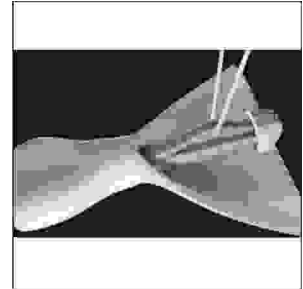


ORIGINAL

PROF-1110

# URETHROPLASTY; INITIAL EXPERIENCE AT ALLIED HOSPITAL, FAISALABAD.



**DR. MUHAMMAD AKMAL**  
**MBBS, FCPS (Urology)**

Registrar Urology,  
Allied Hospital Punjab Medical College,  
Faisalabad.

**DR. SAFDAR HASSAN JAVED SIAL**  
**MBBS, MS (Urology)**

Assistant Professor of Urology,  
Allied Hospital Punjab Medical College,  
Faisalabad.

**DR. MUHAMMAD HUSSAIN WASEER**  
**MBBS, FCPS**

Department of Urology,  
Allied Hospital Punjab Medical College,  
Faisalabad.

**ABSTRACT...** [urology@brain.net.pk](mailto:urology@brain.net.pk) **Objectives:** To assess the results of Tubularized incised plate urethroplasty for hypospadias repair and to find out the causes of failure. **Design:** Prospective randomized study. **Place & Duration of Study:** Department of urology, Allied Hospital Faisalabad. From May 2001 to April 2003. **Patients & Methods:** 20 consecutive patients of Hypospadias were included in this study. All cases were managed by Tabularized incised plat Urethroplasty (TIPU). **Results:** 12 cases presented with distal Hypospadias. 08 patients came with proximal Hypospadias. Common age at presentation was below 5 years. Orthoplasty was done by Nasbit technique in 04 patients. Overall success of tabularized incised plate urethroplasty for distal Hypospadias repair was seen in 10(83.60%) cases. 01(8.30%) patients developed fistula and 01(8.30%) patient presented with total disruption. Meatal stenosis was observed in 01(8.30%) patient which responded well to regular dilatation. Overall success of TIPU for proximal Hypospadias repair was seen in 05(62.50%) patients. Fistula occurred in 02(25%) patients and total disruption in 01(12.5%) patient. 01(12.5%) patient developed meatal stenosis which was managed by regular dilatation. **Conclusion:** TIPU can be applied as a valid option to treat all types of Hypospadias. Most of the complications can be minimized by proper technique, prevention of hematoma formation and infection.

**Key words:** Hypospadias, Tabularized Incised Plate Urethroplasty (TIPU), Complications.

## INTRODUCTION

Hypospadias occurs in one in every 30 male children.

The urethral meatus opens on the ventral side of the penis proximal to the tips of glans penis. The fusion

failure of urethral folds leads to this congenital anomaly.

Distal hypospadias is the most common variety conditions encountered<sup>1</sup>. About 70% of all cases of Hypospadias are distal penile or coronal. Associated chordee causes ventral bending and bowing of the penile shaft and meatus may be stenotic.

Hypospadias in girls is an uncommon anomaly. Generally, the vaginal introitus appears normal upon initial inspection, but the urethra is noted to be further recessed on the anterior vaginal wall<sup>2</sup>. Chordee is ventral curvature of penile shaft. Significant chordee is believed to be a curvature greater than 20 to 30 degrees<sup>3</sup>. Etiology of chordee is divided among skin tethering, fibrotic dartos and Bucks fascia and corporeal disproportion. A congenital short urethra is a rare cause of isolated chordee<sup>4</sup>. Recurrent chordee may be secondary to the redevelopment of corporeal disproportion or extensive urethral fibrosis<sup>5</sup>.

The patients may complain of downward stream and spraying. Hypospadias in adults can be the cause of infertility. The goal of the treatment of Hypospadias should be cure of disease with normal anatomical configuration and minimal complications.

More than 150 methods of repair for Hypospadias have been described. No method is ideal. The well established Mathieu repair provides excellent cosmetic and functional results with 3.6% complications. However the same results are not obtained in other centres<sup>6</sup>. Modified Mathieu technique showed excellent results both functional and cosmetic in the treatment of coronal and distal shaft Hypospadias associated with chordee<sup>7,8</sup>. Mathieu repair is associated with mega meatus. It has limited role in cases of proximal hypospadias and the patients associated moderate and severe chordee.

The results of hypospadias repair in adulthood differ from the results of similar procedures in childhood<sup>9</sup>.

