Submitted: 15 July, 2023 Accepted: 29 December, 2023 Published: 30 March, 2024 DOI:10.22514/j.androl.2024.004

ORIGINAL RESEARCH

REV INT ANDROL
Revista Internacional de Andrología

# Long term follow-up on young adults that underwent hypospadias repair through urethral advancement in childhood

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## Abstract

Assess the long-term outcome on cosmetic appearance, voiding, sexual function, and psychological impact of young adults operated by urethral advance (UA) technique in childhood. Patients over 14 years old, who underwent UA hypospadias repair in our centre (2000–2010) were evaluated. All patients presented mid-distal hypospadias with subcoronal or penile meatus and curvature lower than 20°. The cosmetic appearance, urinary and sexual function, body perception and overall satisfaction were assessed through 5 questionnaires. From 2000 to 2010, 143 children underwent UA hypospadias repair. 36 patients between 14 and 27 years were evaluated. The Hypospadias Objective Penile Evaluation (HOPE) showed an average of 8.75 (+/− 0.97), which indicates a good aesthetic result. Voiding dysfunction symptoms were assessed through the American Urological Association Symptom Index (AUASI) where 80.6% had none or mild symptoms and 19.4% had moderate symptoms. Only 11/36 patients were sexually active, according to the International Index of Erectile Function (IIEF-15) scale, none had erectile dysfunction, and their relationships were satisfactory. Assessment of the body perception through the Genital Perception Scale (GPS) was positive or very positive in 88.9% of the patients. However, the perception of their genitals was positive or very positive in 77.8%, there is a negative correlation between the perception of their body and genitals in 13.9% of the patients. Our results indicate that UA technique for hypospadias repair might be a valid option for the correction of mid-distal hypospadias when indicated.

## Keywords

Hypospadias repair; Urethral mobilization; Urethral advancement; Sexual assessment; Psychological assessment


  

## Seguimiento a largo plazo de adultos jóvenes con reparación de hipospadias mediante avance uretral en la infancia


### Resumen

Evaluar el resultado a largo plazo sobre el aspecto cosmético, la micción, la función sexual y el impacto psicológico de adultos jóvenes operados con la técnica de avance uretral (AU) en la infancia. Se evaluaron pacientes mayores de 14 años, intervenidos de hipospadias mediante AU en nuestro centro (2000–2010). Todos los pacientes presentaban hipospadias medio-distal con meato subcoronal o peneano y curvatura menor de 20°. El objetivo se evaluó a través de 5 cuestionarios. De 2000 a 2010, 143 niños se sometieron a reparación de hipospadias mediante AU. Se evaluaron 36 pacientes entre 14 y 27 años. La Evaluación Peneana Objetiva de Hipospadias (HOPE) mostró un promedio de 8.75 (SD +/− 0.97), lo que indica un buen resultado estético. Los síntomas de disfunción miccional se evaluaron mediante el índice de síntomas de la Asociación Urológica Estadounidense, donde el 80.6% no presentó síntomas o presentó síntomas leves y el 19.4% presentó síntomas moderados. Solo 11/36 pacientes eran sexualmente activos. Según la escala International Index of Erectile Function (IIEF-15), ninguno presentaba disfunción eréctil y sus relaciones eran satisfactorias. La percepción de sus genitales fue positiva o muy positiva en el 77.8%. Existe una correlación negativa entre la percepción de su cuerpo y los genitales en el 13.9% de los pacientes. Nuestros resultados indican que la técnica AU para la reparación del hipospadias podría ser una opción válida para la corrección del hipospadias medio-distal.



### Palabras Clave

Reparación de hipospadias; Movilización uretral; Avance uretral; Valoración sexual; Valoración psicológica


## 1. Introduction

Hypospadias is a common condition with a frequency of 1 in 200–300 male births [1]. Among the hypospadias repair techniques, the Urethral Advancement (UA) described by Koff in 1981 was used for distal and mid-distal hypospadias repair [2]. It consists in the detachment of the whole urethra from the anterior aspect of the corpora cavernosa, which is then moved forward to bring its opening to the tip of the glans. This procedure makes use of the elasticity of the urethra, having the advantage that it remains in theory completely intact [3–5]. However, the UA is less used today due to varying results and the development of new repair techniques.

