



Tubularized Incised Plate in Previously Operated (redo) Hypospadias

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Abstract

Hypospadiology, despite its decades of existence is still recognized as an evolving and expanding specialty. Three associated anomalies are classically found in hypospadias namely, an ectopic position of the urethral meatus anywhere from the ventral surface of penis to the perineum, a ventral curvature of the penis (chordee), and a defect of the ventral prepuce often referred to as dorsal hood. The only constant feature that defines hypospadias is the abnormal position of the meatus on the ventral surface of the penis.

Options for urethroplasty in children with hypospadias can be classified as tubularization of the urethral plate, skin flaps and grafts. Throughout the history of surgery for this condition flaps have been most commonly used, but in the past 10 years incision and tubularization of the urethral plate (tubularized incised-plate, TIP) has rapidly gained popularity for correcting distal, proximal and re-operative hypospadias. TIP potentially simplifies both decision-making and surgical technique, and has a low complication rate with better cosmetic results. We report our experience of using the tubularized incised plate (Snodgrass) for redo hypospadias repair in patients who have had one or more failed attempts at repair irrespective of the type of repair they had before.

Keywords: Hypospadias; Urethroplasty; Tubularized Incised Plate (Snodgrass).

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1. Introduction

Hypospadias is one of the most common congenital anomaly of the male external genitalia with average incidence of 1 in 250 newborn, although its incidence seems to be increasing [1,2]. It is defined as an insufficient development of the urethral fold and the ventral foreskin, with or without penile curvature, with or without chordee [3,4]

Hypospadias classification is based on the position of the meatus: distal or anterior hypospadias with the meatus on the glans, coronal or subcoronal, mid penile hypospadias with urethral opening on the distal penile, mid or proximal penile shaft. Proximal or posterior hypospadias have a penoscrotal, scrotal or perineal urethral meatus location.

Some controversy still surrounds this classification based on the location of the meatus. Some authors believe proper classification and in extension decision on method of surgical reconstruction can only be made after surgical deglovement of the penis [5]. Distal hypospadias is the most common finding in the Western world, while more proximal forms are observed in Asia [3,4].

The key step in Snodgrass repair is incision of the urethral plate in the midline. It is a relaxing incision which allows for easy tubularization of the urethral plate into a neourethra over a stent.

Also key to a successful hypospadias repair is the use of optical magnification (loupes).

2. Patients and Methods

2.1 Age at presentation

A total of 77 patients presented to the unit for a redo hypospadias, the age range are 2-17years with mean age of 8.51 ± 4.65 .

2.2 Position of meatus

Twenty seven (35%) of the patients which represent the highest had coronal hypospadias, 23 (29.9%) had distal penile, 20 (26%) had mid penile hypospadias.

2.3. Type of previous hypospadias repair

Thirty seven (48%) had Snodgrass repair, 10 (13%) had onlay repair, 9(11.7%) had Mathieu repair while 8 (10.4%) had Meatal Advancement GlanuloPlasty Incorporated (MAGPI).

2.4. Number of operation

Sixty three (81.8%) have had single operation, 11(14.3%) have had double operation while 2 (2.6%) and 1(1.3%) have had three and four operation respectively.

