TUBULARIZED INCISED PLATE URETHROPLASTY FOR ONE-STAGE HYPOSPADIA REPAIR IN CHILDREN AT HASAN SADIKIN HOSPITAL BANDUNG

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ABSTRACT

Objective: *To determine the outcome of tubularized incised-plate (TIP) urethroplasty for one stage hypospadia repair in children.* ***Material & methods:*** *A 7-year retrospective experience at Hasan General Sadikin Hospital Bandung on the outcome of tubularized incised plate for one-stage hypospadias repair in children during 2009-2015.* ***Results:*** *A total of 102 children was undergone one stage hypospadias repair with TIP urethroplasty. The mean age was 6.97 years old. As much as 65 (63.72%) children had distal, and 37 (36.28%) children had proximal hypospadia. The mean length of surgery was 112.56 minutes. Post operative complications was rarely found, consisting of 5 (6.32%) children had urethrocutaneus fistula formation and 11 (13.9%) children had haematoma. 4 (10.81%) children with proximal hypospdia and 1 (1.53%) children with distal hypospadia had urethrocutaneus fistula formation. 4 (6.15%) children with distal hypospadia and 7 (18.91%) children with proximal hypospadia had haematoma.* ***Conclusion:*** *Tubularized incised-plate (TIP) urethroplasty for one stage hypospadia repair in children was highly effective with rare complications comparable with recently published study.*

Keywords: *Hypospadia, tubularized incised-plate, complications.*

ABSTRAK

Tujuan: *Mengetahui hasil dan komplikasi paska operasi hipospadia satu tahap dengan cara tubularized incised-plate (TIP).* ***Bahan & cara:*** *Penelitian ini bersifat retrospektif selama 7 tahun di RSUP Hasan Sadikin Bandung pada pasien hipospadia yang dilakukan uretroplasti dengan tubularized incised-plate (TIP) satu tahap pada tahun 2009-2015.* ***Hasil:*** *Terdapat total 102 anak-anak dengan hipospadia yang dilakukan uretroplasti dengan TIP. Rerata usia adalah 6.97 tahun. Sebanyak 65 anak-anak (63.72 %) dengan hipospadia tipe distal dan 37 anak-anak (36.28%) dengan hipospadia tipe proximal. Rerata waktu operasi adalah 112.56 menit. Komplikasi paska operasi jarang ditemukan, terdiri dari 5 pasien (6.32%) dengan fistula uretrokutan dan 11 pasien (13.9%) dengan hematoma. 4 pasien (10.81%) dengan hipospadia tipe proximal dan 1 pasien (1.53%) dengan hipospadia tipe distal ditemukan fistula uretrokutan. 4 pasien (6.15%) dengan hipospadia tipe proximal dan 7 pasien (18.91%) dengan hipospadia tipe distal ditemukan fistula hematoma.* ***Simpulan:*** *Uretroplasti dengan cara tubularized incised-plate (TIP) satu tahap pada anak-anak dengan hipospadia dengan hipospadia memiliki efektifitas yang tinggi dengan angka komplikasi operasi yang sama dengan penelitian sebelumnya.*

Kata Kunci: *Hipospadia, tubularized incised-plate, komplikasi.*

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INTRODUCTION

Hypospadias is a birth defect in boys characterized by the meatus is not in placed at the TIP of the glans penis. Hypospadias is a common condition, with an incidence of 3.2 per 1000 live births. The treatment is only surgical and there is no universal operative technique.[1] The optimal age for definitive hypospadias management is 2 years in order to enable normal growth and development of falus and prevent psychological consequences affecting the patient and his family. Hypospadias is a challenging field of urogenital reconstructive surgery, with different techniques currently being

used. A technique to repair hypospadias with universal applicability in most variants would be appealing.[1]

The Snodgrass manoeuvre is a simple technical innovation that has revolutionized hypospadias surgery.[2] Rich et al, first described an incion in the urethral plate to obtain a cosmetically acceptable vertical slit-like meatus for the Mathieu repair, and this was subsequently adopted for the entire length of the urethral plate as a complement to the Thiersch-Duplay urethroplasty for distal hypospadias reported by Snodgrass.[3] Multi-center reports from 1996 by Sondgrass et al confirm that this method shows good results with a small percentage of complications for distal hypospadias and promote the application of this procedure for mid-penile and proximal hypospadias and as recently for re-operations, as well.[4] Wilcox et al reported 83 hypospadia children were repaired with TIP urethroplasty with good cosmesis results with only 5% urethrocutaneous fistula and 1% glans dehiscence.[5] Attar et al, reported TIP urethroplasty was a simple operation with good cosmetic results in 25 patients with complete dehiscence of the repair in only two patients, meatal stenosis was seen in two cases and fistula was seen in three patients. Mane et al, reported 100 patients repaired with TIP urethroplasty with seven (7%) patients developed fistula and one patient had complete preputial dehiscence.[6] Milicevic et al, reported Tubularized incised plate (TIP) urethroplasty - Snodgrass procedure was performed on a total of 22 boys; Complication included small urethrocutaneous fistulas in 4 (18%) and meatal stenosis in 1 (4.5%) child.[7]

OBJECTIVE

The purpose of the present report was to present our experience with the tubularized incised-plate (TIP) urethroplasty for one stage hypospadia repair in children, describing results for function, complications and cosmesis.

