

## Original Article

# The use of latex foley catheter in repair of hypospadias the most common seen congenital penile anomaly

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**Abstract:** Objective: Hypospadias is the most common congenital penile anomaly occurring in 1/300 live births. Various surgery techniques are used in repair of hypospadias. Infant and children with hypospadias are usually admitted to emergency services by worried their parents for the first time. TIP urethroplasty is widely used in the repair of hypospadias, but the use of urethral catheters is still a matter for discussion. Herein, we described our experiences with the use of an unsutured latex foley catheter placed in the glans for 24 to 48 hours. Methods: A retrospective chart review was performed on 38 patients who underwent Tubularized incised plate (TIP) hypospadias repair from 2009 to 2011. Of these, 35 patients who had two-way latex Foley catheters placed for 24 h to 48 hours were followed for at least 12 month. Results: Excellent cosmetic results were obtained in all patients. Urinary tract infection developed in two patients (5.7%). one patient (2.8%) who had mild urethral repair breakdown was repaired in the office environment. Conclusion: We observed very low complication rates in application of a two-way latex Foley catheter in hypospadias surgery and found that this method can be used safely. Moreover, the catheter can be used for traction purposes during the procedure. At the end of the 24 to 48 h period, removal of the two-way latex urethral catheter with balloon does not harm the urethral repair. To reach a definite conclusion, larger studies are needed.

**Keywords:** Hypospadias, surgical technique, latex Foley catheter

## Introduction

Infant and children with various genital abnormalities such as interlabial masses, hypospadias and ambiguous genitalia are commonly admitted to emergency departments [1]. Hypospadias is the most common congenital penile anomaly occurring in 1/300 live births. It is defined as an incomplete visualization of the genital tubercle leading to an ectopic opening of the urethra on the ventral aspect of the penis [2, 3]. Hypospadias repair one could state that there are as many techniques and their modifications as there are surgeons who perform hypospadias repair [3]. Various catheters are used in hypospadias repair. While some pediatric urologists prefer not to use urethral stents, to avoid inflicting pain and bladder spasm, others favor using stents for 5 d to 7 d to minimize the rate of complications for the patient [4-6]. Common problems associated with urinary catheters in hypospadias repair are infection, encrustation, catheter blockage, bladder spasm and trauma related to catheter insertion [6, 7]. In this study, we aimed to specify a few

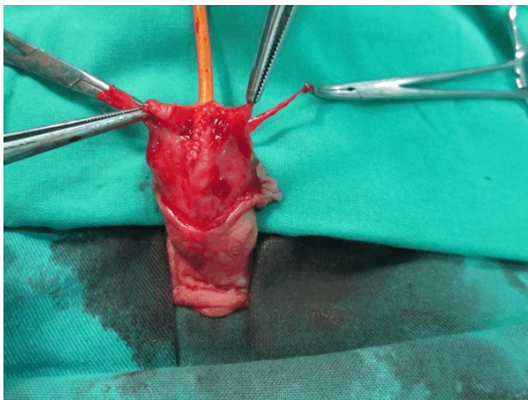
simple and straightforward situations in TIP urethroplasty.

## Methods

A retrospective chart review was performed on patients admitted to emergency service and urology polyclinics with hypospadias and undergone an outpatient Tubularized incised plate (TIP) repair by one surgeon at two institutions, Bulanik State Hospital and Adiyaman University Training and Research Hospital. Informed consent was obtained from all the patients before the procedures. Data from 38 patients who underwent primary distal TIP hypospadias repair between 2009 and 2011 were concluded in the study. Of these, three patients were omitted from the analysis because their post-operative catheters were kept in place more than 48 h. Patients with a minimum follow-up period of 12 month were included in the study. Exclusion criteria were non-primary repair, duration of catheter > 48 hours and follow-up period less than 12 month. In each case, the technique described by Snodgrass et al. was used



**Figure 1.** A two-way Foley catheter is placed prior to the tubularized incised plate urethroplasty and is used for traction.