To overcome these complications, Snodgrass incised the urethral plate to decrease the tension on urethral tube for

the first time and obtained very good results. Tabularized incised plate urethroplasty has become the preferred technique of primary and repeat Hypospadias repair<sup>10,11</sup>. Tabularized incised plate urethroplasty for distal hypospadias repair has a low complication rate regardless of urethral plate configuration or width.

Therefore, this procedure is potentially applicable in all cases of primary distal hypospadias<sup>12</sup>. Keeping in view the success rate in distal hypospadias Snodgrass started applying this technique in proximal hypospadias and obtained very good results<sup>13</sup>. Similar results were obtained by others. The Snodgrass procedure is a viable option for the treatment of previously failed Hypospadias repair<sup>14,15</sup>. Longitudinal incision of the urethral plate prevents stricture formation and enhances good healing. Percentage of complications and failure is minimum with this procedure and it is world wide recognized the best treatment option to treat all types of Hypospadias. Urethrocutaneous fistula is the most common complication after hypospadias repair. Simple closure of a fistula is easy and less time consuming, but it is followed by a significantly higher rate of recurrence than when skin flaps are used<sup>16,17</sup>.

Keeping in mind the good results & minimal complications of tabularized incised plate urethroplasty, a study was planned to treat all types of Hypospadias by Tabularized Incised Plate Urethroplasty.

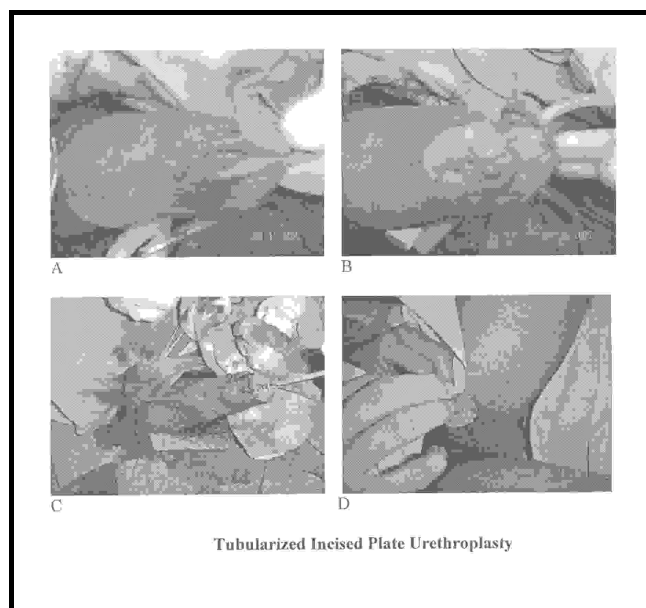
## PATIENTS AND METHODS

The study was carried out at the Department of Urology and Renal Transplantation, Allied Hospital, Punjab Medical College Faisalabad from May 2001 to April 2003. First 20 consecutive cases of Hypospadias included in the study was completed within 2 years. Detailed history and clinical examination was performed. Diagnosis was made on clinical basis.

All necessary laboratory and radiological investigations were done. All the patients were operated by Tabularized Incised Plate Urethroplasty by 3 surgeons of the department.

**PROCEDURE**

In Tabularized Incised Plate Urethroplasty stay suture was placed in the glands tip. Two parallel incisions were made from the galns tips to just proximal to the urethral meatus. Incision was made approximately at the width of 7 to 9 mm according to the phallus size. Two parallel incisions were joined at about 2 mm proximal to the urethral meatus. Circumferential incision was made for penile degloving. A longitudinal midline incision of urethral plate was made from the glans tip to the urethral meatus. The urethral plate was tabularized over a stent. Wide meatus was fashioned. Subcutaneous tissue covered on neourethra was made. Glans wings were approximated under minimal tention in two layers. Skin cover was made by Blair Byar's technique<sup>14</sup>. All patients were operated by a team of surgeons. Hypospadias was repair with PDS (Polydioxanone) 7/0. All operation details relating to the site of Hypospadias, cause of chordee and type of repair was recorded.



All the cases were followed for 3 months. Results for all the cases were assessed. Complications were recorded separately for proximal and distal Hypospadias.

**RESULTS**

Total 20 consecutive patients were included in the study. They were operated in Allied Hospital, Faisalabad from

May 2001 to April 2003. Age ranged from 02 years to 25 years with a (mean age of 5.45 years) (Table I). 305 of patient presented below age of 5 years. 03 patients were already circumcised. As shown in (Table II) distal Hypospadias was present in 12 cases (60%). 08(40%) patients presenting with proximal Hypospadias. Associated anomalies were found in 05(25%) patients including right undescended testis in 02(10%) patients, bilateral undescended testes in 01(05%) patient and hernia in 02(10%) patients (Table V).

