



Original Article

Hypospadias Surgery in Children - Multiple Methods and their Outcomes

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Abstract

Background and Aims: *Hypospadias is a complex congenital deformity which requires meticulous surgical repair. Several techniques have been advocated during the past 150 years to address the construction of neourethra. This study highlights the surgical techniques and experience with primary hypospadias cases along with complications encountered at a tertiary care centre.*

Materials and Methods: *A total of 100 patients aged from 1 to 25 years underwent primary hypospadias repair in a period of 1 yr. 4 major procedures were studied magpi, snodgrass tubularised incised plate urethroplasty, Duckett's Tvif procedure and 2-staged procedure. Outcome of these surgeries were determined by follow up over the study period.*

Results: *Of the total 100 patients included in the study, it was found that mid penile variety of hypospadias was most common type of hypospadias. Cryptorchidism was seen in 13% cases with hypospadias followed by inguinal hernia. Local edema was most common early presentation while urethrocutaneous fistula was most common late complication present in 23% cases. Of these 23 cases, 18 cases required redo surgery.*

Conclusion: *Hypospadias surgery is regarded as complicated reconstructive procedure in children with acceptable success.*

Keywords: *hypospadias, TIP urethroplasty, urethroplasty.*

Introduction

Hypospadias forms an important component of paediatric urological practice. It is a complex congenital deformity which requires meticulous surgical technique. Several procedures have been advocated during the past 150 years to address the construction of neo-urethra³. The important aim

in surgery is achievement of an aesthetic penile appearance and voiding from normal urethral opening.

Aims and Objectives

The study was aimed at determining the outcome of various types of hypospadias repair. The

objective of this series was to study the incidence of associated anomalies with hypospadias and to know the incidence of fistula in hypospadias surgery.

Materials and Methods

A total of 100 patients aged under 18 years who underwent primary hypospadias repair at our centre were included in the study. 4 major procedures were studied viz MAGPI, Snodgrass tubularised incised plate urethroplasty, Duckett's onlay flap procedure and 2-staged procedure. Those with inadequate phallic size or those who were circumcised were excluded from the study. Patients were operated accordingly based on parameters like meatal position, urethral plate, chordee and morphology

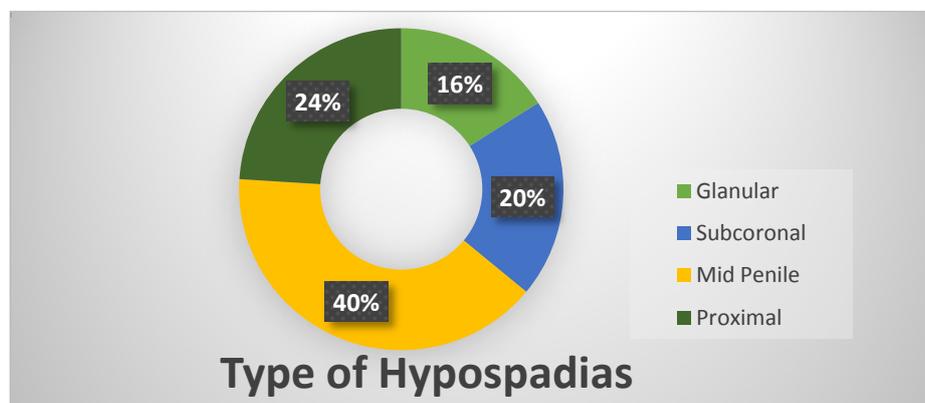
of the glans. After surgery routine post-operative protocols were followed. Post operatively, catheter was kept for 7-10 days. Patient was discharged following catheter removal with a mean stay of 8.1 days. Outcome of these surgeries were determined by follow up over the study period. After tabulating the observations, statistical analysis was done using SPSS Statistics Data Editor Software.

Results

100 cases of Hypospadias were included in the present study spanning from June 2015 to May 2016. Out of 100 patients, maximum number of cases presented at an age between 1-3 years.

Age of Presentation	Number of cases	Percentage
Less than 1 year	16	16
1-3 years	49	49
3-6 years	27	27
More than 6 years	8	8
Total	100	100

The meatal position in hypospadias were – glanular – 16% subcoronal 20%, mid penile 40% proximal penile- 24%.



All the patients were examined and investigated for associated congenital anomalies. A total of 33 patients presented with associated congenital anomalies.

