



Holmium Laser for Retrieval of Knotted Catheter- A Series of two Unique Cases

Authors

Dr. Amit Kolekar¹, Dr Juned Shaikh², Dr Kaveri Pai³, Dr Huma Shaikh⁴

^{1,2}Assistant Professor in Urology, JNMC, Wardha

³Assistant Professor in Anaesthesiology, JNMC wardha

⁴Assistant Professor in Pathology, JNMC Wardha

Corresponding Author

Dr Amit Kolekar

Flat No 3, Subhadra Towers, Ground Floor, Paloti Road, Opposite Alphonso High School,
Sawangi (Meghe), Wardha, Maharashtra – 442001

Email : amitko_1999@yahoo.com, phone : +91 9920211007

Abstract

Catheter knotting, though rare, various techniques have been described for retrieval with significant morbidities such as general anesthesia, radiation exposure during fluoroscopy and hematuria. This report demonstrates knotting in 2 unique cases, with a novel idea for retrieval using holmium laser. First case represents an unusual complication of CISC in which a knot formed during the procedure, with Ryle's tube. Other represents knotting of household tube inserted for gratification, both being large size tubes with severe entanglement. This paper aims to apprise readers of this use of holmium laser, and help reduce morbidity in such cases.

CASE 1

A 30 year old man presented to the Accident and Emergency Department because he was unable to remove a catheter after doing clean intermittent self catheterization (CISC) through an abdominal catheterizable stoma. His bladder had been reconstructed for ectopiavesicae when he was young and later cystectomy with Penn's pouch and Mitrofinoff procedure done 4 years back. He had been doing CISC from the age of 26 years with no difficulty. On presentation the Ryle's tube was in situ but not draining. There was leakage of urine around the catheter and no lump was palpable per

abdomen. The tube could not be withdrawn. X ray KUB (fig.1) was done which showed a big knot that was unlikely to come out without unwinding. Under general anaesthesia, a semirigid ureterorenoscope was introduced besides the catheter to visualize the knot. After a defeated attempt to dilate the stoma for catheter removal, a forceps was introduced in an attempt to unwind the knot without success. A thick holmium fibre was introduced through the working channel and the knot was cut to remove the two fragments under vision (fig.2).



CASE 2

A 17 year old boy presented to the Accident and Emergency Department because he was unable to remove a tube that he had inserted for self gratification. It was approximately 14 fr plastic tube used in a household appliance. There was leakage of urine around the catheter and the bladder was not palpable. The tube had been pulled frantically by the patient pulling the knot in the bulbar urethral area, where a large (approximately 5 cm) knot was palpable that was unlikely to come out without unwinding. Under general anaesthesia, a rigid cystoscope was introduced besides the catheter to visualize the knot. A forcep was introduced aiming to unwind the knot in vain. A thick holmium fibre was introduced through the working channel and the knot was cut to remove the two fragments under vision. 12 frfoley catheter was placed.

FOLLOW UP

First patient had absolutely no morbidity and was discharged on the same day. The 2nd patient was discharged next day and catheter removed on 3rd day. Both are symptom free at present on followup

DISCUSSION

Catheters inserted for various purposes, urological as well as non-urological, are known to rarely knot spontaneously inside the human body with an estimated incidence of 0.2 per 100,000 catheterizations^[1].

Approximately 40 cases of intravesical knotting have been recorded in the world literature, more commonly in males than females, and more commonly in neonates and children than adults^[2]. Proposed mechanisms for the knotting of catheters blame its flexibility, small diameter and intravesical length. Probably the extra length coils around itself and then the catheter end loops through these coils^[4]. The coilstighten on trying to pull out the catheter, cinching down the knot^[2]. If the diameter of this knot exceeds that of urethra the catheter gets stuck. Water-current generated by the flow of urine around the catheter may also play a role in the genesis of catheter knotting^[2]. Raveenthiran suggested that the catheters slender than 10 Fr, over-distended bladder and insertion of excessive length of catheters, as risk factors for catheter knotting^[2]. Various techniques have been described to retrieve the knotted catheter including sustained traction under anesthesia, unwinding the knot

using a guide-wire through the catheter under fluoroscopy, endoscopic retrieval, suprapubic-cystostomy and perinealurethrostomy^[4,7-10] causing significant morbidity, such as general anesthesia, radiation exposure during fluoroscopy, hematuria and stricture^[1].

The use of holmium laser as in these cases has not been reported to best of our knowledge, and has potential to completely avoid the above mentioned morbidity especially in cases with large catheters and large knots.

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