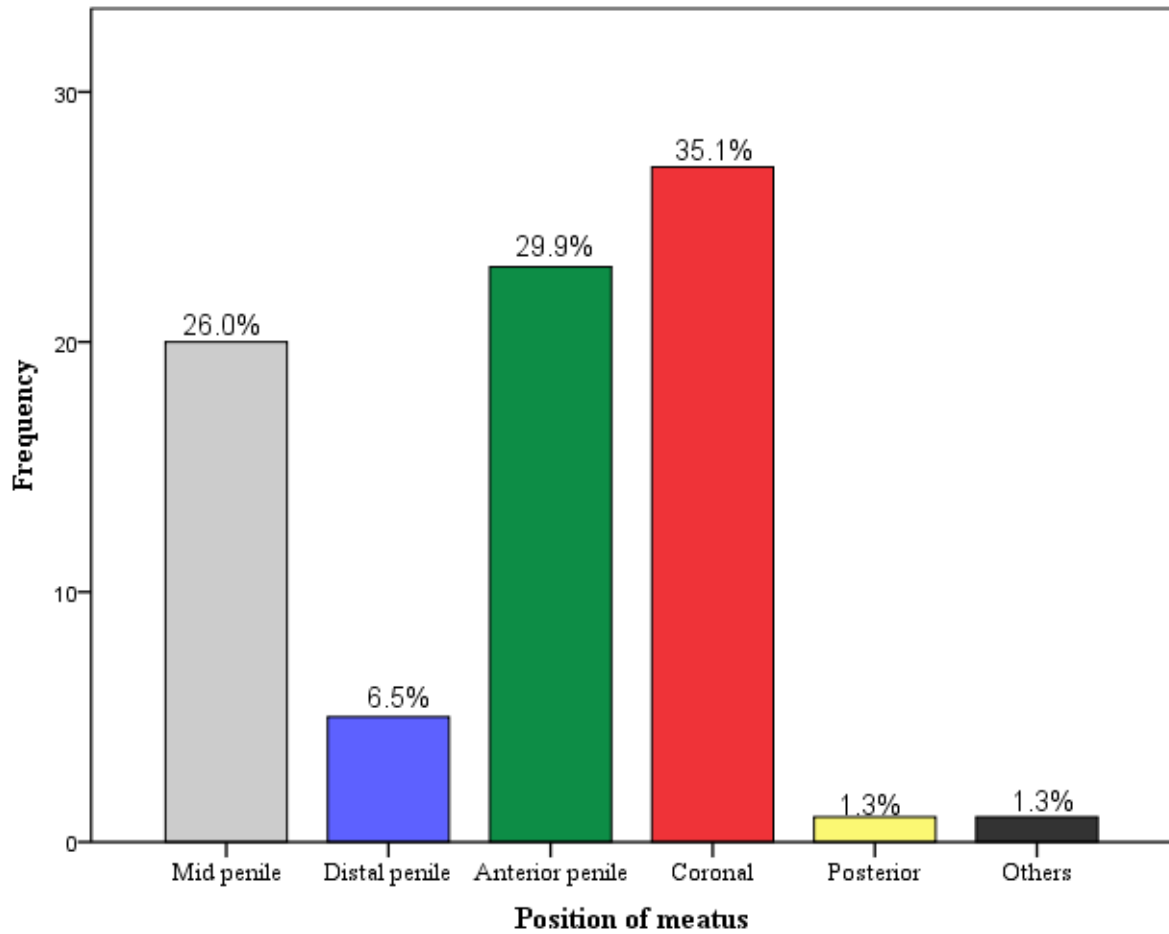


Figure 1: Position of meatus

Table 1

Type of hypospadias repair done	Frequency (77)	Percentage (%)
Snodgrass	37	48.0
Mathieu	9	11.7
Duckett/onlay repair	10	13.0
MAGPI	8	10.4
Others	13(16.9%)	

2.5. Circumcision

Seventy four (96.1%) have been circumcised while 3(3.9%) have not been circumcised

2.6. Urethral Plate

Fifty seven (74.0%) of the patients have urethral plate intact while 20 (26.0%) have it disturbed. Patients with disturbed urethral plate had partial disruption

Table 2

Number of operation	Frequency (77)	Percentage (%)
Once	63	81.8
Twice	11	14.3
Thrice	2	2.6
Four times	1	1.3

