

Original Article

MANAGEMENT OF ANTERIOR HYPOSPADIAS, OUR EXPERIENCE WITH SNODGRASS REPAIR TECHNIQUE MARDAN MEDICAL COMPLEX MARDAN TEACHING HOSPITAL

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ABSTRACT

OBJECTIVE: To report on the short-term outcomes of anterior hypospadias tabularized incised plate urethroplasty, as reported by Snodgrass.

MATERIAL AND METHODS: From January 2014 to December 2016, patients with anterior hypospadias without chordae were the subjects of this research, which took place at the Mardan Medical Complex surgical department in Mardan. The research had 56 patients ages 3 to 13 years, with a mean age of 5.1. Anterior distal shaft hypospadias with a healthy urethral plate was an inclusion criterion, while chordae and a history of prior surgery were exclusion criteria. A new urethra was created around a size 6 to 8 Fr stent after the full length of the urethral plate was cut along the midline. Subdartos fascia covered the newly formed urethra. In every instance, sufratullae were used for pressure dressing.

RESULTS: During the investigation, there were three complications: six cases (10.7%) of urethrocutaneous fistula development, four cases (7.1%) of meatal stenosis, and two cases (3.5%) of glandular debiscence. In our research, the overall rate of problems was 21.42%.

CONCLUSIONS: For anterior hypospadias, the Snodgrass treatment has outstanding functional and esthetic outcomes. Comparing this operation to others, the incidence of complications is modest.

KEYWORDS: Distal Hypospadias, Snodgrass repair.

INTRODUCTION

Hypospadias is one of the most common congenital anomalies, which affects approximately 8.2 per 1000 live male births¹. The Greek words “hypo,” which means beneath, and “spadon,” which means rent or fissure, are the source of this name.

The external urethral meatus in hypospadias is located on the penis’ ventral surface, often just below the tip of the glans and, in more extreme circumstances, in the perineum². Surgery for hypospadias is quite difficult. The Alexandrian surgeons Heliodorus

and Antyllus tried to fix it for the first time in the first century A.D., but in the last several decades, it has been improved.

At first, there was a very high rate of problems, and hypospadias correction gradually occurred. The functional part of the repair, which allows for standing voiding and efficient coitus in maturity, is the main emphasis of the procedure.

Several methods include the Horton-Denin, Mustarde, Mathieu, and MAGPI procedures. Approximately 300 distinct surgical methods exist for the correction of hypospadias.

The quest for an operative procedure with persistently excellent results and minimal complications is still needed^{4,5,6}.

The present study was conducted to evaluate the outcome of Snodgrass repair of hypospadias for distal hypospadias.

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METHODS

From January 2014 to December 2016, this research was carried out at the Mardan Medical Complex Mardan in the surgery department. Everyone who came to the surgical outpatient department was assessed. In this research, patients with distal hypospadias were included.

The research excluded those with more proximal hypospadias. One day before surgery, each patient was admitted via the outpatient department. In every patient, standard tests such as hepatitis screening, blood completion, bleeding time, and clotting time were performed.

A U-shaped incision was performed for Snodgrass repair, extending along the urethral plate's margins to the healthy skin 2 mm proximal to the meatus. A midline incision was made along the full length of the urethral plate to enlarge it. For a tension-free repair, the margins of the U-shaped incision were separated from the fascia by dissection. Following the incision, a size 6Fr or 8Fr stent was placed across the repaired tube using a Polygalactine 6/0 suture.

The subdartos facial layer covered the newly developed urethra. The center section of the ventral shaft skin, mucosal collar, and glandular wings were closed. For one week, the stent served as a urinary diversion. Pressure dressing was applied to the repair by placing sofratullles over it.

Every patient received a stent, oral antibiotics, and analgesics before being sent home. Following that, patients were seen once a week for a month, then once a month for a year in the outpatient department. Any issues that arose both during and after the surgery were noted.