All patients were operated by Tabularized incised plate urethroplasty. All patients of distal Hypospadias were operated by single stage repair. 03(37.0%) patients of proximal Hypospadias required two staged operation. Orthoplasty was done in 1st stage and urethroplasty after 06 months. 04(20%) patients required tuniqa albugenia plication by Nasbit technique for orthoplasty. Good cosmetic and functional results were achieved by this type of repair. Overall complications were in 02(16.60%) patients of distal Hypospadias. Fistula was seen in (08.33%) patient and 01(08.33%) patient presented with total disruption. Meatal stenosis was observed in 02(16.60%) patient. Both responded well to regular repeated dilatation.

**Table I. Age Distribution at the Time of Presentation**

| Age         | No. of Cases | % Age |
|-------------|--------------|-------|
| 02-05 years | 06           | 30%   |
| 06-10 years | 07           | 35%   |
| 11-20 years | 03           | 15%   |
| 21-25 years | 04           | 20%   |

**Table II. Frequency of Distribution of Types of Hypospadias**

| Type               | No. of Cases | % Age |
|--------------------|--------------|-------|
| Distal Hypospadias | 12           | 60%   |
| Proximal           | 08           | 40%   |

| Complication       | Distal Hypospadias | Proximal Hypospadias |
|--------------------|--------------------|----------------------|
| Infection          | 02                 | 01                   |
| Haematoma          | 01                 | 02                   |
| Oedema             | 03                 | 02                   |
| Fistula            | 01                 | 01                   |
| Total Disruption   | 01                 | 01                   |
| Persistent Chordee | -                  | 01                   |
| Meatal Stenosis    | 02                 | 01                   |

Overall complication rate of proximal Hypospadias repair was 37%. Fistula was presentation in 02(25%) patients. Total disruption was seen in 01(12.50%) patient. 01 patient presented with persistent chordee after orthoplasty who needed repeated surgery for correction of chordee. Meatal stenosis was seen in 01(12.50%) patient, which was treated by regular dilatation. Other complications were minor and temporary and they were managed conservatively (Table III & IV). Good stream was seen in 12(60%) patients and mild spraying in 03(15%) cases. The patients who developed fistula were treated after 06 months by fistula repair.

| Tabularized Incised Plate Urethroplasty | Success    | Failure    |
|-----------------------------------------|------------|------------|
| Distal Hypospadias                      | 10(83.40%) | 02(16.60%) |
| Proximal Hypospadias                    | 05(62.50%) | 03(37.50%) |

| Anomaly                       | Count | Percentage |
|-------------------------------|-------|------------|
| Unilateral undescended testis | 02    | 10%        |
| Bilateral undescended testis  | 01    | 05%        |
| Inguinal Hernia               | 02    | 10%        |

## DISCUSSION

Reconstructive Hypospadias surgery is challenging and continuously evolving. There is no consensus on a universal method applicable to all types of Hypospadias. The objectives of Hypospadias repair are a straight penis with meatus at glans tip and low complications rate. A single stage repair has evolved in the last two decades and is now practiced in many centres for majority of distal Hypospadias with high success rate. Single stage technique has limited role in repair of proximal Hypospadias and two staged repair may be recommended in these difficult cases. In the present study, age of patients ranged from 02 to 25 years, with the mean age of 10.4 years. Chordee was present in 50% cases of proximal Hypospadias. Maqbool et al noticed chordee in 68.4% of cases<sup>18</sup>. Chordee was corrected by dorsal tunica albugenia plication if needed. Wang Hseng WU et al found 20% anomalies along with Hypospadias<sup>19</sup>.

Artificial erection was done with 0.9% normal saline at the beginning of procedure. It is accordance with most of the series<sup>20</sup>. Kogan had reported good results with aloprostadiil administered intracavernously then normal saline<sup>21</sup>.

There is no single treatment option for distal Hypospadias repair. Immediate local skin for repair of Hypospadias is 1st choice as in Tabularized Incised Plate Urethroplasty and Thiersch Duplay repair. Meatla based skin can be used for urethroplasty as in Mathieu repair & Barkat procedure. Overall success can be improved by using dartos fascia or tunica vaginalis pedicle wrap in hypospadias repair<sup>22</sup>.

