Journal of Pediatric Surgery 61 (2026) 163038

Contents lists available at ScienceDirect

Journal of Pediatric Surgery

journal homepage: www.sciencedirect.com/journal/journal-of-pediatric-surgery

Clinical Research Paper

Inverted V–I MeatoGlanuloplasty (IV-IMG): Twenty years' experience with a new technique for distal hypospadias repair

Pierluigi Pedersini [a], Giacomo Mandarano [a, b, *], Valentina Gheza [a, b], Susanna Milianti [a], Giovanni Boroni [a, b], Daniele Alberti [a, b]

[a] Department of Pediatric Surgery, "Spedali Civili" Children's Hospital, Brescia, Italy
[b] Department of Clinical and Experimental Sciences, University of Brescia, Brescia, Italy

ARTICLE INFO

Article history:
Received 26 October 2025
Received in revised form
19 February 2026
Accepted 20 February 2026

Keywords:
Hypospadias
Surgery
PenileDiseases

ABSTRACT

Purpose: No Urethroplasty Techniques (NUTs) are technically simple, low-morbidity alternatives to urethroplasty for the correction of distal hypospadias. Along with functional outcomes, cosmetic results have become increasingly relevant in recent years. Despite the high number of techniques, some drawbacks remain in achieving these goals. The aim of this paper is to describe the Inverted V–I MeatoGlanuloplasty technique, developed at our center for the treatment of distal hypospadias and to evaluate its outcomes.

Materials ad methods: A retrospective, single-center study was conducted on patients with distal hypospadias treated with Inverted V–I MeatoGlanuloplasty between 2005 and 2024. The technique involves a triangular skin flap excision under the meatal apex, deep glanular dissection, meatoplasty, and glanuloplasty. Data on demographics, type of hypospadias, surgical details, complications, and follow-up were collected.

Results: During the study period, a total of 190 procedures were performed at a median age of 3.0 (1.2–17.2) years. Patients presented with 97 (51.1 %) glanular, 84 (44.2 %) coronal, and 9 (4.7 %) distal penile hypospadias. Chordee was present in 122/190 (64.2 %) patients and was corrected with spongioplasty. Complications were observed in 9 patients (4.7 %): 5 meatal retractions (2.6 %) and 4 fistulas (2.1 %). No infections or meatal stenoses occurred. Aesthetic and functional outcomes were satisfactory in most patients.

Conclusions: The IV-IMG technique is a well reproducible procedure that offers excellent functional and cosmetic outcomes in distal hypospadias, with a low complication rate. It represents a valid alternative to other non-urethroplasty techniques when glans anatomy and meatal position are favorable.

HIGHLIGHTS

- IV-IMG: ventral triangular flap for a simple distal hypospadias repair
- Only 2.6 % meatal retractions and 2.1 % fistulas across 190 operated patients
- Excellent cosmetic and functional outcomes

1. Introduction

Hypospadias is one of the most common pediatric male genital anomalies [1]. The global incidence of hypospadias is increasing, affecting 1 in 250 live male births [2]. Duckett's (1996) classification defines hypospadias, according to the anatomical position of the urethral meatus (perineal, midscrotal, penoscrotal, proximal penile, mid shaft, distal penile, coronal and glanular) [3,4]. According to the most recent Hadidi classification (2018) all types of

* Corresponding author. Via Trento, 44, Treviglio (BG), 24047, Italy Tel.: +39 3427260607.
E-mail addresses: pierluigi.pedersini@gmail.com (P. Pedersini), g.mandarano@unibs.it (G. Mandarano), valentinagheza96@gmail.com (V. Gheza), susanna.milianti@asst-spedalicivili.it (S. Milianti), giovanni.boroni@unibs.it (G. Boroni), daniele.alberti@unibs.it (D. Alberti).

https://doi.org/10.1016/j.jpedsurg.2026.163038
0022-3468/

hypospadias can be divided into four categories: perineal (10 %), proximal (14 %), penile (53 %) and glanular (23 %) [3,4].

