

Study of Hypospadias at our Institute

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Abstract

Background: Hypospadias is the commonest congenital anomaly of the male urethra that occur in every 300-400 live male births. It involves an abnormally placed urinary meatus anywhere along the urethral groove running from the tip along the ventral aspect of the shaft of penis to the junction of the penis and scrotum or perineum. Single stage repair with TIP technique has become the procedure of choice with its versatility in repairing almost all types of hypospadias with satisfactory cosmetic and functional results. **Materials and Methods:** This is a prospective study carried out at Dhiraj hospital, Piparia, Vadodara, from March 2017 to April 2018. Twenty five male patients selected from those who presented to pediatrics or surgery OPD underwent different techniques of single stage repair of hypospadias. Follow-up was done up to one year. **Conclusions:** In conclusion, the present study reveals that patients with Snodgrass repair obtained a neourethra with a slit-like meatus at the tip of the glans. It provides satisfactory cosmetic and functional results and is versatile in repairing almost all types of distal and proximal hypospadias and has become the procedure of choice. High rates of fistula and meatal stenosis initially encountered have improved with modifications to technique with regular follow up and dilatation. One stage repair of Hypospadias is better because of time, money, hospitalization can be saved.

Keywords: Hypospadias; TIP-Repair; Snodgrass Technique; Stricture; Fistula.

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Introduction

Hypospadias, a developmental anomaly, presents with a urethra that does not open in a regular position on the genitals. Rarely does this condition occur in females, with the urethra opening into the vagina, but the urethral malposition on the underside of the penis or on the perineum, is one of the most common birth defects in baby boys [1].

Hypospadias means a "drawing under" of penis with external urinary meatus terminated on the ventral surface of penis or perineum. This abnormal meatal opening may or may not be associated with ventral curvature of penis.

The cause of hypospadias per se is unknown. Hypospadias is the commonest congenital anomaly of the male urethra may occur in every 300-400 live male birth. Hypospadias is usually diagnosed in the newborn nursery.

In cases of hypospadias, rather than the normal position on the tip and in the very center of the glans penis, the meatus is positioned elsewhere on the ventral aspect of the penis, including the glans or corona, penile shaft, penoscrotal junction or perineum. Experts say that hypospadiac variations occur in one out of every 150 to 250 live births or 8 in 1,000 [2].

In this study of penile anomalies, it is important at this time to mention a similar congenital condition- epispadias. Unlike hypospadias, the epispadic urethra is malpositioned on the dorsal, or top of the penis. This condition usually requires many complicated surgeries. The child usually remains incontinent of urine until around age 5 and before final urinary reconstruction is performed. Frequently, epispadias is associated with additional severe anomalies, such as "exstrophy of the bladder," in which the bladder lies outside the

abdominal wall at birth. This condition, that appears about 50 times less common than hypospadias. Based on the irregular location of the meatus, a diagnosis is classified as mild, moderate or severe. Babies born with hypospadias are routinely not circumcised at birth. The extra foreskin is usually needed for surgical reconstruction of a new urethra, or neourethra. Avoiding social implications and school interference, surgical repair is usually scheduled before the boy reaches school age, preferably by the child's first birthday.

Not only is there a malformation of the urethral tube, but hypospadias is commonly associated with various other penile alterations. A downward bend or ventral curvature of the penis, especially when erect, is referred to as chordee this unusual shape is caused by a tightening of fibrous tissue in only one of the two corporal bodies that are around and at the base of the penis near the scrotum. This structural defect, which is either noticed at birth or later acquired, results in the penis bending downwards and appearing curved and shorter than it actually is. Therefore, surgery to release the tight, pulling corporal body of the penis is usually not postponed. In fact, the presence or absence of chordee is often a deciding factor for surgery regardless of the position of the meatus [3].

The classification of hypospadias of mild, moderate and severe corresponds to first, second and third degree hypospadias. The majority of cases are first degree with the meatus off- position on the glans penis. Second degree, or middle types, is where the meatus is at the base of the glans (coronal), just below the base of the glans (subcoronal), or midpenile (in the middle of the shaft). When the meatus opens on the scrotum or below (penoscrotal, scrotal or perineal) it is considered third degree or severe hypospadias [4]. Glanular meatal position, as previously mentioned, accounts for 50-60% of hypospadias cases. Second degree appears in 25%, and only 15% of the cases are third degree. The particular position of the urethra on the penis or perineum also determines the degree of handicap, treatment and complications.

Materials and Methods

This is a prospective Study of 25 cases of Hypospadias in pediatrics age group treated at our institute from March 2017 to April 2018.

Out of large number of patients treated at our institute during the specified period 25 cases were studied which have been followed up for satisfactory period.

Evaluation and Management

Once the patient was selected for study, information was obtained as per the proforma

- Meticulous history of patient was obtained and then detailed clinical examination undertaken.
- All patients were subjected to the routine investigations
- Following this patients were catheterized and underwent Snodgrass repair for hypospadias in single or two stage repair depending on variety of hypospadias.
- The patients were kept under observation for 7 days with catheter with cover of antibiotics, anti-inflammatory drugs and analgesics.
- All patients were discharged after removal of catheter and assessing for any urinary complaints, stream and frequency and advised regular follow up for 6 months.

Treatment Provided for Conditions

All the 25 patients with Hypospadias and chordee underwent tubularized incised plate (TIP) urethroplasty. Snodgrass technique for primary hypospadias with correction of chordee in the form of mild, moderate and severe were carried out in single stage and two staged procedure.

Result and Discussion

Management of Hypospadias has always been difficult task. Tubularized incised plate urethroplasty provides excellent results in repairing of hypospadias. Before TIP procedure, we used mostly the Thiersch-Duplay procedure or the Mathieu procedure.

