CASE REPORT

Knotted urethral catheter: an unusual complication in adults

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SUMMARY

Knotted feeding tubes or urinary catheters has been reported as a rare complication in paediatrics when draining the bladder. This is caused by inserting thin flexible tubes too far in, allowing it to coil. We present a case of a 70-year-old woman who was catheterised during a routine spinal surgery, and the catheter coiled and balloon failed to deflate requiring a cystoscopic approach to puncture the balloon and remove it. Awareness of this complication in female catheterisation and education on length of catheter insertion is important to avoid this.

BACKGROUND

Spontaneous catheter knotting is an extremely rare complication, especially in adults.

CASE PRESENTATION

A 70-year-old woman was admitted for an elective decompression and stabilisation surgery of her lumbar spine (L2/L3). She was catheterised at the time of her operation with a 12Fr long urethral catheter, and the procedure was uneventful. The patient was recovering well on the ward and started mobilising. On day 2 postoperatively, her catheter was planned for removal. Despite multiple attempts by several experienced nurses and doctors, the catheter balloon failed to deflate, and the valve did not allow further inflation. Other methods of cutting the valve or passing a wire via the balloon channel were attempted, and the catheter could not be removed. However, the catheter continued to drain.

An abdominal CT was scheduled to investigate this and rule out any bladder pathology; this revealed that the catheter was knotted inside the

Figure 2 Sagittal CT views of the bladder showing a urethral catheter with a knot just above the bladder neck.

bladder (see [figures 1 and 2](#)). She underwent a rigid cystoscopy under general anaesthetic. This confirmed a knotted catheter just under the balloon preventing the balloon from deflating (see [figure 3](#)). The balloon was punctured using a Wilson's needle, and the catheter was removed.

OUTCOME AND FOLLOW-UP

The patient completed her postoperative rehabilitation and was discharged home.

DISCUSSION

Spontaneous catheter knotting is a rare complication. There have been reports of knotted catheters in paediatric literature. It has been attributed to factors such as flexibility, length and diameter of the catheter. Its probable mechanism being the catheter coils into itself within the bladder, and the traction of removal causes a knot to form.^{1,2} Typically, catheters that are smaller in diameter and longer may contribute to increased risk of knotting.³

However, there is very limited evidence highlighting knotted catheters in adults. One case was reported in a 26-year-old man with an augmented bladder who regularly performs clean intermittent self-catheterisation for many years and presented once with a knotted catheter that was removed by gentle traction. It was suggested that the catheter knotted due to a combination of inserting the catheter fully and the patient's underlying bladder pathology.⁴

In the case we present, a catheter knotted in a female patient with no underlying urethral or

Figure 1 Scout CT image showing a knot in the catheter.

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Figure 3 Rigid cystoscopy showed catheter balloon failure to deflate due to a knot in the catheter.

bladder pathology. Although the catheter was draining, the knot affected the balloon mechanism preventing it from deflating.

Nowadays, catheters tend to be universal in length with the shorter female catheters now phased out. This is on safety grounds to avoid accidentally using short catheters in male patients. When a long catheter is inserted in a male patient, it is recommended that the catheter is inserted fully and the balloon not to be inflated unless urine is seen draining to confirm position. In this case, it is likely that the catheter has been inserted fully and curled in the bladder. After the balloon was inflated and catheter pulled down, a knot developed and thus prevented the balloon from deflating.

In females and when using long urethral catheters, there is no need to insert the catheter fully as the female urethra averages 4 cm.⁵

This rare complication has a common theme with the published case reports: thin and long catheters that are inserted to the length that allow it to coil in the bladder.

Learning points

- Spontaneous urethral catheter knotting is a rare complication but can happen in adults.
- Consider catheter coiling and subsequent knotting when experiencing difficult catheter removals.
- There is no need to insert the catheter fully as the female urethra averages 4 cm.

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