For the treatment of distal hypospadias more than 200 surgical techniques have been described. The primary surgery goals are complete correction of chordee, creation of a well-calibrated and uniform urethra with adequate caliber, an apical, vertical, and regularly sized neo-meatus, a conical-shaped glans, and an overall normal appearance of the penoscrotal complex [5]. The choice of the most appropriate technique depends on several factors, including position, form, diameter and rigidity of the meatus, the length, width, and development of the urethral plate, penile size, chordee, glans and preputial morphology, ventral penile skin quality, and previous circumcision [4].

The common final goal of all techniques is to restore complete organ functionality—both urinary and erectile—and to achieve a satisfactory cosmetic outcome. In recent years, the importance of patient satisfaction with the appearance of the operated genitalia has become an increasingly important factor [6].

Among the available techniques, No Urethroplasty Techniques (NUT) are technically easier surgical procedures that do not involve urethral reconstruction and provide satisfactory functional and aesthetic outcomes, with a low rate of postoperative complications, and a short duration of urinary diversion and hospital stay [7].

Taking inspiration from the surgical steps of the MAGPI procedure, we developed the Inverted V—I MeatoGlanuloplasty (IV-IMG) technique, that introduces a significant modification by excising a cutaneous triangle just below the meatal apex. This modification was designed to optimize the aesthetic outcome and reduce the high rate of meatal retraction typically associated with the standard MAGPI approach [8].

The main goal of this paper is to describe the IV-IMG technique and to evaluate its effectiveness in distal hypospadias, in terms of complications, and functional and cosmetic outcomes.

2. Materials and Methods

2.1. Patients

A retrospective, single-center observational study was conducted on patients with “distal hypospadias” (defined as distal penile, coronal and glanular types according to Duckett's classification [4]) who underwent IV-IMG surgical technique at the Pediatric Surgery Department of “ASST Spedali Civili Children's Hospital” in Brescia (Italy), between 2005 and 2024. Institutional Review Board (IRB) approval was obtained (Registration number: IpospadChir NP 6569; prot. 0053,216/25, 08/10/2025).

Data were obtained through a review of hospital medical records and outpatient visit reports.

Demographic, clinical and surgical data were collected. The analyzed variables included the type of hypospadias, presence of chordee, age at surgery, operative time, length of urethral stenting, length of hospital stay, follow-up time, functional and aesthetic and functional outcome (considering both residual chordee and voiding function), and complications according to Clavien-Dindo classification [9].

Normal voiding function was defined as a straight, continuous urinary stream with adequate caliber and pressure, without excessive spraying or abdominal straining. Voiding was routinely observed at home by the parents between routine follow-up visits and reported to the surgeon at the most recent outpatient visit. Parents were instructed to notify the physician in case of suspected changes in the urinary stream in terms of caliber, duration of voiding, or the need for abdominal straining. Any reported alterations were directly assessed by the surgeon during the visit and eventually evaluated with uroflowmetry.

The aesthetic outcome, defined as the perception of overall penile appearance, meatal position, glanular, penile and mucosal collar configuration, was evaluated one year after surgery with PSS score (Patient Satisfaction Score) using a 5-point Likert scale (1: Very Dissatisfied, 2: Dissatisfied, 3: Neutral, 4: Satisfied, and 5: Very Satisfied) [10]. After providing informed consent, the questionnaire was completed at home by the parents, taking into account the opinions of the school-aged patients and avoiding the influence of the surgeon' assessment, as the literature reports that physicians rate cosmetic outcomes more favorably than parents [11].

Chordee was defined as “minor” when penile curvature was <30°, while “significant” when penile curvature was >30°, evaluated with goniometer or visual inspection during surgery [12,13].

Residual chordee was assessed by the surgeon through visual inspection at the one-year outpatient follow-up.

Statistical analysis was performed using Microsoft Excel (Microsoft 365) and Jamovi® [14]. Quantitative variables were expressed as the median (range) of group values, while dichotomous variables were reported as absolute values and percentages. Categorical variables were analyzed using Fisher's exact test. A p-value of <0.05 was considered statistically significant.