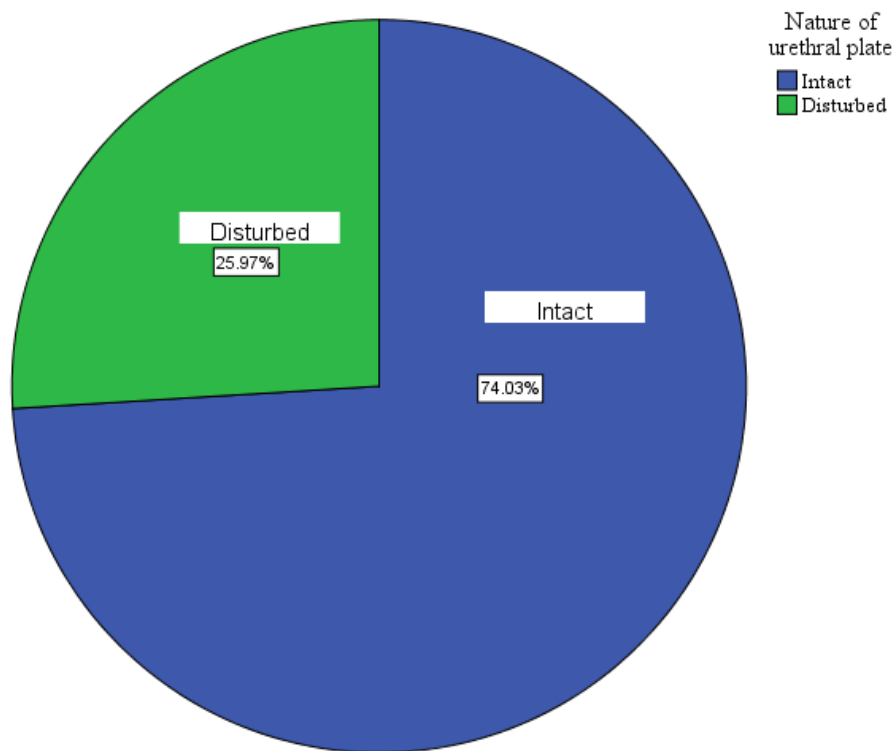


Figure 2

2.7. Indication for reoperation

All had at least one indication for reoperation. 11 (14.3%) had more than one indication for re-operation. Indications for reoperation are partial wound dehiscence 34(44.2%), complete wound dehiscence 44(57.1%),

Chordee 7(9.1%), Meatal stenosis 1(1.3%), Fistula 1(1.3%) and others 1(1.3%).

Table 3

Indication for re-operation (multiple choice)	Frequency (n=77)	Percentage (%)
Partial wound dehiscence	34	44.2
Complete wound dehiscence	44	57.1
Chordee	7	9.1
Meatal stenosis	1	1.3
Fistula	1	1.3
Others	1	1.3

2.8. Interval of Surgery

Interval between last surgery and out operation ranges from 3 months and 11 years with median value of 2 years

2.9. Duration of follow up

Duration of follow up ranges from one day to 5 years and 10 months with median value of 2 years

3. Result

Overall, the cosmetic and functional outcome was satisfactory as adjudged by the parents during the follow up period which was up to 5years 10 months. A total of 59 (76.6%) had successful redo TIP repair. A total of 18 (23.4%) had complications (Table 4); 9 (11.7%) had urethrocutaneous fistula, 3 had complete wound dehiscence, 2 (2.6%) had partial wound dehiscence, 2 (2.6%) had meatal stenosis while 1 (1.3%) had stricture and 1 (1.3%) had penile skin tag. Successful fistula closure and meatoplasty were done at a later date.

4. Discussion

From our study, TIP is safe and efficacious procedure for redo hypospadias. We reported an overall successful repair rate of 76.6 %. This is similar to findings from other previous studies. Ziada et al [6] reported an overall complication rate of 23% amongst 30 patients who had Tubularized incised plate (Snodgrass) for redo hypospadias. Al-Sayyad et al[7] in their study compared tubularized incised plate and other forms of repair for redo hypospadias, they concluded that TIP was the procedure of choice, however in the setting of poor urethra plate, transverse preputial island flap, buccal mucosa graft should be considered. Elicevik et al [8] did TIP

reoperations in a total of 100 patients and reported an ultimate success rate of 97% after treatment of complication. They concluded that TIP is a safe and efficacious alternative procedure for hypospadias reoperations if the urethral plate has no scar. The same author in their 5 years' experience of 360 patients reported a complication rate of 30% after redo TIP [9]. The commonest complication reported from previous studies was urethrocutaneous fistula. This was similar to our findings. Some of the fistula closed spontaneously while some had repair of their fistula after a while. We can conclusively say TIP for redo hypospadias is associated with a lower complication rate and satisfactory outcome. However, it should only be considered when the penis is readily straightened with no tension on the urethral plate, and the incised plate resembles that in distal repairs. Within these limitations TIP urethroplasty is a versatile procedure with no more complications than other procedures used in hypospadias surgery [10].

Table 4

Complication	Frequency (n=77)	Percentage (%)
None	59	76.6
Partial wound dehiscence	2	2.6
Complete wound dehiscence	3	3.9
meatus stenosis	2	2.6
Fistula	9	11.7
Stricture	1	1.3
Penile skin tag	1	1.3

5. Conclusion

Tubularized incised plate (Snodgrass) is a viable option with satisfactory cosmetic and functional outcome. It potentially simplifies both decision-making and surgical technique, and has a low complication rate with better cosmetic results. However, a thorough learning curve, careful attention to surgical details and awareness of contraindications to the procedure are needed to achieve optimal results.

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