CASE REPORT

Twisted Fate of Bladder Catheters

N Sithasanan, FRCS(Paed. Surg), M Kihne, MRCS*, R R Naidu, FRCS, T M Ramanujam*, FRACS(Paed. Surg)**

*Department of Surgery, University Malaya Medical Centre, 50603 Kuala Lumpur, **Hospital Alor Setar, Kedah

Summary

Catheter knotting is a rare complication of bladder catheterisation. Retention of catheter parts resulting in calculus formation is even rarer. We report a case of a vesical calculus formed over a broken and retained supra-pubic catheter which to the best of our knowledge has yet to be reported, along with three other cases of bladder catheter knotting.

Key Words: Bladder catheterisation, Knotting, Breakage, Vesical calculus

Introduction

The use of bladder catheters is an ancient medical practice, and to date is a routinely performed procedure that is often taken for granted. Manufacturers strive to render them more pliable for ease of use and to minimise trauma to the urothelium. Knotting of these fine bore catheters in the bladder is a rare but reported incident. Accidental breakage of the catheter with its long-term retention in the urinary bladder and subsequent calculi formation in the paediatric age group, to our knowledge has not been reported earlier.

Case Reports

Case 1

An eight-year old boy presented with a four- year history of intermittent dysuria and frequency of micturition. Four years prior to this admission he had been admitted with a closed fracture of the inferior ramus of the pubis and urinary retention following a fall from a height. A feeding tube size 8F was inserted as a supra-pubic catheter (SPC) at that time. A cystoscopy revealed a contusion to the lateral wall of his proximal urethra that was treated conservatively. He was lost to follow up until his recent admission. An ultrasound revealed the presence of a tubular structure within the bladder with a vesical calculus. Cystoscopy revealed a urethral stricture and within the bladder a retained feeding tube about 10cms in length encrusted with a vesical calculus in its coils (Fig 1), requiring a cystostomy to remove it. His recovery was uncomplicated and following two post operative clinic visits, he has once again been lost to follow up.

Case 2

An eighteen-year old boy presented with an acute retention of urine secondary to a posterior urethral calculus. A SPC was inserted since a urethral catheter could not negotiate the urethra. He underwent a successful vesico-litholapexy followed by the insertion of a 16F Foley catheter per urethra. However, post operatively it was impossible to remove the SPC. Traction on it caused synchronised inward movement of the Foley catheter proving that they were intertwined. The SPC was therefore cut flush at the skin, the Foley deflated and gently removed with the supra pubic tube knotted around it (Fig 2). Review a week following the incident and follow up six months later revealed no untoward complications.

Case 3

A male neonate was referred to our department following the inability to remove a feeding tube that had been introduced into the urinary bladder to acquire a urine sample for further investigation of prolonged jaundice. The feeding tube with its knot was gently

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Corresponding Author: N. Sithasanan, Consultant Paediatric Surgeon, University Malaya Medical Centre, 50603 Kuala Lumpur, Malaysia

removed with sustained traction under sedation. The child made an uneventful recovery.

Case 4

A male neonate born with an oesophageal atresia was catheterised with a 5F feeding tube. Removal of the last few centimetres of the catheter was difficult. Palpation revealed the presence of a knot in the penile urethra. Sustained traction enabled successful retrieval. Macroscopic haematuria prompted reinsertion of a silastic Foley 6F to prevent a stricture. The child has made an uneventful recovery and has remained well.

Discussion

Bladder catheterisation is a commonly performed procedure. The common complications of catheterisation include infection, trauma to the urothelium, perforation, creation of false tracts and dislodgement. Bladder catheter knotting although rare is a documented complication with a few reports in the literature[1-3]. Commonly accepted theories for knotting are deep insertion of these catheters into the bladder with resultant coiling and knotting[3], or increased detrusor pressures during emptying. Awareness of this complication is of paramount importance during catheterisation of the bladder especially with the use of newer fine bore tubes that coil easily.

In children calculi in the bladder are usually secondary to a bladder pathology, stasis of urine, or secondary to a proteus infection. Calculus formation over a retained supra pubic catheter remnant in a child, to our knowledge is yet to be reported in the English literature. We attribute the stone formation to foreign body reaction, and stasis of urine due to the urethral stricture. Catheters tend to fatigue in situ and this may have aided its breakage during removal. Endoscopic retrieval of these catheters has been reported[3]. In our series except for the knotted catheter with the calculus that required surgery all the other catheters were removed per-urethra with minimal effort and no immediate problems. The short-term follow up has revealed no untoward problems.

In conclusion bladder catherisation although routinely performed should be done diligently. Restricting the length inserted into the bladder while using fine bore feeding tubes and noting the exact length inserted may reduce the complications of knotting and breakage.

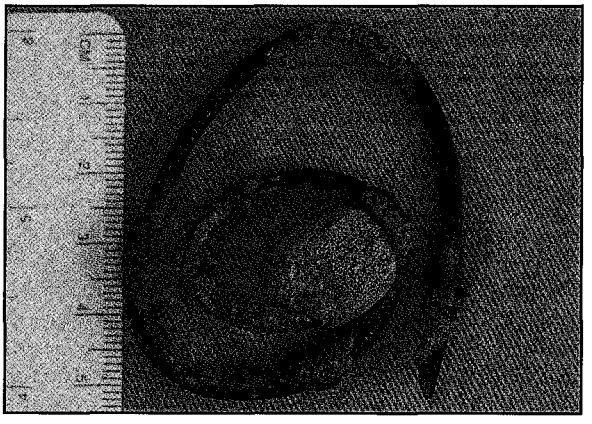

Fig 1: Retained supra pubic catheter with vesical calculus and encrustation

Fig 2: Knotted Cystofix and Foley catheter

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