2.2. Indications and surgical technique

The choice for IV-IMG was based on glans anatomy, position of the urethral meatus and the quality of penile ventral skin. Indications for IV-IMG technique were glanular or coronal hypospadias and distal penile hypospadias in case of a poor parental compliance (documented social vulnerability and inadequate caregiving), as this procedure requires less meticulous care compared to techniques involving urethral reconstruction. The presence of a thin ventral skin (defined by a skin layer fused with the underlying urethra), evaluated during the preoperative assessment, is the only IV-IMG contraindication.

Pediatric general anesthesia is performed with either orotracheal intubation or laryngeal mask placement. Anesthesia is maintained using vecuronium bromide (Norcuron® — N.V. Organon — Oss - Netherlands), propofol (Diprivan® AstraZeneca SpA — Basiglio - Milano, Italy), fentanyl (Fentanest® Pharmacia Italia SpA — Milano, Italy) or remifentanil hydrochloride (Ultiva® - The Upjohn Company — GlaxoSmithKline SpA — Verona, Italy. Intraoperative analgesia was provided by intravenous administration of fentanyl or remifentanil or via epidural single-shot injection of mepivacaine (Mepisolver® Solver-Pharma Srl — Pierrel farmaceutici- Milano, Italy) or ropivacaine (Naropina® AstraZeneca SpA — Basiglio - Milano, Italy).

All surgical steps are performed using 2.5—3 X magnification loupes and titanium microsurgical instruments.

Balanopreputial adhesions are lysed. A traction suture is then placed on the glans using 4/0 braided polyester (Mersilene® - Ethicon - Johnson & Johnson Int.), along with two preputial traction sutures in 5/0 polybutester (Novafil® - Tyco Healthcare Group — United States Surgical — Norwalk, CN, USA).

A meatal advancement is performed according to the Heineke-Mikulicz principle, using interrupted 7/0 polydioxanone (PDS II® - Ethicon - Johnson & Johnson Int.).

The urethral meatus is then catheterized with an 8 C h Nelaton® catheter (Pennine Healthcare — Derby, UK) to assess its caliber and the condition of the overlying tissues.

To minimize electrocautery-induced tissue ischemia, hemostasis is reached by applying a rubber tourniquet at the penile base.

Incision lines are then marked on the prepuce with a surgical marker, meatus, and on the cutaneous triangle under the meatal apex (Fig. 1A).

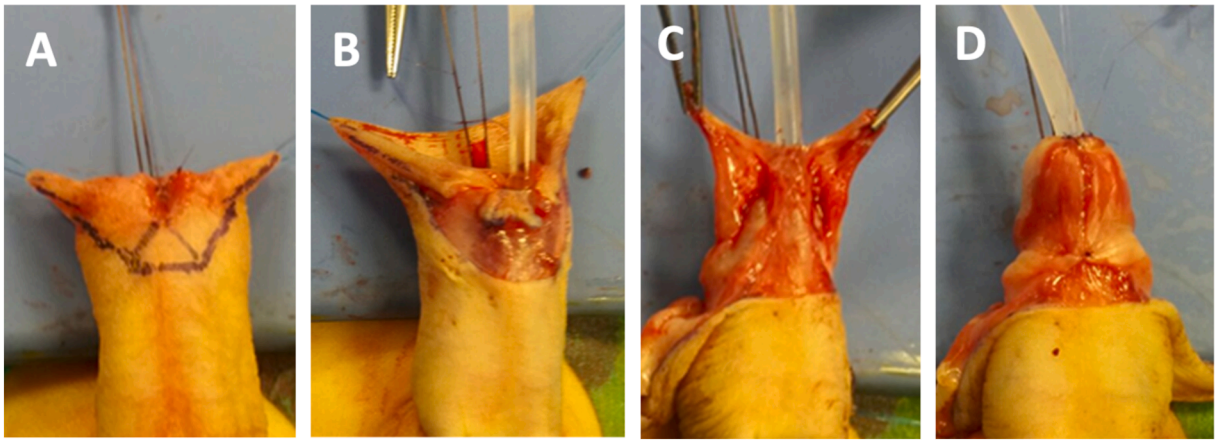

Fig. 1. **A**: incision lines; **B**: triangular skin flap incision; **C**: removal of the cutaneous layer and deep glanular dissection; **D**: meatoplasty and glanuloplasty.