We treated 20 patients with Tabularized incised Plate Urethroplasty. Single stage repair was done in all cases of distal Hypospadias. Two stage repair was done in three cases of proximal Hypospadias. Overall complications rate was 16.60% in patients of distal Hypospadias & it was 37.50% in cases of proximal Hypospadias. Holland and Smith repaired distal Hypospadias with Tabularized Incised Plate Urethroplasty whose complication rate was 22%<sup>23</sup>.

Similar tabularized Incised Plate Urethroplasty was done by lane S. Palmer et al but their success rate was 90%<sup>24</sup>. Shanberg AM, et al performed re-operative Tabularized Incised Plate Urethroplasty in 13 patients and faced 14% complications<sup>25</sup>.

Earl Y Cheng et al performed Tabularized incised Plate Urethroplasty for distal and proximal hypospadias and obtained 99% success<sup>26</sup>. The success rate for all selected techniques were satisfactory. TIP urethroplasty can be successfully used in the more severe, proximal forms of MIP<sup>27</sup>. The modified TIP procedure is a safe and reliable technique. It provides excellent cosmesis with a low re-operation rate<sup>28</sup>. Healing of the incision in the dorsal urethral plate during tabularized incised plate urethroplasty occurs by re-epithelialization with normal tissue ingrowth. In contrast, the sutured closure heals with a desmoplastic and inflammatory response<sup>29</sup>.

Oswald et al compared Mathieu repair with incised plate urethroplasty and they found Tabularized incised plate urethroplasty the preferred technique with only 3% complications rate<sup>30</sup>. Use of inner perputial skin is an alternative option. Grafts may be used for urethroplasty of any type.

Proper antiseptic cotton gauze dressing was done in every case and was kept for 24 hours. It is similar to the protocol of maqbool A et al<sup>31</sup> and Muhammad Riaz ul Haq et al<sup>11</sup>. Van Savage JG et al compared dressing versus no dressing for hypospadias repair and concluded that results are independent of dressing usage.

We used (PDS) Polydioxone 7/0 suture for hypospadias repair. Tubes was formed by continuous stitching. Dorsal slit was made in the midline on preputial & dorsal penile skin if necessary. Dorsal ski was brought to ventral side by Byar's flap. Skin closure was done with vicryl No 4/0. Post operative antibiotics were used for 10 to 12 days.

Tabularized incised plate urethroplasty showed adequate results to treat both distal & proximal hypospadias. Second layer of dartos fascia reduced the rate of fistula

formation.

## CONCLUSION

Hypospadias repair is a challenge for reconstructive surgeon. Tabularized incised plate urethroplasty can be used as a valid option to treat all types of hypospadias. Tabularized incised plate urethroplasty can be done for primary as well as second stage Hypospadias repair. Most of the complications can be minimized by good technique, prevention of haematoma formation and infection. Second layer of dartos fascia can reduce the rate of fistula formation.

## REFERENCES

1. **The surgical treatment of distal hypospadias.** Cendrom M. Arch Esp Urol. 1998; July-Aug: 51(6): 539-49.
2. **Female Hypospadias a case report** Mandhan P; Akhtar J & Aziz A. J Surgery Pak Int 1997; 2: 28-9.
3. **Chordee varied opinions and treatments as documents in a survey of the American Academy of Pediatrics of Urology.** Bolnga RA; Noah RA; Nsrallah PF; McMahon DR. Urol 1999 Mar; 53: 608-12.
4. **Etiology, Management and surgical complications of congenital chordee without hypospadias.** Donahoo KK; Cain MP; Pope JC; Casale AJ; Keating MA: Adms J Urol 1998 Sep; 160(3 pt 2): 1120-2.
5. **Late onset recurrent penile chordee after successful correction at hypospadias repair.** Vandersteen DR; Husmann DA. J Urol 1998 Sep; 160(3 pt 2): 1131-3; Discussion 1137.
6. **Mathieu hypospadias repair.** Experience in 202 patients Minevich E; Pecha B.R; Wacksman J; Sheldon CA. J Urol 1999; 162: 2141-43.
7. **Modified-Mathieu's technique: a variation of the classic procedure for hypospadias surgical repair.** De Grazia E; Cigna RM; Cimador m. Eur J Pediatr Surg. 1998 Apr; 8(2): 98-9.
8. **Single stage repair of anterior penile hypospadias** M. Riaz ul Haq, Sarfraz A, M. Afzal, Mazhar Rafi, Nabila Talat, Muhammad Afzal Sheikh. J surgery Pak Int 2002; 7: 15-7.
9. **Hypospadias Repair in adults; Adventures and**

