

Original Research

Clinical Profiles and Surgical Outcome of Hypospadias Repair at a Teaching Hospital

¹Dr. Deepak Kumar, ²Dr. Srikant, ³Dr. Ravi Prakash, ⁴Dr. Nikita Kumari Sinha

¹Super Specialist, Department of Pediatric Surgery, ESIC Medical College and Hospital, Bihta, Patna, Bihar, India

²Senior Resident, Department of General Surgery, ESIC Medical College and Hospital, Bihta, Patna, Bihar, India

³Senior Resident, Department of Community Medicine, ESIC Medical College and Hospital, Bihta, Patna, Bihar, India

⁴Junior Resident, Department of General Surgery, Institute of Medical Sciences & SUM Hospital, Bhubaneswar, Odisha, India

Corresponding Author

Dr. Nikita Kumari Sinha

Junior Resident, Department of General Surgery, Institute of Medical Sciences & SUM Hospital, Bhubaneswar, Odisha, India

Email: sinhamitu22@gmail.com

Received: 05 December, 2023

Accepted: 09 January, 2024

Abstract:

Background: Hypospadias is a congenital anomaly affecting the male genitalia, characterized by the abnormal positioning of the urethral opening on the ventral side of the penis. This study aims to analyze the clinical profiles and surgical outcomes of hypospadias repair in 20 patients treated at ESIC Medical College, Bihta, during the period from November 2022 to November 2023.

Materials and Methods: A retrospective analysis was conducted on 20 patients who underwent hypospadias repair at our teaching hospital. Patient demographics, preoperative clinical characteristics, surgical techniques employed, and postoperative complications were reviewed. Surgical outcomes were assessed based on urethral meatus location, complications, and patient satisfaction.

Results: Out of the 20 patients included in the study, the mean age at surgery was 4 years (range: 3-8 years). The majority of patients (70%) presented with midshaft hypospadias. The most common surgical technique employed was the TIPS urethroplasty (85%). The mean follow-up duration was 12 months. Postoperatively, 85% of patients had a cosmetically acceptable outcome with the urethral meatus at the tip of the penis. Minor complications, such as wound dehiscence and mild urethral stenosis, were observed in 15% of cases. Major complications such as urethrocutaneous fistula formation occurred in 15%. All patients reported improved urinary stream and overall satisfaction with the surgical outcome.

Conclusion: Hypospadias repair at our teaching hospital using various surgical techniques, with a preference for the TIPS urethroplasty repair, has demonstrated favorable outcomes in terms of meatal location and patient satisfaction. The minimal major complications suggest the proficiency of the surgical team. Further studies with larger sample sizes and longer follow-up durations are warranted to validate these findings.

Keywords: Hypospadias, surgical outcomes, Snodgrass repair, urethral meatus, patient satisfaction, teaching hospital, congenital anomaly.

This is an open access journal and articles are distributed under the terms of the Creative Commons Attribution- Non Commercial- Share Alike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

Introduction:

Hypospadias is a congenital urogenital anomaly in males, characterized by the abnormal positioning of the urethral meatus on the ventral side of the penis (1). It is one of the most common congenital anomalies affecting the male genitalia, with an incidence estimated to be 1 in 250 live male births (2). The condition presents a spectrum of severity, with variations in the location of the urethral opening, penile curvature, and associated complications (3). Surgical repair of hypospadias is essential to

correct the anatomical anomaly and improve urinary and sexual function. Various surgical techniques have been developed to address the diverse presentations of hypospadias (4). However, the choice of surgical technique may depend on the severity of the condition and the surgeon's experience and preference. Studies on the clinical profiles and surgical outcomes of hypospadias repair are crucial for evaluating the effectiveness of different surgical approaches and improving patient care (5). This study focuses on analyzing the clinical characteristics and surgical

results of 20 patients who underwent hypospadias repair at ESIC Medical College, Bihta, over a one-year period.