The prepuce is then incised bilaterally along the lateral margins, extending the incisions up to the coronal sulcus and joining them horizontally to form the base of the cutaneous triangle. Transmeatal 6–7/0 PDS II® traction suture is placed at the apex of the triangle. The preputial incisions are then extended upward and obliquely to merge below the urethral meatus, completing the configuration of the cutaneous triangle at the meatal apex (Fig. 1B). The triangle is de-epithelialized using tenotomy scissors, ensuring preservation of the integrity of underlying urethral mucosa; dissection is extended laterally and deeply on both sides of the glans to adequately mobilize the glanular wings (Fig. 1C).

Next, the penile shaft is exposed by separating Buck's fascia from the subcutaneous tissue down to the penoscrotal level. When present, isolation of the atretic V-shaped corpus spongiosum from the corpora cavernosa is performed, followed by spongioplasty using interrupted 6–7/0 PDS II® sutures, enabling anatomical reconstruction of the velamentous urethral segment and chordee correction.

The subsequent reconstructive phase is crucial in determining the final aesthetic outcome: meatoplasty is performed with interrupted 7/0 PDS II® sutures and glanuloplasty is then performed in two layers (Fig. 1D): a subepithelial layer with interrupted 6–7/0 PDS II® sutures and a superficial layer with horizontal mattress sutures using 7/0 PDS II® or 6/0 Polyglactin (Vicryl® - Ethicon - Johnson & Johnson Int.). Unlike other authors, we do not routinely perform preputial reconstruction, as the preputial skin is usually required for ventral penile coverage, and reconstruction may result in unsatisfactory aesthetic and functional outcomes.

After glanuloplasty, Snodgrass “Sleeve skin cover technique” or Byars's flaps were used to cover the ventral skin deficiency, when present. Mucosal collar reconstruction, according to Firlit, was performed with interrupted 6/0 Polyglactin or 7/0 PDS II® sutures, or, in the last year, with a continuous 6/0 Polyglactin mattress suture.

The Nelaton® catheter is finally replaced with a fenestrated 7 C h silicone drainage catheter (Snyder Hemovac® - Zimmer Ltd. – Dover, OH, USA), secured to the glans with the glanular traction suture in Mersilene®, employed as a vesical drain in the post-operative period, usually for 2 days (Fig. 2).

The sterile dressing consists of different layers: petrolatum gauze (Jelonet® - Smith & Nephew LTD, Hull, England), an absorbent hydrophilic layer (e.g., Aquacell® - Convatec - Squibb &