- misadventures.** Hensle TW; Tennenbaum SY; Reiley EA; Pollard J. *J Urol* 2001; 165: 77-9.
10. **Tabularized Incised Plate Urethroplasty: Expanded use in primary and repeat surgery for Hypospadias.** Borer JG; Bauer SB; Peters CA; Diamond DA; Atala A; Cilento BG; Retik AB. *J Urol* 2001; 165: 581-5.
  11. **Unstented tabularized incised plate urethroplasty combined with foreskin reconstruction for distal Hypospadias.** Laclair MD, Camby C, Battisti S, Renaud G, Plattner V, Heloury Y. *EUA Urol* 2004; 46: 526-530.
  12. **Effect of urethral plate characteristics on tabularized incised plate urethroplasty.** Nguyen MT, Snodgrass WT, zaontz MR. *J Urol* 2004; 171: 1260-2.
  13. **Re-operative Snodgrass procedure** Yang SSD; Chen SC; Hsieh CH; Chen YT. *J Urol* 2001; 171: 2342-45.
  14. **Tabularized Incised Plate Hypospadias repair.** Indication, technique and complications. Snodgrass. *J Urol* 1999; 54-6.
  15. **Does tabularized incised plate hypospadias repair create neourethral strictures? Snodgrass.** *J Urol* 1999; 162: 1159.
  16. **Management of urethrocutaneous fistula after hypospadias repair. 10 years experience.** E1 Bakry A. *Br J Urol* 2001; 88: 590-95.
  17. **The dartos flap as an adjunct in preventing urethrocutaneous fistulas in repeat hypospadias surgery.** Churchill BM; Van Savage JG; Khoury AE. et al. *J Urol* 1996; 156: 2047.
  18. **Hypospadias in adults** Moudouni S, Tazi K, Nouri M, Koutani A, Hachimi M, Lakrissa A. *Prog Urol* 4: 667-9, 2001.
  19. **Two stage hypospadias repair a method applicable to all types of hypospadias.** Maqbool A, Ahmad H, Waqar A, Anwar S. *JCPSP* 4: 226-228, 2003.
  20. **Late onset of recurrent penile chordee after successful correction at hypospadias repair,** Vendersteem DR, Husmann DA. *J Urol* 160: 1131-33, 1998.
  21. **Radial bulbar dissection to correct severe chordee and proximal hypospadias.** Baker LA; Mathews RI; Docimo SG. *J Urol*, 164: 1347-9, 2000.
  22. **Comparative study of dartos fascia and tunica vaginalis pedicle wrap for the tabularized incised plate in primary Hypospadias repair.** Uday S, Chatterjee, Manas K, Mandal, Supriyo Basu et al. *BJU Int* 94; 1102-1104, 2004.
  23. **Effect of the depth and width of the urethral plate on tabularized incised plate urethroplasty.** Holland AJ, Smith GHH. *J Urol*, 64: 489-2000.
  24. **The "Long Snodgrass". Applying the tabularized incised plate to penoscrotal hypospadias in 1- stage or 2- stage repairs.** Lane S. Jaffreys. Israel F, Steven CF, Mark EK, Bhagwant G, Selwyn BL. *J Urol*, 168: 1748-50, 2002.
  25. **Re-operative hypospadias repair using the Snodgrass incised plate urethroplasty** shanberg AM, Sanderson K, Duel B. *BUJ Int* 87: 544-7, 2001.
  26. **Snodgrass hypospadias repair with vascularized dortas flap the perfect repair for virgin cases of hypospadias.** Earl YC, Sreenivas NV Bradley PK, John CP et al. *J Urol*, 1168: 1723-6, 2002.
  27. **Magemeatus intact prepuce hypospadias variant: Application of tabularized incised plate urethroplasty.** Bar Yosef Y, Binyamini j, Mullerad M, Matzkin H et al. *Urology*, 66: 861-4, 2005.
  28. **Modified tabularized incised plate urethroplasty procedure for hypospadias repair.** Baccala AA, Ross J, Detore N Kay R. *Urology*, 66: 1305-6, 2005.
  29. **Mechanism of healing following the Snodgrass repair.** Bleustein CB, Esposito Mp, Soslow RA, Felsen D, et al. *J Urol* 2001. 165: 227-9.
  30. **Comparison of primeatal based flap (Mathieu) and the tabularized incised palate urethroplasty (snodgrass) in primary distal hypospadias.** Oswald J, Korner I, Riccabona M *Br. J Urol Int* 85: 725-27, 2000.
  31. **Two stage hypospadias repair a method applicable to all types of hypospadias.** Maqbool A, Ahmad H, Waqar A, Anwar S. *JCPSP* 4: 226-228, 2003.