

Case Report

Spontaneous intravesical knotting of infant feeding tube: a rare case report

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ABSTRACT

Infant Feeding tube is universally used in Paediatric Patients for many diagnostic as well as therapeutic purposes. Intravesical knotting of IFT is rare but having significant morbidity. We here present such a rare case report in 6 month old patient treated endoscopically. Sometimes it is very difficult to remove knotting with various techniques discussed later, but it may cause more trauma to urethra. There are only few reported cases worldwide about it in few journals. But Endoscopic removal being safe among all. In such Urological Emergency, always early Identification is most important to prevent further complications. As neonate and infant's urethra is small compared to the available smallest Foley catheter (8Fr), a 5 Fr and 8 Fr feeding tubes are practical alternatives to drain urine from the bladder. Intravesical catheter knotting of small feeding tubes placed as urinary diversion from the bladder is rare. The first case of catheter knotting in a pediatric patient was reported in 1976.

Keywords: Spontaneous intravesical knotting of IFT, Suprapubic cystotomy, Urinary catheters, Urological emergency in pediatric patient

INTRODUCTION

It is extremely important to understand the anatomy of a male urethra especially in children.¹

A newborn male urethra measures 5 cm. This increases to 8 cm and 17cm by 3 yrs and adulthood respectively. In females urethral length is comparatively smaller and grows at a slower rate. Female urethra measures 2.18cm at birth and increases to 2.54cm by 5 yrs and 3.78cm in adulthood. It is also equally important to secure the catheter well in order to prevent inadvertent advancement of the catheter into the bladder. In this child, though the catheter was very well secured, it had actually been inserted far into the bladder (20cm).

The idea of using infant feeding tubes as temporary urinary catheters in pediatric age group is not new. The stiff nature of these tubes helps in easy catheterization in

comparison to smaller size Foley catheters which due to excessive pliability are difficult to manage.²

CASE REPORT

A 6-month-old boy came to our hospital in surgical casualty, referred from a Peripheral centre following an unsuccessful attempt to remove an infant feeding tube (IFT) (5 Fr) placed for some investigations. Spontaneous knotting of the tip of feeding tube was suspected and confirmed by radiograph (Figure 1).

It was clearly visualized that there were loops of knots of the IFT tip. Because the infant's urethra was quite small compared to the dimension of the three loops of knots, manual removal through the urethra by traction was not considered possible. Finally, Suprapubic cystotomy was done with the knotted part of the catheter removed through suprapubic cystotomy (Figure 2). Intra operative

picture is shown in Figure 3. The excised knot with IFT is shown in Figure 4.



Figure 1: Radiograph showing knotted infant feeding tube.



Figure 2: Suprapubic cystoscopic view showing knotted infant feeding tube.



Figure 3: Intraoperative picture of knot being removed via sheath.

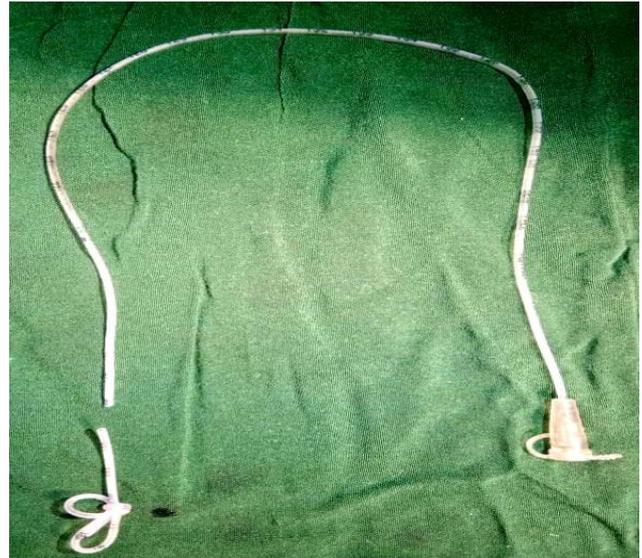


Figure 4: The knot in the infant feeding tube.

There were 8 Fr silicon catheter was inserted into bladder and irrigation was started from it. Once Bladder was palpable, suprapubic cystostomy was done using Nephroscope. Knotting of IFT was identified and it was cut distal to knot. Proximal knotted part was removed via sheath while the distal portion of the catheter was pulled through the urethra. Rest of the Bladder was found normal. A silicon catheter was kept in situ and after 7 days catheter was removed, and patient passed clear urine without any difficulty.

DISCUSSION

Urethral catheterization is a common procedure performed by all levels of personnel involved in providing health care. The incidence of knotting of the feeding tube is about 0.2 per 100,000 catheterizations.³ Worldwide only 40 cases have been reported till date. It is accepted that the complication rate associated with urethral catheterization is low. Most of the complications are minor such as dysuria and urethral bleeding that require no specific treatment. Other complications include urinary tract infection, urethral stricture, encrustation, and stone formation.

The widely accepted hypothesis for knotting is the insertion of the catheter far into the bladder. When excessive length of the highly flexible small caliber catheter is inserted into the bladder, it forms a loop and coils on itself. As the bladder decompresses the catheter tip loops through the coil. When the catheter is pulled out, the coil tightens clinching down into a knot. Although different methods have been described to remove a knotted catheter, attention should be directed towards prevention of this complication by careful selection of the catheters and gaining better understanding of urethral anatomy and safe insertion lengths.

The majority of catheter knotting occurred in males 2 years old or younger. The Hypothesis of catheter knotting is excessive long segment of feeding tube in the bladder.⁴ Coil tighten Cinching down in a knot when counter traction is applied to remove catheter. If knot diameter is bigger than diameter of Urethra, it gets stuck and Bladder spasm attributed to it. Water Current generated by urine flow also aggravate knotting.⁵ Intravesical knotting of feeding tube can be prevented by insertion of the catheter into the bladder only as far as necessary.

Practically, the feeding tube should be inserted until urine is observed in the feeding tube lumen, and a few centimetres further advancement is only necessary.

There are several options for managing intravesical catheter knotting. The first report of this complication in a child was successfully removed by using a guide wire to untie a knot under fluoroscopy.⁶ Gentle steady traction under sedation or general anaesthesia has been successful in many reports. This option is generally helpful in cases of a single knot and girls with more pliable urethra. Surgical removal through suprapubic cystotomy is the last resort if the non-invasive procedures mentioned above fail.^{7,8}

The present report details a case with knot of the distal end of the feeding tube. After failing attempt to untie the knots, the catheter had to be removed by suprapubic cystotomy.⁹ It is clearly seen that this rare complication occurs because excessive length of the feeding tube is inserted into the bladder.

Occasionally, this loop segment of the feeding tube becomes coiled and forms a knot within the bladder. It is extremely important to understand the anatomy of a male urethra especially in children.^{10,11}

CONCLUSION

Care should be taken not to insert the infant feeding tube too high up in the bladder which can result in coiling and subsequent knotting which can be a difficult condition to manage even in the best of the hands. Early identification and referral are the key to managing such cases.

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