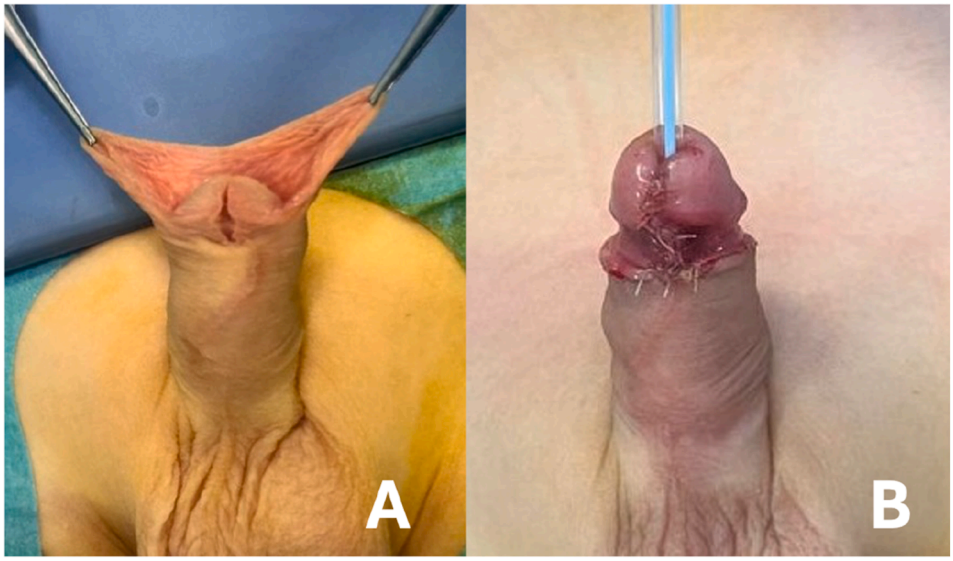

Fig. 2. **A:** glanular hypospadias before surgery; **B:** aspect of the penis after surgery.

Sons LLC - Princeton, NJ, USA), moderately compressive bandaging (Bi-Haft® - D.A.S. srl - Turin, Italy), anchored to the skin with a porous adhesive "daisy" dressing (Eurofix® - Eurofarm SpA - Italy).

Antibiotic prophylaxis, anticholinergic and analgesic therapy are administered until catheter removal. The first postoperative follow-up is conducted at 7–10 days, with subsequent re-valuations at 1, 3, 6, 12 months, and then every 3 years, up to the age of 14.

3. Results

At our center, over the 20-year timespan of the study, 1520 corrective procedures for hypospadias were performed (76 procedures/year), 1140 (75 %) of which were distal forms; out of these 190 (17 %) were IV-IMG procedures (9.5 procedures/year). The median age at surgery was 3.0 years (1.2–17.2 years).

Among the 190 operated patients, 97 had glanular hypospadias (51.1 %), 84 had coronal hypospadias (44.2 %), and 9 had distal penile hypospadias (4.7 %). Chordee was present in 122 out of 190 patients (64.2 %). A “significant” penile shaft chordee was present in 7/9 (78 %) of distal penile forms and in 53/84 (63 %) of coronal forms, and it was consistently corrected by spongioplasty. A minor chordee of the glans on the penile shaft was present in 61/97 (63 %) of glanular hypospadias and was corrected as a result of excision of the submeatal cutaneous triangle and subsequent glanuloplasty, without the need for any additional procedure. The median operative time was 70 min (35–145 min).

The urethral stent was maintained for a median time of 2 (1–5) days. Patients were discharged the same day of the catheter removal after effective spontaneous voiding, with a median length of hospital stay of 2 (1–5) days.

Median follow-up time, corresponding to the most recent outpatient visit, was 2 years (6 months–13 years).

A total of 9 complications occurred upon 190 procedures (4.7 %), including 5 cases of meatal retractions (2.6 %) and 4 glanular fistulas (2.1 %). There were no cases of stenosis nor infections. All these complications occurred within one year after the procedure. At follow-up, which was routinely extended at least until puberty and up to a maximum of 15 years after surgery, no further complications were observed.

In case of meatal retractions (3 coronal and 2 glanular hypospadias), 3 patients with no functional and aesthetic impairments were managed conservatively, while the other 2 cases underwent distal urethroplasty.

Among patients with glanular fistulas (1 coronal and 3 glanular hypospadias), 2 underwent Zaontz glanuloplasty, 1 was treated by an IV-IMG redo and the last one was lost at follow-up. None of these patients developed any later complications. The incidence of complications was not associated with the preoperative position of the urethral meatus [4/80 in coronal hypospadias vs 5/96 in glanular hypospadias, $p = 1.000$].

The functional outcome was considered satisfactory in all cases, with no residual chordee and normal voiding function observed in all patients. Parents never reported alterations in the urinary stream that required an earlier medical evaluation. Uroflowmetry was performed in only one patient in whom abnormal voiding observed by the parents raised suspicion of meatal stenosis; however, the results were normal, thereby not confirming the suspicion.

