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Spontaneous knotting of foley's catheter in urinary bladder: A case report

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Abstract

We are presenting a case of spontaneous knotting of Foley's catheter in a 64 year old male. Suprapubic ultrasonographic-guided puncture of balloon of Foley's catheter was done under local anaesthesia. Knotted Foley's catheter was gently removed after pushing anaesthetic jelly in urethra by the side of Foley's catheter. Mild but sustained traction helped the removal of the Foley's catheter without causing any injury to the urethra. Though the spontaneous knotting of Foley's catheter is a rare incidence but it occurs and that's why whoever inserts Foley's catheter per urethra in urinary bladder must keep in mind spontaneous knotting.

Keywords: Foley's catheter, spontaneous knotting, urinary retention

Introduction

Catheterization of urinary bladder is one of the commonest procedure in a casualty department or a ward of any hospital. It is estimated that 10% to 15% of hospitalized patients will be catheterized ^[1]. Common causes of Foley's catheter channel obstruction are manufacturing defect or debris block or crystal formation. Manufacturing defect causing obstruction can occur any time after catheterization but debris block or crystal formation takes weeks. Spontaneous knotting of Foley's catheter is a rare incidence and happens 0.2 per 1,00,000 catheterization ^[2]. Approximately 40 cases of this complication have been recorded in the world literature. Thin catheter (size less than 10 Fr), over distended bladder, contraction of bladder and insertion of more than 10 cm length of catheter inside the bladder are identified risk factors ^[3]. Intravesical catheter knotting is mostly reported in the patient age group of 2 years and lower ^[4].

Case report

A 58 years old man was admitted in Umkal Hospital, Gurgaon, Haryana with dribbling of urine with history of prostatism (dysurea with frequency of nocturnal micturition, getting up 4-5 times in night to pass urine). He had no other comorbidity except BPH (Benign Prostatic Hypertrophy). Due to dribbling of urine his lower garments were always soiled with urine. A 14 Fr Foley's catheter was passed in the casualty department by the male nurse incharge on doctor on duty's instructions. Urine was draining freely then 20 ml water was pushed by a syringe into catheter's balloon to inflate. After inflation of balloon the catheter was pulled out and was fixed with micropore (sticking paper tape) to the right thigh.



Fig 1: Knotted Foley's catheter removed by gentle traction after intravesical spontaneous knotting

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I received a call at 6 am in the next morning that patient was in pain. I visited the patient and found that his urinary bladder was distended and palpable in suprapubic area. The urine drainage bag attached with Foley's catheter was almost empty, urinary bladder was full but Foley's catheter was not draining. I tried to deflate the catheter balloon and then irrigate also but nothing worked. No urine was coming out and nothing was able to go inside the bladder. Trans-abdominal ultrasound of the suprapubic area showed full over-distended bladder with inflated balloon of Foley's catheter. So ultrasound guided suprapubic puncture of Foley's catheter balloon was done under local anaesthesia. Anaesthetic jelly, lox 2% was pushed by the side of the catheter into the urethra. Mild, sustained and gentle traction was applied on catheter, gradually catheter came out. On examination of Foley's catheter we found the reason of block, a knotting of Foley's catheter proximal to the balloon (Fig).

Discussion

Catheterization of urinary bladder in case of retention of urine is one of the most common procedures performed by a doctor or nurse in emergency ward. One must keep in mind the spontaneous knotting of a catheter while catheterizing a patient as it was reported to be rare with estimated occurrence of 0.2 per 1,00,000 catheterization [5]. The mechanism of knotting is excessive insertion of catheter and coiling..., when the bladder decompresses, the catheter tip migrates through a coil thereby creating a knot [6]. Intravesical spontaneous knotting of catheter is more common in males, neonates and children [7]. It is possible to prevent urethral catheter knotting through careful selection of the catheter and a better understanding of the urethral anatomy and safe insertion lengths [8]. The intravesical knotting is precipitated specially when thin catheter (less than 10 Fr) is used with excessive insertion and during contraction of bladder the end of the catheter coils on the loop, made by excessive insertion, and thus makes a knot, which is not yet tight [4]. Attempt with pressure to remove catheter further tightens the catheter and the obstruction of catheter channel becomes complete.

Passive aspiration with a syringe, cutting of the catheter, passing a wire through the balloon, and instilling chemicals like ether into the balloon have all been mentioned to be helpful for rupturing a nondeflating Foley's catheter. Similar to our case report, Lee and his colleagues from Hong Kong have reported a successful supra pubic rupture of a nondeflating balloon of Foley's catheter using ultra sound guidance [9].

One must keep following points before urethral catheterization of urinary bladder

1. Good understanding of urethral and urinary bladder anatomy.
2. Careful selection of catheter
3. Catheter should not be over inserted by judging urine flow
4. Catheter should be removed as soon as possible.
5. Indwelling catheter must be fixed with thigh so that it can't go further into the urinary bladder.

Conclusion

Urethral catheterization is a common procedure but not an easy or simple maneuver. It has far reaching complications so this procedure should be done with due care and precautions. It is used both for diagnostic and therapeutic purposes. Both the insertion and removal of catheter are important as either can lead to problem. Intravesical catheter knotting is a rare but a known complication so precautions to be taken to prevent it from

happening.

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