MATERIAL & METHODS

This descriptive retrospective study on the tubularized incised plate (TIP) urethroplasty for one-stage hypospadia repair in children was taken at Hasan Sadikin Hospital in Bandung, Indonesia. The study period was between January 2009 until December 2015. All data was taken and evaluated from medical record of Urology Department. All patient was performed by two pediatric urologist in this hospital.

All repair was a single stage and the technique used based on Snodgrass's TIP urethroplasty with monofilament synthetic absorbable suture (Polydioxanone 5.0 or 6.0) and braided synthetic absorbable suture (Vicryl 5.0 or 6.0).

Urinary diversion were placed for seven to ten days, intraoperative dressing used antibiotic ointment covered by a non-stick barrier film to the skin then used elastic dressings to pressed the penile. Preoperative we administered intravenous prophylactic antibiotic to avoid infection and continued for three days post operative then switched to oral antibiotics. Dressing was opened in the third day after operation, then continued as open wound care using antibiotic ointment that applied twice daily. Complications that recorded from medical record was hematoma and urethrocutaneous fistula. The success outcomes was defined as there are no complications following hypospadias repair surgery.

All data was processed and described then compared with existing literature.

RESULTS

A total of 102 children was undergone one stage hypospadias repair with TIP urethroplasty. The mean age was 6.97 years old. As much as 65 (63.72%) children had distal, and 37 (26.28%) children had proximal hypospadia. The mean length of surgery was 112.56 minutes. Post operative complications was rarely found on consisting of 5 (6.32%) children had urethrocutaneus fistula formation and 11 (13.9%) children had haematoma.

Table 1. Characteristics of TIP urethoplasty at Hasan Sadikin Hospital from 2009-2015.

Variable	Total
N	102
Distal	65 (63.72%)
Proximal	37 (26.28%)
Mean age	6.97 years old
Mean length of surgery	112.56 minutes
Urethrocutaneus fistula	5 (6.32%)
Proximal	4 (10.81%)
Distal	1 (1.53%)
Haematoma	11 (13.9%)
Proximal	7 (18.91%)
Distal	4 (6.15%)

4 (10.81%) children with proximal hypospdia and 1 (1.53%) children with distal hypospadia had urethrocutaneus fistula formation. 4 (6.15%) children with distal hypospadia and 7 (18.91%) children with proximal hypospadia had haematoma.

DISCUSSION

Different techniques for correction of distal and hypospadias have been described. Which technique should be used depends on meatal and glanular configuration.[2] Meatal movement forward and glansplasty is commonly used technique but its application depends on urethral mobility. If urethra is not mobile enough this technique may lead to glans deformation and eliptic meatus. In case of very thin orrigid parameatal skin or a meatus too broad or proximal, MAGPI technique is not recommended. Parameatally based flap (Mathieu procedure) is a successful method for correction of more proximally distal hypospadias in absence of chordee but often results intransversally oriented meatus. Mathieu procedure is not desirable in cases where ventral skin is deficient. Simple urethral tubularization (Thiersch-Duplay) requires dissection of lateral edges of urethral plate for tubularization. Also, the increase of the width of urethral plate edges results in problems in glans closing.[8] The main step in TIP urethroplasty is deep-relaxing vertical incision of urethral plate which enableseasy tubularization and vertically oriented meatus. The use of subcutaneous flap for neourethra covering reduces the percentage of fistulas. The main advantages of the TIP urethroplasty are: (i) decision-making is greatly simplified (ii) to a certain extent the midline incision over the urethral plate enables tubularization irrespective of the glanular configuration; (iii) previous circumcision or attempts at hypospadias repair do not limit the urethroplasty, as the technique does not use skin flaps for reconstructing the neourethra.[9] Adapting the TIP urethroplasty for proximal repair has not drastically increased the incidence of urethrocutaneous fistula.[2] The reported fistula rate for distal hypospadias after the Snodgrass repair is 0–7%, compared with 5.6–11% for proximal hypospadias repair.[2] The present results are comparable with those recently published for TIP urethroplasty in proximal. In contrast, the two-stage repair popularized by Bracka has an overall fistula rate of 3–14% in primary two-stage urethroplasty and 10.5–26% when the procedure is used for repeat hypospadias surgery.[10]

In our series of 102 patients, the percentage of urethrocutaneous fistulas was 6.32%. These results are comparable to those of TIP urethroplasty.

The limitation of this study was the study was a retrospective study and it has different type of hypospadias with different type of urinary diversion although those were operated with the same surgeon. Further study is needed to evaluate the long terms outcome of TIP urethroplasty for one-stage urethroplasty in children.

CONCLUSION

Tubularized incised-plate (TIP) urethroplasty for one stage hypospadia repair in children was highly effective with complications comparable with recently published study.

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