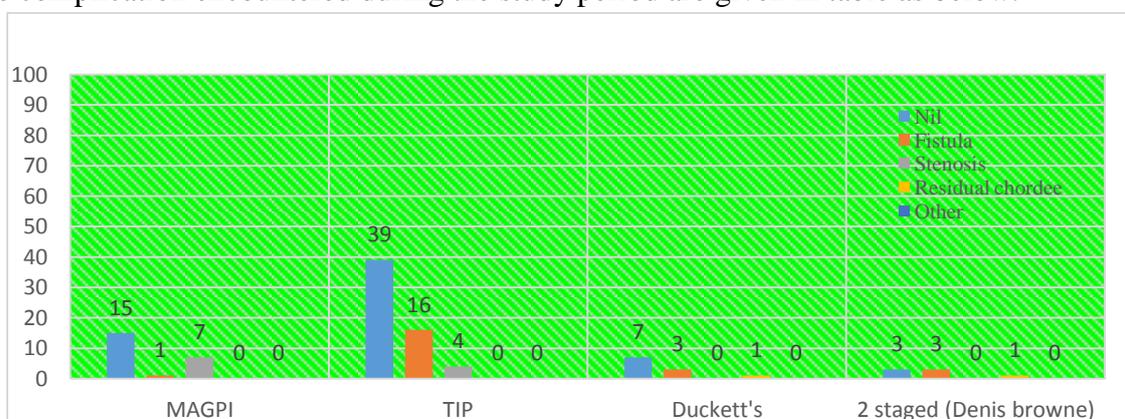
Associated Anomalies	Number	Percentage
Nil	67	67
Inguinal Hernia	10	10
Undescended Testis	13	13
Renal Anomalies	7	7
ARM	2	2
Neural Tube Defects	1	1
Total	100	100

Out of 100 cases meeting the criteria of repair, 59 cases underwent TIP (Tubularised incised plate) urethroplasty, 23 cases underwent MAGPI (Meatal advancement and Glansplasty) procedure, 11 underwent Duckett’s procedure and 7 cases

underwent 2-staged (Denis Browne) procedure accordingly. Patients followed up till a minimum of 6 months post operatively. Early complications that encountered can be represented as follows.

Type of procedure	Early Complications (within 7 days)						Total
	Nil	Haematoma	Haemorrhage	Edema	Devitalised Skin flap	Infection	
MAGPI	17	3	-	3	-	-	23
TIP	41	3	-	9	6	-	59
Duckett’s	7	-	-	2	1	1	11
2 staged (Denis Browne)	2	1	1	1	1	1	7
Total	67	7	1	15	8	2	100
Percentage	67	7	1	15	8	2	100

Late complication encountered during the study period are given in table as below.



Thus, from the above tables it is evident that out of 100 patients, a total of 36 patients developed complications post operatively. Local edema was mostly commonly encountered early complication while urethrocutaneous fistula was most common late complication encountered in our study. Of the 23 cases with urethrocutaneous fistula, 5 cases underwent spontaneous closure without any further surgery. 13 cases required single redo surgery while remaining 5 cases required multiple surgeries.

Discussion

There are more than 200 surgeries described for correction of hypospadias. In spite of having so many options, there is no single accurate surgical option as there are variety of presentation of the condition.

Observation from our study indicate, mid penile hypospadias is the most common type of hypospadias presenting in 40% cases followed by

anterior hypospadias (36%) including glanular (16%) and subcoronal (20%) variety of hypospadias. Frequency of proximal hypospadias was 24%. This finding is supported by Mohajerzadeh L et al⁴ study stating high incidence of mid penile hypospadias.

Cryptorchidism was most common anomaly presenting in 13% cases of hypospadias followed by inguinal hernia (10%). This finding has concurred with that stated in study of Shima et al⁵ where undescended testis was present in 13.2% cases while refuted by Wu et al⁶ which found inguinal hernia in majority cases.

Type of procedure depended on type of presenting type of hypospadias, other prescribed criteria regarding the position of urethral meatus and urethral plate and surgeon’s choice and expertise. Snodgrass tubularised incised plate urethroplasty found application in various types of hypospadias with a success rate of 66.1%. It was surgery of choice in mid penile hypospadias.

Edema was most common early complication occurring in 15% cases post surgery followed by devitalized flap in 8% patients. On the contrary, Khan et al⁷ reported a much higher rate of local edema i.e. 28.4%. Urethrocutaneous fistula was most common late complication occurring in 23% patients post primary surgery. Frequency of fistula formation with different procedure was 6.6% with MAGPI, 27.1% with Snodgrass tubularised incised plate urethroplasty (TIP), 27.3% with Duckett's onlay flap procedure and 42.2% in 2-staged procedure. This findings were comparable with Mohajerzadeh L et al⁴ and William Mensah et al⁸.

Of the 23 cases with fistulae, 55.6% required single surgery for its correction, while 22.2% required multiple surgeries and 22.2% healed spontaneously. This was comparable to studies by Spinoit et al⁹ and Aslam et al¹⁰, where all cases with fistulae required a redo surgery.

Conclusion

Hypospadias, though congenital, the time of presentation to the hospital is variable. The surgical techniques are best when tailored according to the patient's condition and surgical expertise, in terms of good postoperative outcome. Snodgrass tubularised incised plate urethroplasty is a good single staged surgical technique with minimal post-operative complications and can be practised widely.

There is no conflict of interest with anybody as well as among authors.

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