated on ultrasonography.
- ▶ Catheters should not be pulled with force if they are not coming out with gentle traction.
- ▶ Attempts to rupture the balloon either by instillation of ether or by inflating it with a large volume of air should not be made. This is associated with increased risk of urethral rupture or injury.
- ▶ The use of extra corporeal shock wave lithotripsy (ESWL) for removing encrustations can be tried as it safe and atraumatic, and provides immediate relief.
- ▶ Suprapubic cystostomy for cutting the intravesicular portion of the catheter should be strongly considered in such cases where ESWL is unavailable or fails to break the encrustation.

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