Table 1:

S. No.	Age in year	No. of patients	Percentage
1	Below 2 year	8	14.2%
2	2-5 year	35	62.5%
3	5-13 years	13	23.2%

Table 2:

S. No.	Complications	No. of patients	Percentage
1	Urethrocutaneous fistula	6	10.7%
2	Meatal stenosis	4	7.1%
3	Glandular dehiscence	2	3.5%

The incidence of surgical problems, the quality of the urine stream, the happiness of the parents, and the postoperative penile shape were used to evaluate the results.

RESULTS

During this investigation, Snodgrass repair was performed on 56 individuals. With a mean of 5.1 years, the patients' ages ranged from 2.5 to 13 years. Of the 56 individuals, 15 (26.78%) had midshaft hypospadias, and 40 (71.4%) had distal penile hypospadias. Our study's cosmetic outcomes were satisfactory. The parents of every patient expressed satisfaction with the urine stream and penile look. After surgery, the meatus was vertical and positioned above the glans in every patient.

Early in the postoperative phase, 6 (10.7%) individuals had urethrocutaneous fistulas identified. Two of the six fistulas healed independently, and the other two needed to be closed under general anesthesia, which was accomplished. Of those who responded to meatal dilatation, 4 (7.4%) had meatal stenosis. After six months, the glandular disturbance in two (3.5%) patients was fixed.

There was no incidence of urethral stricture, urethral diverticulum, or any other major complication during the followup.

DISCUSSION

For a long while, treating surgeons had difficulties doing surgery for hypospadias. Many surgical techniques have been documented, all of which claim positive outcomes. Surgery in hypospadias correction is to create a straight phallus so that regular voiding may occur from the tip. This might be evaluated objectively to determine the outcome of hypospadias surgery after correction using uroflowmetry or HOSE^{7,8}. However, a well-proportioned meatus, a corrected chordee, and a smooth, straight urine stream are signs of successful surgery.

Previously, the meatal-based flip-flap operation (Mathieu procedure) was used to correct many distal hypospadias. This surgery resulted in a glandular meatus with a circular entrance as opposed to the meatus's vertical slit-like opening⁹. In 1989, Rich et al. proposed cutting the urethral plate in the center to enhance the restoration's aesthetics¹⁰. The idea was developed in 1994 by Snodgrass, who extended the urethral plate

incision from the meatus to the glans tip¹¹. With this operation, the existing urethral plate might be used to build a new urethra. The relaxing incision heals and reepithelizes without leaving visible scars, keeping the incised edges apart^{12,13}. Din When I looked over the findings of his research on Snodgrass repair, I saw that the process had produced a good result¹⁴. Moradi M added that the aesthetic outcomes of Snodgrass restoration are much better than those of the Mathieu treatment¹⁵.

The functional and aesthetic aspects of Snodgrass repair were compared to Mathieu repair by Khan M A and Haq A U, who concluded that Snodgrass repair was better functionally and aesthetically^{4,16}. We repaired Snodgrass with similar success in the current research. The meatus was positioned vertically, and the meatal alignment was excellent.

The complication rate reported in our research is 21.42%. That is more than previous studies, which range in age from 6 to 16, have found^{17,18}. This might result from the research participants' somewhat late age of presentation. The ideal age range for this operation is two to three years, yet most of our patients were older, which might account for the study's inconsistent results. 10% of the study's participants had fistulas, and 7.1% had stenosis (Table 1).

Our findings concur with those of Cakan et al.¹⁹, who reported an 11% fistula prevalence after TIPU for treating distal hypospadias. Using the Snodgrass procedure, Holland et al. conducted a 9-month followup study on 59 patients with a mean age of 13 months. Meatal stenosis and fistula were seen in 5% and 10% of patients. Both the functional outcomes and appearance were deemed satisfactory²⁰. 7.1% of the participants in the current research had meatal stenosis.

CONCLUSIONS

The Snodgrass treatment provides excellent functional and aesthetic results for anterior hypospadias. Compared to other surgeries, this one has a relatively low rate of complications.