The aesthetic outcome (Fig. 3) evaluated with PSS score was satisfactory or very satisfactory in 172/190 patients (90.6 %), indifferent in 13 patients (6.8 %) and unsatisfied in 5 patients (2.6 %), even though none of the patients expressed a desire for further correction of the appearance of the penis in adolescence.

4. Discussion

4.1. IV-IMG outcomes

In our experience, IV-IMG technique achieved excellent results after a careful selection of the patients (glanular or coronal hypospadias without very thin ventral skin and distal penile hypospadias with poor parental compliance). A non-mobile meatus, the presence of chordee, and the absence of corpus spongiosum are not contraindications for the IV-IMG technique. The only true contraindication remains the presence of a very thin ventral skin.

The overall low complication rate (4.7 %) is comparable to that reported in the literature for the other NUT techniques. Notably,

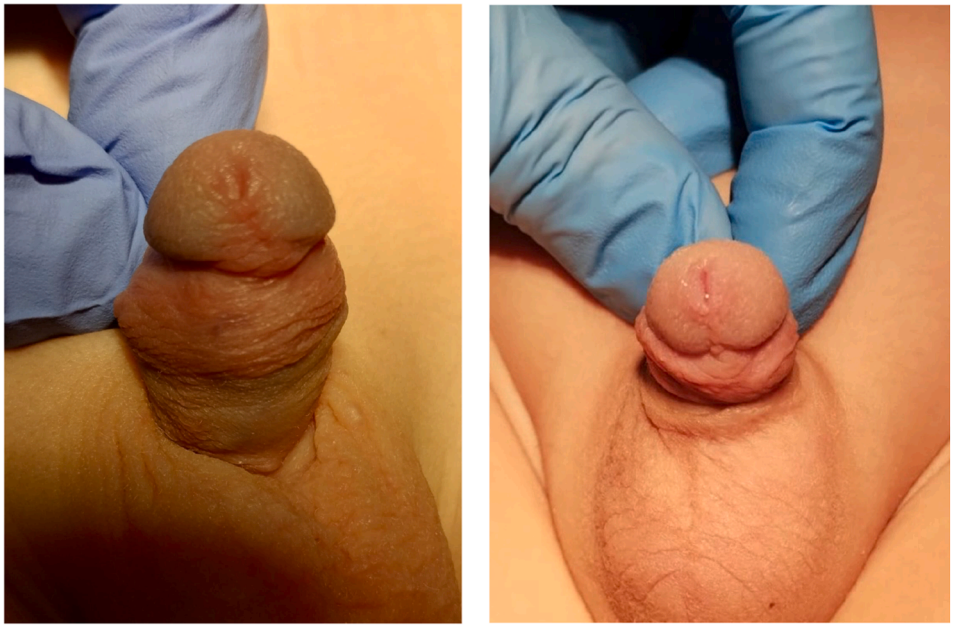

Fig. 3. aesthetic outcome 1 year after IV-IMG for coronal hypospadias.

we observed a very low rate of meatal retraction (2.6 %) compared with the MAGPI procedure and other NUTs most similar to the IVI-MG [8]. In particular, the excision of a submeatal cutaneous triangle allows an easier glanular wings approximation during glanuloplasty and helps prevent meatal retraction. An additional advantage of this technique is the complete absence of meatal stenosis, because of no urethral reconstruction. Moreover, although no clear correlation was identified between the initial meatal position and complications, none of the patients with distal penile hypospadias developed complications.

At the short- and long-term follow-up, in addition to the functional outcome, the most significant result of our technique is the high aesthetic satisfaction rate, even after the treatment of complications.

High family-reported aesthetic satisfaction appears reliable, as parents have been shown to be more critical than physicians in aesthetic evaluation, suggesting that high parental satisfaction reflects truly favorable aesthetic outcomes [11].

Overall, among the various techniques available for distal hypospadias repair, our IV-IMG represents an easily reproducible technique among different surgeons with a quick learning curve procedure.