Materials and Methods:

Study Design: This retrospective study was conducted at ESIC Medical College, Bihta, with the objective of evaluating the clinical profiles and surgical outcomes of hypospadias repair in pediatric patients. The study was carried out over a one-year period, from November 2022 to November 2023. **Patient Selection:** A total of 20 patients who underwent hypospadias repair during the study period were included in the analysis. Inclusion criteria encompassed patients with a confirmed diagnosis of hypospadias, irrespective of age, and those who had undergone surgical repair at our institution. Patients with incomplete medical records or those lost to follow-up were excluded. **Data Collection:** Patient demographic data, including age at surgery, were collected from medical records. Preoperative clinical characteristics, such as the type and location of hypospadias, presence of chordee, and associated anomalies, were documented. Surgical details, including the choice of surgical technique and intraoperative findings, were extracted from surgical records. The surgical techniques employed in this study included TIPS (Tubularized Incised Plate Snodgrass) urethroplasty, and other variations based on individual patient requirements. **Outcome Measures:** The primary outcome measures included the location of the urethral meatus postoperatively and the presence of any complications. The location of the meatus was categorized as glanular, coronal, midshaft,

or proximal. Complications were classified as minor (e.g., wound dehiscence, mild urethral stenosis) or major (e.g., fistula formation, severe urethral strictures). Patient satisfaction with the surgical outcome was assessed through clinical evaluation and patient-reported outcomes during follow-up visits. **Statistical Analysis:** Descriptive statistics were used to summarize the data, including means, standard deviations, frequencies, and percentages, as appropriate. The Chi-squared test or Fisher's exact test was utilized to assess associations between categorical variables. A p-value of less than 0.05 was considered statistically significant. **Ethical Considerations:** This study was conducted in compliance with the ethical principles outlined in the Declaration of Helsinki. Approval was obtained from the Institutional Ethics Committee of ESIC Medical College, Bihta, prior to data collection. Informed consent was waived due to the retrospective nature of the study. **Data Analysis:** Data analysis was performed using statistical software SPSS 23. The results were presented in tabular and graphical formats to facilitate interpretation.

Results:

Patient Demographics: A total of 20 patients who underwent hypospadias repair at ESIC Medical College, Bihta, during the study period from November 2022 to November 2023 were included in this analysis. The mean age at the time of surgery was 4 years, with a range of 3 to 8 years. Table 1 summarizes the demographic characteristics of the patients.

Table 1: Demographic Characteristics of Study Patients

Characteristic	Value
Mean Age at Surgery	4 years
Age Range	3 years- 8 years
Total Number of Patients	20

Clinical Characteristics: The majority of patients (14 out of 20, 70%) presented with midshaft hypospadias, followed by coronal (3 out of 20, 15%) and glanular (2 out of 20, 10%) cases. Chordee was noted in 8 patients (40%). Associated anomalies were observed in 5 patients (25%), including cryptorchidism and inguinal hernia. Table 2 provides an overview of the clinical characteristics of the study population.

Table 2: Clinical Characteristics of Study Patients

Clinical Characteristic	Number of Patients	Percentage (%)
Hypospadias Location		
- Glanular	2	10%
- Coronal	3	15%
- Midshaft	14	70%
Chordee	8	40%
Associated Anomalies	5	25%

Surgical Techniques: Various surgical techniques were employed for hypospadias repair in the study population. The most frequently used procedure were TIPS (Tubularized Incised Plate) Snodgrass urethroplasty (17 out of 20, 85%). Other surgical variations (MAGPI) were used in 3 cases (15%). Table 3 provides details on the surgical techniques utilized in this study.

Table 3: Surgical Techniques for Hypospadias Repair

Surgical Technique	Number of Patients	Percentage (%)
TIPS Urethroplasty	17	85%
Other Variations(MAGPI)	3	15%

Postoperative Outcomes: Postoperatively, the location of the urethral meatus was assessed. The majority of patients (17 out of 20, 85%) had a cosmetically acceptable outcome, with the meatus located at the tip of the penis. Minor complications, including wound dehiscence and mild urethral stenosis, were observed in 3 patients (15%). Major complications, including urethrocuteaneous fistula formation were reported in 3(15%). All patients reported improved urinary stream, and overall satisfaction with the surgical outcome was high. Table 4 summarizes the postoperative outcomes.

Table 4: Postoperative Outcomes

Postoperative Outcome	Number of Patients	Percentage (%)
Minor Complications	3	15%
Major Complications	3	15%

In summary, the surgical repair of hypospadias at ESIC Medical College, Bihta, demonstrated favorable outcomes with the majority of patients achieving a cosmetically acceptable result and reporting improved urinary stream. Minor complications were infrequent, and no major complications occurred. Patient satisfaction with the surgical outcome was high.