**Figure 2.** All repairs are done over the 2 ml-inflated Foley latex catheter, without removing the catheter during any stage of the procedure.

in the operation [8]. At the beginning of the operation, a latex Foley catheter was placed in the urethra. The catheter was used for traction purpose throughout the urethroplasty operation (**Figure 1**) and was kept in place while implementing the plate incision. At the end of the operation, we neither attached a stent nor sutured the catheter in the glans penis (**Figures 2, 3**). We plastered the catheter to the skin to prevent it being pulled out by the patient in some way. Another diversion was not carried out. The following postoperative complications for TIP repairs were assessed: infections, meatal stenosis, hematoma formation, urethrocutaneous fistula, urethral diverticulum, urethral stricture and urethral repair degradation. The presence of urinary tract infection was identified through the existence of symptoms or the results of a positive urine culture, or both.



**Figure 3.** The two-way Foley catheter emerges from the glans after the completed urethroplasty. The two-way Foley catheter is not sutured to the glans penis. The penis, wrapped in gauze, is not specially positioned.

**Table 1.** The results of hypospadias repair using a latex Foley catheter for 24 to 48 hours

Hypospadias Cases	n=35
Distal hypospadias	22 (63%)
Mid-shaft hypospadias	13 (37%)
Complications	
Urethrocutaneous fistula	-
Meatal stenosis	-
Urinary tract infection	2 (5.7%)
Breakdown of repair*	1 (2.8%)

\*After post-op early sexual intercourse.

## Results

The mean age of the 35 patients was 36.2 month (range 13 month to 19 year), and the mean follow-up period was 17 months (range 12 to 25 month). Hypospadias in 22 patients (63%) was distal and hypospadias in 13 (37%) patients was in midshaft (**Table 1**). In two patients (5.7%) urinary tract infection developed after removal of the stents. In one patient (2.8%) (**Table 1**) returned with a slight distortion of sutures in the third layer of the glans. No deterioration was seen in the neourethra or the dartos pedicle flap, and after repairing the sutures in the office, no further problems were reported. At the time of the last follow-up in the surgeon's office, no cases of meatal stenosis or urethral strictures were identified based on a physical exam and responses of the patient or parent to questions regarding lower urinary tract symptomatology. Excellent cosmetic results were obtained in all patients. Secondary repair was not required in any of the patients.

## Discussion

Children with hypospadias are often admitted to emergency services and urology clinics by worried their parents [1]. TIP urethroplasty is widely used in the repair of hypospadias, but the use of urethral catheters is still a matter for discussion, especially catheter retention time. Intraoperative and postoperative catheter usage also should be better discussed. Fewer studies have considered the problems related to catheter removal. One in-vitro study claimed that 1-2 ml balloon inflation resulted in less cuff formation [9]. Our clinical experiences with inflating the balloon 2 ml support the findings of this study. In our practice, we used a latex urethral catheter kept in place for 24 to 48 h. We inflated the catheter balloon 2 ml and did not suture the catheter to the glans. In only one patient who newly married deterioration of the repair had occurred after sexual intercourse on post-op day five.

In our practice, we place a two-way latex Foley catheter in the hypospadiac meatus at the beginning of the TIP repair. This provides traction, and we form a neourethra without removing the catheter. It is unnecessary to suture the catheter to the glans at any stage in the operation and post-operation to avoid glans rupture. Additionally, the catheter was used for traction purpose during the repair.

All-silicone catheters have been shown to be more prone to create cuffing formation [10, 11]. We use a two-way latex Foley catheter, as we have stated, and remove it between 24 and 48 h postoperatively. In no case has catheter blockage or anaphylaxis occurred. Other advantages of using the latex Foley catheter are cost effectiveness and accessibility. Unfortunately, all-silicone urethral Foley catheters can't be obtained easily by every institution.

## Conclusion

Use of latex Foley catheters for 24 to 48 h may be safe, with minimal complication rates, in TIP urethroplasty. Further, we concluded that it can be unnecessary to suture the catheter in the glans. Inflating the balloon of the Foley catheter 2 ml may help prevent the breakdown of the urethral repair during early removal of the catheter. To reach a definite conclusion, larger studies are needed.

## Disclosure of conflict of interest

None.

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