

Original Research Article

Comparative study between two days versus seven days urethral stenting of distal hypospadias after tubularized incised plate urethroplasty

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ABSTRACT

Background: The duration of urethral stenting after tubularized incised plate (TIP) urethroplasty for hypospadias varies among surgeons.

Methods: Forty male cases with distal hypospadias aging from one year till the age of six years randomly allocated into two groups for undergoing tubularized incised plate urethroplasty with removal of the urethral stent after two days in one group and after seven days in the other one. The rate of postoperative complications such as urethrocutaneous fistula, urinary retention, meatal stenosis and complete wound dehiscence requiring redo and cosmetic results were compared.

Results: The prevalence of post-operative complications and cosmetic results in two studied groups were not significantly different.

Conclusions: There is no significant difference between removal of the stent after two days or seven days regarding the incidence of postoperative complications and the cosmetic results.

Keywords: Hypospadias, TIP, Distal and urethral stent

INTRODUCTION

Hypospadias is one of the most common urogenital anomalies occurring in three in 1000 births.¹

The clinical features of hypospadias are abnormal ventral opening of the urethral meatus that may be located anywhere from the ventral aspect of glans penis to the perineum, abnormal ventral curvature of the penis (Chordee) and abnormal distribution of foreskin.² The exact cause of hypospadias is unknown but it is thought to be multifactorial; genetic predisposition, inadequate hormonal stimulation, maternal-placental factors, and environmental influences.³ Hypospadias is classified into distal, middle and proximal. Glanular, coronal and sub coronal (distal) defects constitute about 50% of cases.⁴

The surgical treatment of hypospadias aims to correct the chordee (orthoplasty) and to create neo-urethra terminating in a slit like neomeatus at apex of the reconfigured glans restoring normal anatomy and physiology with minimal complications.⁵ At 1994, Snodgrass combined the vertical urethral plate incision to release the tension on repair with Theirsh-Duplay to propose the tubularized incised plate (TIP).⁶ The stent is important to permit the repair to be water tight, immobilize the suture line, tamponade any hemorrhage and avoid the risk of urinary retention.⁷

The aim of the work was to compare two days versus seven days urethral stenting after tubularized incised plate urethroplasty of Snodgrass and the effect of this regarding the incidence of postoperative complications such as urethrocutaneous fistula, meatal stenosis, urine

retention, urinary tract infection and complete wound dehiscence requiring redo.

METHODS

This prospective study includes forty patients with distal hypospadias which was conducted at Menoufia university hospital and Mataria teaching hospital in twelve months period starting from august 2018. Patients were selected by random serial number method. Informed consent was taken from the parents or child guardian. These patients were randomly divided into two equal groups. Urethral stent will be removed after two days in group A and after seven days in group B. Each patient was coded with a number and after fulfilling all the research data, statistics were done. Diagnosis was based on the history from children's parents, which was accomplished by clinical examination. Complete blood count and international normalized ratio were done for all patients.

Mann-Whitney U test was used to examine differences in age and chi-square test for differences in the incidence of postoperative complications and cosmetic results. Data analysis was performed using statistical package for the social sciences (SPSS) software.

Surgical procedure

All patients were in supine position under general anesthesia. After removing the smegma, all patients' skin was sterilized from the lower abdomen to the mid-thigh with providence iodine 10. A 4-zero polypropylene stay sutures is placed in the dorsum of the glans for easy handling, traction and fixation of the nelaton catheter at the end of the operation. Any foreskin adhesion was gently released from the glans. An 8 French nelaton catheter was passed into the hypospadias meatus to assess the skin coverage over the distal urethra and to protect the urethra. U-shaped incision was done around the urethral plate that extended to about 2 mm proximal to the meatus. A circumscribing skin incision is made 1 to 2 mm proximal to the meatus, and the shaft skin is degloved to the penoscrotal junction. Minimal bleeding is usually encountered because all the vessels in the skin extend axially. Artificial erection was done and the chordee can be corrected by a single plicating stitch of 6-0 polypropylene at the 12-O'clock position, opposite the point of maximal curvature. Then mid-line incision of urethral plate extending from within the meatus to its distal margin about 1–2 mm distal to u shaped incision and glandular wings were created. This relaxing midline incision is the key step of the procedure. Tubularization of the incised plate and neo-urethra creation were done by continuous subcuticular 6/0 vicryl suture. Dartos pedicle flab is dissected from the preputial hood and reflected ventrally to cover the tube. Glanuloplasty and skin closure with antibiotic Vaseline gauze dressing was applied with semi tight bandage for about 5 days.

RESULTS

This study includes 40 patients with distal hypospadias which was conducted at Menoufia university and Mataria teaching hospital in twelve months period starting from august 2018. Patients were selected by random serial number method and divided into two equal groups each one contains 20 patients.

The age of the patients ranged from 1-6 years with a mean value 2.7 ± 0.98 years in group A and 2.8 ± 0.97 years in group B. The age was insignificantly difference between both groups ($p=0.51$) (Table 1).

