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To Study and Analyze the Types of Hypospadias in Tertiary Care Centre

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Introduction

Hypospadias is a wide spectrum of abnormalities involving the inferior surface of the penis and having in common a urethral opening that lies on the inferior surface of the penis, (hypo = under; spadias = opening or rent).The spectrum of hypospadias anomalies includes an abnormal urethral opening, chordee (ventral curvature of the penis), an incomplete prepuce, rotation of the penis, abnormal raphe, and disorganised corpus spongiosum and penile fascia.[1-5]

Hypospadias surgery is known to be challenging and technically demanding. In some parts of India, this is complicated by unawareness and some deleterious cultural and religious beliefs. Hence, the majority of hypospadias patients in India are referred late, already circumcised or with signs of mutilation due to failed repair or cultural practices. In addition, suboptimal theatre conditions, lack of delicate instruments and suture materials, and high infection rates in some parts of India make hypospadias repair even more difficult.[5-10]

So the present study has been conducted to study and analyze the types of hypospadias, various surgical techniques of urethroplasty in our institute and to study the post operative complication rate.

Material & Methods

Cases of various degrees of hypospadias were included in this study from our institute.

A comparative observational study of a total of 50 cases were included for a time period of 18 months.All patients below 15 years who present with clinical features of any type hypospadiasis associated with symptom or found accidentally on examination undergoing surgery were included in the study. While all patients above 15 years and those with any systemic disease were excluded from the study.

Methodology

- They were clinically examined and a questionnaire was filled regarding the symptomatology of the cases. Patients' attendents were also questioned about preoperative testosterone given.
- The operative details were noted and type of catheter and dressing used was also noted. Post operative hospital stay was also recorded.
- The day patients were de-catheterized was also noted. Patients were followed for variable period of time by means of direct clinical examination and telephonic talks.
- Various complications that occurred were noted and time of their appearance was also

noted, interventions done were recorded with their outcomes.

Statistical analysis: The results are presented in mean±SD and percentages. The Chi-square test was used to compare the categorical variables. The one way analysis of variance was used to compare the operation time, duration of hospital stay and fistula rate among the different operative procedures. The p-value<0.05 was considered significant. All the analysis was carried out on SPSS 16.0 version (Chicago, Inc., USA).

Result

Table 1: Distribution according to age and variety of hypospadias

Age in years	No. (n=50)	%
<5	17	34
5 to 10	25	50
>10	8	16
Mean±SD (Median)	6.46±3.32 (6.00)	
Variety of hypospadias	No. (n=50)	%
Coronal/ sub coronal	20	40
Mid penile	10	20
Glandular	14	28
Proximal penile	6	12
Type of anomalies	No.(n=8)	%
Inguinal hernia	3	37.5
Leukoplakia on glans	2	25
Bilateral retractile testis	2	25
Micropenis	1	12.5
Chordee	No. (n=50)	%
Present	32	64
Absent	18	36
Severity of chordee	No. (n=32)	%
Mild	18	56.3
Severe	14	43.7

In present study, half of the cases belonged to age group 5-10 years (50%) followed by <5 (34%) and >10 (16%). The mean age of the cases was 6.46 (±3.32years), older than previous guideline. Inguinal hernia either of one side was in 37.5% uu (n=3) patients followed by leukoplakia on glans & bilateral retractile testis 25% (n=2) and Anomaly like micropenis was 12.5%.

Table 2-Distribution according to operative techniques and duration of hospital stay

Operative techniques	No.(n=50)	%
Snodgrass urethroplasty	16	32
Mathieu approach	10	20
Onlay preputial island flap	8	16
Asopa's urethroplasty	12	24
Preputial skin Graft	4	8
Duration in minutes	No.(n=50)	%
60-70	24	48
71-80	26	52
Mean±SD	71.80±7.26	
Operative techniques	Duration in minutes (Mean±SD)	
Snodgrass urethroplasty	68.44±7.868	
Mathieu approach	73.00±7.52	
Onlay preputial island flap	76.25±4.43	
Asopa's urethroplasty	72.50±5.83	
Preputial skin Graft	71.25±10.30	
ANOVA p-value	0.14	
Duration in days(hospital Stay)	No. (n=50)	%
<5	4	8
5 to 7	26	52
>7	20	40
Mean±SD (Range)	7.38±1.10 (3-10)	

Snodgross urethroplasty was performed in 32% of patients, Asopa's urethroplasty was performed in 24% patients and Onlay preputial island flap was done in 16% patients and graft was done in 8% patients.