Snodgrass operation is, in fact a modification of Thiersch-Duplay urethroplasty, but with better results because the tubularization is tension free.

With changing concepts in modern hypospadiology, Snodgrass first described the tubularized, incised plate (TIP) urethroplasty for distal hypospadias repair in 1994 and recently extended its application to proximal hypospadias with promising results [19-21]. The major principles are deep longitudinal incision of the urethral plate, which allows for its tubularization without the need for additional flaps, and the interposition of a barrier layer of dartos pedicle between the neourethra and overlying skin, which is crucial in reducing the likelihood of urethrocutaneous fistula.

The TIP repair has the advantage of technical simplicity. Every case is an interesting operation on border of pediatric surgery, urology and plastic surgery. It is not a simple urethroplasty; it is a reconstruction of the malformed penis.

The TIP urethroplasty is a versatile single-stage operation. This technique may be used successfully for

repair all types of hypospadias: distal, mid shaft, proximal; as a first operation or redo operation.

In this present study of 25 cases of Hypospadias different aspects like age, types of Hypospadias, complications and different surgeries performed are studied.

Observations of present study are compared with other studies

Maximum number of patients (72%) belonged to 1-5 year age group in our study comparable with Snodgrass study (66%). The median age in our study was 4 yrs and in Snodgrass study was 3 years [5] (Table 1).

Table 1: Comparison of age variables

Age	Total number of Patients(our study)	Snodgrass study
Up to - 1 year	4	6
1 - 5 Years	18	16
6 - 10 Years	3	2
Total	25	24

The most common variety of hypospadias in our study was glandular (33%) and distal penile while in Snodgrass study mid penile (33%) is most common variety followed by proximal penile (20%). No scrotal and perineal cases were present in our study [6,7]. (Table 2).

Table 2: Distribution of types of hypospadias

Variety of hypospadias	No. of Patients (our study)	Snodgrass study
Glanular	8	0
Coronal	6	1
Distal penile	8	2
Mid-penile	1	8
Proximal penile	0	5
Penoscrotal	2	4
Scrotal	0	3
Perineal	0	1
Total	25	24

Culp [8] reported that out of 400 patients with hypospadias included in his study, chordee occurred in 67% of cases while Baskin and associates [9] estimated that one third of boys with hypospadias have penile curvature, the more severe forms of hypospadias exhibiting the greatest penile deformities having 33% of incidence of chordee in their study. In study conducted in Sudan [10] of 50 cases of hypospadias with anterior hypospadias as the commonest type (46%), and associated chordee occurred in most of the patients (88%). In our study, we found 56% of patients had chordee. (Table 3).

Table 3: Incidence of Chordee

	No. of Cases	Incidence of Chordee
Culp Study	400	67%
Baskin Study	100	33%
Sudan Study	50	40%
Our Study	25	56%

15% patients had abnormal testis in Ross study with no abnormality of scrotum while 18% of patients in Smith study had abnormal scrotum but no abnormality of testis. In our study 8% patients had abnormal scrotum but no abnormality of testis [11]. (Table 4).

Table 4: Comparison of abnormal scrotum and abnormal testis

	Abnormal scrotum	Abnormal testis
Ross study	-	15%
Smith study	18%	-
Our study	8%	-

Table 5: Comparison of post urethroplasty sequele

Study	Primary healing	Sepsis	Bleeding	Fistula	Penoscrotal oedema	Neourethra stenosis
Denis-Browne study	-	-	-	22%	-	-
Modified Ombredanne's study	-	-	-	3.7%	-	-
Byar's study	-	-	-	23.07%	-	-
Asopa's study	-	-	-	16.6%	-	-
Our study	64%	-	4%	20%	-	12%

Above table 5 shows that primary healing after urethroplasty occurs in 64% cases and fistula formation in 20% cases. Because of more handling of tissue dissection and handling there is increase in incidence of post operative complications while in modified Ombredanne's [12] the hypospadias is usually anteriorly so less tissue dissection and less tissue handling will lead to less incidence of post operative complications. In Asopa's method [13] there is usage of double layer of prepuce with common blood supply so there is less chance of flap necrosis and less fistula formation. (Table 5).

In 1961, Horton-Devine [14] studied 20 cases of hypospadias in which 6 patients had fistula and no cause for the fistula formation was found. While in our study 20% cases had fistula in which 2 cases were due to neourethra stenosis and in three cases no cause was found. In 2002 Snodgrass studied 24 cases out of which 3 cases had fistula formation and no cause was found for the same. While in Romania study 1 case of

Table 6: Relationship between incidence of fistula and its causes

Study	Occurrence of fistula in%	sepsis	Neourethra stenosis	No cause
Horton-Davine study (20 cases- 6 patients had fistula)	30%	-	-	6
Snodgrass procedure (May 2002) (24 cases-3 cases had fistula)	12.5%	-	-	3
Tg Mures Romania (70 cases -11 cases had fistula)	15.7%	-	1	10
Our study (25 cases- 5 patients had fistula)	20%	-	2	3

Table 7: Hospital stay

	One stage repair	Two stage repair
Mean hospital stay in days	10	17

neourethra stenosis was found to be culprit. For others no cause was found.

Mean hospital stay of patients in one stage repair is less than two stage repair so time and money of patients can be saved in one stage repair method.

Conclusion

In conclusion, the present study reveals that patients with Snodgrass repair obtained a neourethra with a slit-like meatus at the tip of the glans. It provides satisfactory cosmetic and functional results and is versatile in repairing almost all types of distal and proximal hypospadias and has become the procedure of choice. High rates of fistula and meatal stenosis initially encountered have improved with modifications to technique with regular follow up and dilatation. One stage repair of Hypospadias is better because of time, money, hospitalization can be saved.

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