Table 1: Age (years) in both groups.

Age (year)	Group A	Group B	U	P value
Mean±SD	2.7±0.98	2.8±0.97	0.025	0.51
Range	1-6	1-6		

As regard to post-operative complications, urethrocutaneous fistula occurred in 5 (25%) in group A and in 6 (30%) in group B, meatal stenosis occurred in 2 (10%) in group A and in 2 (10%) in group B, wound dehiscence requiring redo occurred in 2 (10%) in group A and in 2 (10%) in group B, urinary tract infection occurred in 0 (0%) in group A and in one patient (5%) in group B, urine retention occurred in one patient (5%) in group A and in 0 (0%) in group B and bleeding after stent removal occurred in 2 (10%) in group A and in 0 (0%) in group B. The comparison between both groups showed an insignificant difference between both groups ($p=0.97$) (Table 2).

Table 2: Post-operative complications in both groups.

Variables	Group A		Group B		X ²	P value
	N	%	N	%		
Non	9	45	9	45	0.14	0.97
Uretho-cutaneous fistula	5	25	6	30		
Meatal stenosis	2	10	2	10		
Wound dehiscence requiring redo	2	10	2	10		
Urinary tract infection	0	0	1	5		
Urine retention and bleeding after stent removal stopped with compression	1	5	0	0		
Bleeding after stent removal stopped with compression	1	5	0	0		

As regard to cosmetic results between two groups was non-significant with $p=0.77$ using Chi-square test (Table 3).

Table 3: Cosmetic results in both groups.

Variables	Group A		Group B		X ²	P value
	N	%	N	%		
Cosmetic						
Good	9	45	7	35	0.5	0.77
Fair	7	35	9	45		
Bad	4	20	4	20		

DISCUSSION

The duration of urethral stenting after tabularized incised plate (TIP) urethroplasty for hypospadias varies among surgeons.⁸

In our study we aimed to compare the time for removal of the urinary catheter after distal hypospadias repair using Snodgrass technique and its affection on post-operative complications. In group (A) catheter will be removed after two days and after seven days in group (B).

In the present study we found that that there were insignificant differences between two groups as regard age with $p=0.51$.

A study was done by (Maria-Grazia et al) TIPU was done in Fifty-nine during the analyzed period. 44/59 patients satisfied the requirements for inclusion: 26 cases catheter was removed immediately after surgery (group A), 18 cases catheter was removed after six days (group B), with insignificant differences between two groups as regard age which agree with our result.⁹

Concerning the post-operative complications in both group A and B the outcome appears to be similar as there was no significant difference between both groups.

Urethrocuteaneous fistula occurred in 5 (25%) in group A and in 6 (30%) in group B, meatal stenosis occurred in 2 (10%) in group A and in 2 (10%) in group B, wound dehiscence requiring redo occurred in 2 (10%) in group A and in 2 (10%) in group B, urinary tract infection occurred in 0 (0%) in group A and in one patient (5%) in group B, urine retention occurred in one patient (5%) in group A and in 0 (0%) in group B and bleeding after stent removal occurred in 2 (10%) in group A and in 0 (0%) in group B. Comparison between both groups showed an insignificant difference between both groups ($p=0.97$).

A study was done by Maria-Grazia et al showed that fistula rate was 9% (11.1% in group A, 7.7% in group B) which is lower than our study but there was no significant difference between the two groups which is similar to our study. After catheter removal, 3 cases of urinary retention (1/18 in group A, 2/26 in group B).

In the study by Shenoy et al the study showed that in 14 cases early stent removal was done or no stent was placed and in 16 cases late removal of stent was done. In distal hypospadias cases 2 patients developed fistula and both were from the group in which stents were placed. In proximal hypospadias 6 patients developed fistula post operatively, of these 4 were from the early removal group while 2 were from the late stent removal group.¹⁰

Aslan et al studied the duration of stent placement post TIP urethroplasty. They found that the patients with short term catheterization had similar outcomes to patients with stents for 7-14 days. Toilet training, position of meatus was not important in determining the duration of stent placement.¹¹

A study was done by El Sheribiny et al studied if stents should be left in toilet trained children after TIP urethroplasty. Their study showed that placement of a stent reduces the rate of urine retention. In this study there was no difference in fistula rate in toilet trained and untrained children irrespective of the presence or absence of a stent and duration of stent placement which is similar to our study.¹²

As regard to cosmetic results in our study results was good in 9 (45%) in group A and 7 (35%) in group B, fair in 7 (35%) in group A and in 9 (45%) in group B and cosmosis was bad in 4 patients in both groups with no significant difference between both groups with $p=0.77$.

In a study was done by Erdal et al they concluded that no difference was observed between the stented and unstented groups in this study in terms of the functional and cosmetic outcomes.¹³

Limitations

Number of cases were not large enough.

CONCLUSION

There is no significant difference between removal of the stent after two days or seven days regarding the incidence of postoperative complications and the cosmetic results. The duration of urethral stenting basically depends on the surgeon's preference.

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