4.2. Comparison with main and most similar NUTs

The IV-IMG modifies Duckett's Meatal Advancement Glanulo-Plasty Incorporated (MAGPI, 1981) [15] by combining excision of a submeatal triangular skin flap with deep glanular dissection, potentially improving neomeatus stabilization and reducing secondary retraction. MAGPI shows wide variability in complication rates (1.2 %–14.8 %) [8,16] and a broad spectrum of complications, including meatal retraction, stenosis, fistula, and residual chordee. In fact, MAGPI involves meatal advancement with transverse Heineke-Mikulicz closure, and two-layer glanuloplasty without deep glanular dissection, thus not reducing lateral tension.

Zaontz's Glans Approximation Procedure (GAP, 1989) [17] reports a similar complication rate (4.2 %), mainly fistulas. GAP relies on mobilization and ventral approximation of the glanular wings without formal meatal advancement, potentially leaving distal urethral tension and predisposing to fistula.

Seibold's MEatal MObilization (MEMO, 2007) [18] shows 2.2 %–8.2 % complication rates [19], mostly meatal retraction and fistulas. MEMO requires full penile degloving and wide meatal mobilization. Although effective, this extensive dissection may increase tissue trauma and vascular compromise, particularly in patients with thin ventral skin.

The M-inverted-V (MIV) glansplasty uptaded by Burns (2022) [20] reports 4.4 % complications, mainly fistulas and inclusion cysts. This MAGPI modification involves an M-shaped incision and an apical fixation stitch to close the V flap before glanuloplasty. This stitch may potentially increase the risk of fistula formation, which in this technique is 3.1 % (3 out of 96), compared with 2.1 % (4 out of 190) in the IVI-MG group.

With regard to chordee, in our experience distal penile and coronal forms are interpreted as shaft chordee, as they are effectively corrected by spongioplasty addressing the divergence of the distal portion of the corpus spongiosum. However, when different techniques are adopted, the same deformity may instead be corrected through a reconfiguration of the glans over the penile shaft.

Overall, matched with other NUTs most similar to IV-IMG, this technique achieves comparable or lower complication rates, while incorporating technical modifications to reduce distal tension and enhance glanular stability, supporting its reliability for distal hypospadias repair in selected patients.

4.3. Study limitations

The main limitations of this study include the absence of a control group undergoing different NUT techniques and the difficulty in objectively assessing functional and aesthetic outcomes. In particular, the interpretation of functional outcomes is limited by the lack of complete uroflowmetry data for all patients, while the evaluation of aesthetic results is limited by age-related differences in PSS, which may influence the perception of cosmetic outcomes. Uroflowmetry was not routinely performed in the absence of signs of voiding dysfunction, as the technique carries a negligible risk of stenosis.

5. Conclusions

The IV-IMG technique, developed at our center for distal hypospadias repair, has a low complication rate and provides satisfactory voiding function and aesthetic outcomes, as reported by patients or their parents. It can be considered a valid alternative to other NUT techniques described in the literature.

Availability of data

All data and related materials are available from the corresponding author upon request.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

Conflict of interest

The Authors have no conflicts of interest to disclose.

Acknowledgments

we thank Prof. Alfredo Berrettini (Università degli Studi di Milano, Fondazione IRCCS Cà Granda dell'Ospedale Maggiore Policlinico di Milano) for his valuable insights and revision of the manuscript.