The distribution based on duration of operation. Overall duration of operation was 71.80±7.26 minutes. The duration of operation was 71-80 minutes in 52% patients.

The hospital stay was 6-7 days in 52% patients and >7 days in 40%. The duration of hospital stay was <5 days in 8% patients. The average duration of hospital stay 7.38±1.10 (3-10) days ranging from 3-10 days.

Table 3 Distribution according to complications.

Complications*	No. (n=50)	%
Urethrocutaneous fistula	12	24
Stricture	3	6
Meatal stenosis	6	12
Infection	5	10
Persistant cordee	2	4
Urinary Retension	1	2
Skin necrosis	1	2
Diverticulum	0	0
Total	30	60

Overall post operative complication was 60%. Urethrocutaneous fistula (24%) & Meatal stenosis (12%) was the most common complication. The stricture (6%) was found to be least common complication.

Table 4 Association of operative procedures and complications.

Procedure	No. of patients	Urethrocutaneous fistula		Stricture		Meatal stenosis		Persistant cordee		Urinary Retension		Skin necrosis		Total	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Snodgross urethroplasty	16	3	18.7.	0	0	2	12.5	0	0	1	6.2	0	0	6	37.5
Mathieu approach	10	3	33.3	1	10	1	10	0	0	0	0	0	0	5	50
p-value		0.5		0.19		0.84			-	0.42			-		
Onlay preputial island flap	8	1	12.5	0	0	2	25	1	12.5	0	0	0	0	4	50
Asopa's urethroplasty	12	4	33.4	1	8.3	1	8.3	1	8.3	0	0	1	8.3	9	66.6
Graft	4	1	25	1	25	0	0	0	0	0	0	0	0	2	50
p-value1		0.57		0.33		0.38		0.76		-		-			

In present study Snodgrass urethroplasty technique having less complication rate 37.5%, shorter duration and appearance was better in comparison to Mathieu approach 50%. Snodgrass reported better result with no statistical significant (p>0.05) this may be due to small sample size.

Onlay preputial island flap technique is better with no significant difference (p>0.05). This may be due to small sample size.

The post operative complication was highest in Asopa's urethroplasty (66.6%) procedure and was least in snodgross urethroplasty (37.5%). Urethrocutaneous fistula was the most complication in Asopa's urethroplasty (33.4%) procedure

Discussion

Hypospadias is one of the most commonly encountered congenital malformations of the genitourinary system. The therapeutic objectives for hypospadias repair are to correct the penile curvature, to form a neourethra of an adequate size, to bring the neomeatus to the tip of the glans, and to achieve an overall acceptable cosmetic appearance of the genitalia.

In studies by Wein JA, Kavoussi LR Campbell-Walsh Urology.10th ed. 2012[15] from 18 months to approximately 3 years of age has been described as a difficult period for hospitalization, leading to a recommendation that repair be postponed to age greater than 3 years .

Retrospective chart reviews (Kaefer et al, 1999[16]; Wu et al, 2002)[20] and case-control study from the Danish National Patient Register (Weidner et al, 1999) [21]report that approximately 7% of hypospadias patients also have cryptorchidism. In a series of 356 patients with hypospadias the incidence of cryptorchidism was 3.4% of 88 with distal versus 10% of 234 with proximal hypospadias (Wu et al, 2002)[20]. These were associated anomalies in previous studies.

In studies Duckett J. W. 1996[17] for the repair of distal hypospadias, as in general for the repairs of hypospadias, there is no consensus on an ideal

method yet. However, Holland AJ.2000[18], Baskin LS.2006[19] suggested increased risk of developing meatal stenoses in patients with a urethral plate that is not large enough to allow tubularization is a significant disadvantage of this method.

Conclusions

The comparison of the complication rates in hypospadias surgery is complex and difficult. The success rate of the hypospadias repair is affected by many variables such as anatomical variations, tissue quality, surgical technique and the surgeon's competence. This situation renders an objective comparison of the various techniques difficult. Postoperative success indicates that the applied technique is appropriately selected ac-cording to the anatomical location of the hypospadias, and the skill and experience of the surgeon

It is the most challenging surgical procedure in favour of outcome and patient satisfaction. There are various surgical techniques are available for this anomaly, proves that no one technique is gold standard. Universally the complication rate is significantly noticeable. There is a Sincere effort in improving the result by surgeon dedicated to the surgery of hypospadias.

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