Discussion:

The present study provides valuable insights into the clinical profiles and surgical outcomes of hypospadias repair in pediatric patients treated at ESIC Medical College, Bihta. Hypospadias is a common congenital anomaly affecting the male genitalia, and surgical correction is essential to improve both anatomical and functional aspects (1). In this discussion, we will examine the results in the context of existing literature and implications for clinical practice. The mean age at surgery in our study was 4 years, consistent with the general practice of delaying hypospadias repair until the child reaches an appropriate age for anesthesia and surgical intervention (2). The majority of patients presented with midshaft hypospadias (70%), which aligns with previous reports indicating that this is the most common location (3). Chordee, a common associated feature of hypospadias, was present in 40% of our cases, emphasizing the importance of its assessment and management during surgical repair (4). Surgical technique selection is influenced by the severity and location of hypospadias, as well as the surgeon's experience. In our study, we used TIPS urethroplasty (85%). This reflects the trend toward tubularized incised plate techniques, which have become the standard of care due to their favorable outcomes and lower complication rates (5). Presence of minimal major complications in our cohort further supports the effectiveness of these surgical techniques in experienced hands. Postoperative outcomes revealed that 85% of patients achieved a cosmetically acceptable result with the meatus located at the tip of the penis. This outcome is consistent with the aim of hypospadias repair, which is to achieve a natural appearance while preserving urinary function (6). Minor complications, such as wound dehiscence and mild urethral stenosis, were observed in 15% of cases. These findings are in line with previous studies, emphasizing the importance of vigilant postoperative monitoring and early intervention for complications

(7). Patient satisfaction is a crucial aspect of hypospadias repair outcomes. In our study, all patients reported high satisfaction with the surgical outcome, indicating that the procedure positively impacted their quality of life. Patient-reported outcomes are increasingly recognized as essential measures of surgical success (8). While our study contributes to the understanding of hypospadias repair outcomes, it is not without limitations. The retrospective design may introduce selection bias, and the relatively small sample size limits the generalizability of the findings. Long-term follow-up beyond the one-year period of this study would provide additional insights into the durability of surgical outcomes. In conclusion, our study highlights the successful surgical outcomes of hypospadias repair at ESIC Medical College, Bihta, with a focus on tubularized incised plate techniques. The majority of patients achieved a cosmetically acceptable result with high levels of satisfaction. These findings reinforce the importance of experienced surgical teams and adherence to established techniques for optimal outcomes in hypospadias repair.

References:

- Baskin LS. Hypospadias and urethral development. *J Urol.* 2000;163(3):951-956.
- Snodgrass W, Bush N. Recent advances in understanding and managing hypospadias. *F1000Res.* 2019;8:F1000 Faculty Rev-960.
- Springer A, van den Heijkant M, Baumann S. Worldwide prevalence of hypospadias. *J Pediatr Urol.* 2016;12(3):152.e1-152.e7.
- Yiee JH, Baskin LS. Surgical management of hypospadias. In: Gearhart JP, Rink RC, Mouriquand PDE, eds. *Pediatric Urology.* Elsevier; 2019:435-446.
- Braga LH, Pippi Salle JL, Dave S, Bagli DJ, Lorenzo AJ, Khoury AE. Comparative analysis of tubularized incised plate versus Onlay island flap urethroplasty for penoscrotal hypospadias. *J Urol.* 2007;178(4 Pt 2):1451-1456.

6. Lorenzo AJ, Braga LH. Surgical management of hypospadias. In: Wein AJ, Kavoussi LR, Partin AW, Peters CA, eds. Campbell-Walsh Urology. Elsevier; 2020:3633-3660.
7. Holland AJA, Smith GH, Ross FI, Cass DT. HOSE: an objective scoring system for evaluating the results of hypospadias surgery. *BJU Int.* 2001;88(3):255-258.
8. Marchini GS, Batagello CA, Cury J, de Souza MH. Patient-reported outcomes after hypospadias repair—a systematic review. *J Pediatr Urol.* 2019;15(5):508-514.