References

[1] Baskin LS. Hypospadias. In: Coran AG, editor. Part VIII - genitourinary disorders. seventh ed. Philadelphia, PA: Elsevier-Saunders; 2012. p. 1531–54.
[2] Yu X, Nassar N, Mastroiacovo P, Canfield M, Groisman B, Bermejo-Sánchez E, et al. Hypospadias prevalence and trends in international birth defect surveillance systems, 1980–2010. Eur Urol 2019;76:482–90. https://doi.org/10.1016/j.eururo.2019.06.027.
[3] Duckett J, Baskin L. Hypospadias. In: Gillenwater J, Grayhack J, Howards S, et al., editors. Adult and pediatric urology. third ed. Mosby; 1996. p. 2549–89.
[4] Hadidi AT. Classification and assessment of hypospadias. Hypospadias surgery. Cham: Springer International Publishing; 2022. p. 237–48. https://doi.org/10.1007/978-3-030-94248-9_9.
[5] Adams J, Bracka A. Reconstructive surgery for hypospadias: a systematic review of long-term patient satisfaction with cosmetic outcomes. Indian J Urol 2016;32:93. https://doi.org/10.4103/0970-1591.179178.
[6] van der Horst HJR, de Wall LL. Hypospadias, all there is to know. Eur J Pediatr 2017;176:435–41. https://doi.org/10.1007/s00431-017-2864-5.
[7] Kılıç S. Comparing two surgical techniques in distal hypospadias repair: urethral mobilization vs. urethral plate tubularization. The French Journal of Urology 2024;34:102588. https://doi.org/10.1016/j.fjurol.2024.102588.
[8] Ünlüer ES, Miroglu C, Ozdiler E, Ozturk R. Long-term follow-up results of the MAGPI (meatal advancement and glanuloplasty) operations in distal hypospadias. Int Urol Nephrol 1991;23:581–7. https://doi.org/10.1007/BF02549850.
[9] Dindo D, Demartines N, Clavien P-A. Classification of surgical complications: a new proposal with evaluation in a cohort of 6336 patients and results of a survey. Ann Surg 2004;240:205–13. https://doi.org/10.1097/01.sla.0000133083.54934.ae.

[10] Patient Satisfaction: de ning, Measuring, and Improving the Experience of Care (Management Series). Chicago, IL: Health Administration Press; 2002 [n.d.].
[11] Patil JD, Mohamed YM, Farhan A, Corbally M. Outcomes assessment of hypospadias repair. Cureus 2023. https://doi.org/10.7759/cureus.48808.
[12] Villanueva CA. Goniometer not better than unaided visual inspection at estimating ventral penile curvature on plastic models. J Pediatr Urol 2019;15:628–33. https://doi.org/10.1016/j.jpurol.2019.09.020.
[13] EAU Guidelines. Edn. presented at the EAU annual Congress Madrid. 2025. ISBN 978-94-92671-29-5. Arnhem: 2025.
[14] The jamovi project. Jamovi (Version 2.6). 2025 [Computer Software]. Retrieved from, https://www.jamovi.org [n.d.].
[15] Duckett JW. MAGPI (meatoplasty and glanuloplasty): a procedure for subcoronal hypospadias. Urol Clin 1981;8:513–9.
[16] Duckett JW, Snyder HM. Meatal advancement and Glanuloplasty Hypospadias repair after 1,000 cases: avoidance of meatal stenosis and regression. J Urol 1992;147:665–9. https://doi.org/10.1016/S0022-5347(17)37341-X.
[17] Zaontz MR. The GAP (Glans Approximation Procedure) for Glanular/Coronal Hypospadias. J Urol 1989;141:359–61. https://doi.org/10.1016/S0022-5347(17)40766-X.
[18] Seibold J, Boehmer A, Verger A, Merseburger AS, Stenzl A, Sievert KD. The meatal mobilization technique for coronal/subcoronal hypospadias repair. BJU Int 2007;100:164–7. https://doi.org/10.1111/j.1464-410X.2007.06790.x.
[19] Pogorelić Z, Milovac B, Čohadžić T, Todorić J. Safety and effectiveness of meatal mobilization (MEMO) technique for glandular, coronal, and subcoronal Hypospadias repair in children: a 5-Year single-center Study with 105 Hypospadias. Biomedicines 2024;12:831. https://doi.org/10.3390/biomedicines12040831.
[20] Burns A, Harrington S, Boltz S, Decter RM. M inverted V glansplasty: an update on technique and outcomes 30 years later. Can J Urol 2022;29:11335–9.