REFERENCES

1. Bath AS, Bhandari PS, Mukherjee M K. Repair distal hypospadias by tabularized incised plate urethroplasty: A simple, versatile technique. *Indian J Plast. Surg* 2003;36:23-25.
2. Devine C J, Allen T D, Duckett J W, and Horton C E: Hypospadias. *Dial. Ped. Urol.* 1:2-4,1978.
3. J Patrick Morphy, Hypospadias in pediatric surgery. Editors A Ashcraft, Morphy, sharp, Sigalet, and Snyder. W. B Saunder Co. Philadelphia, 3rd Ed. 2000, 58:763-782.
4. Haq A U, Akhter N, Neelofer, Sami Ullah, Javeria. Comparative study of Mathieu and Snodgrass repair for anterior hypospadias: *J Ayub Med Coll Abbottabad* 2006;18(2): 50-52.
5. A. Jan, F. Mirza, Yaqoot, M. Ali, A. Arian, N. Saleem, Ahmad, D. Kumar Factors influencing the results of Surgery for Hypospadias: Experience at NIC.HJPMA54:577;2004.
6. A Osama , M D Al-shahat. Snodgrass' Tubularized Incised Plate Urethroplasty in Hypospadias Preliminary Report. *Egypt J. Plast. Reconstr. Surg.*, Vol. 35, No. 2, July: 149-152, 2011
7. Holland AJ, Smith GH, Ross FI, et al.: HOSE: an objective scoring system for evaluating the results of hypospadias surgery. *BJU international* 2001; 88: 255-258
8. Hammouda HM, El-Ghoneimi A, Bagali DJ, et al. Tubularized incised plate repair: functional outcome after immediate followup. *J Urol* 2003;169:331-3
9. Tahmeed U, Khan A T, Obaidullah. Comparison of preputial skin, postauricular skin, and buccal mucosal graft results in hypospadias repair. *J Coll Physicians Surg Pakistan* 2003;13(9):515-18.
10. Rich M A, Keating M A, Snyder H Mc ci, Duckett J W. Hinging the urethral plate in hypospadias urethroplasty. *J Urol* 1989;142:1551-3
11. Snodgrass WT. I Tabularized incised plate urethroplasty for distal hypospadias. *J Urol* 1994;151:464-5.
12. Snodgrass W, Prieto J. Straightening ventral curvature while preserving the urethral plate in proximal hypospadias repair. *J Urol int* 2009;182(4):1720.
13. Snodgrass W, Zaida A, Yucel S, Gupta A. Comparison of outcomes of tabularized incised plate hypospadias repair and circumcision: A questionnaire-based survey of parents and surgeons paid *Urol.*2008;940:250
14. Din I U, Ullah O, Younas M. Snodgrass repair for anterior hypospadias. *JPMI* 2008;22(1):13-16.
15. Moradi M, Moradi A, Ghadarpana F. Comparison of Snodgrass and Mathieu surgical technique in anterior distal shaft hypospadias repair. *UNRC/ IUA Journal of Urology* 2005;2(1):28-31.
16. Khan M A., Khan K, Ajmal S, Khan M Y, Waheed T, Mohammad N. Comparison of MAGPI and Mathieu repair in distal hypospadias. *JPMI* 2003;18(3):402-6
17. Borer JG, Bauer SB, Peters CA, et al. Tubularized

- incised plate urethroplasty: expanded use in primary and repeat surgery for hypospadias. *J Urol* 2001;165:581-5.
18. Riccabona M, Oswald J, Koen M, et al. Comprehensive analysis of six years of experience in tubularised incised plate urethroplasty and its extended application in primary and secondary hypospadias repair. *Eur Urol* 2003; 44:714-19
 19. Cakan M, Yalçın F, Demirel F, Aldemir M, Altuğ U: The midterm success rates of tabularized incised plate urethroplasty in preoperative patients with distal or mid penile hypospadias. *Pediatr Surg Int.* 2005; 21(12): 973-6.
 20. Holland AJ, Smith GH, Cass DT. Clinical review of the 'Snodgrass' hypospadias repair. *Aust N Z J Surg.* 2000; 70: 597- 60.