To truly determinate the surgical success of hypospadias repair, long-term evaluation is needed, and this should encompass all the aspects affected by this condition. In this regard, several scales have been developed to assess the functional, cosmetic and psychosocial outcomes [6–8]. The aim of our study is to assess long-term results on voiding, sexual function, cosmetic appearance, and psychological impact of young adults operated by UA technique in childhood, through 5 different questionnaires.

## 2. Material and methods

A medical record review of all patients who underwent hypospadias repair within 2000–2010 was performed. For this study, patients that went through UA hypospadias repair and were over 14 years-old were selected. All patients presented mid-distal hypospadias with subcoronal or penile meatus, mild chordee defined as curvature lower than 20°, and were operated by only 2 senior surgeons.

The patients were initially contacted by telephone to explain the study and get verbal consent. An online survey link was sent to the patients who agreed to participate in the study.

The cosmetic appearance of the penis, urinary and sexual function, body perception and overall satisfaction were assessed through the online survey, which included 5 validated questionnaires as listed below:

### 2.1 Hypospadias objective penile evaluation (HOPE)

Scoring system that evaluates penile cosmetic appearance in hypospadias patients, through all surgical-correctable items: position of meatus, shape of meatus, shape of glans, shape of penile skin and penile axis which includes penile rotation and penile curvature if erection is observed. The total HOPE score ranges from 1 (one of worst appearance imaginable) to 10 (perfect) [9, 10].

### 2.2 The American urological association symptom index (AUASI)

Scoring system to evaluate voiding in men, through urinary symptoms. The score ranges from 0 to 35, the lower the score, the best outcome (<7 mild symptoms, 8–19 moderate symptoms, >20 severe symptoms). Two questions were added to complete voiding assessment: (1) Do you urinate standing up? (2) Do you urinate from the tip of the penis? [11].

### 2.3 International index of erectile function (IIEF-15)

Multidimensional self-report instrument for the evaluation of male sexual function. Assesses erectile function and satisfaction of sexual function. It has 5 domains that evaluates the sexual function: erectile function, satisfaction with intercourse, orgasmic function, sexual desire, and overall satisfaction. The higher the number, the more favourable [12, 13].

### 2.4 Self-esteem and relationship (SEAR) questionnaire

Patient-Reported physiological questionnaire that identifies the psychological impact of sexual dysfunction on individuals

and their relationships. Two domains are evaluated: Sexual Relationship (eight items) and Confidence (six items). The score ranges from 0–100, where 100 is more favourable [14].

### 2.5 Genital perception scale (GPS)

Body and genital self-assessment of men that underwent hypospadias repair. The scale is a 27 items questionnaire that assesses the body and genital perception [15].

At the end of the survey all patients were offered a medical evaluation. The results of each scale were analysed individually to assess penile appearance, sexual function, and psychological impact separately. Statistical calculations were performed using IBM SPSS v.18.0.

## 3. Results

From 2000 to 2010, 143 children underwent UA hypospadias repair. From these 61 patients met our inclusion criteria, 54 were contacted, 38 consented to participate and only 36 completed the survey. The intervention mean age was 4 years (3–13 years) and the current age range was between 14 and 27 years (median 16 years old). All patients had completed pubertal development.

Medical records of patients during their childhood were reviewed to assess complications and the incidence of reintervention in the study group. Thus, the number of complications was 2 fistulas (5.5%) and 10 meatus stenosis (27.7%), 6 of them required reintervention. There was no recurrence of the curvature 1 year after the intervention. Therefore, reoperations rate was 22.2%.

The cosmetic appearance of the penis was evaluated using the HOPE-score with an average of 8.75 (SD +/− 0.97), which indicates a good aesthetic result. Of the 36 patients only 6 had a score lower than 8 points and none of them a score lower than 5 points. If we evaluate each of the six items individually, 66.7% of the patients reported a normal position of the meatus, and 33.3% a meatus slightly lower than the normal position but in the glans. None of them reported the position of the meatus lower than the glans. In 83.3% of the cases the meatus had a normal shape, 13.9% was slightly abnormal and in 2.8% was severely abnormal. Regarding the shape of the glans, 32 patients presented a normal or slightly abnormal shape, 3 reported a moderate abnormal shape and 1 severely abnormal. 77.8% had a normal or slightly abnormal shape of the penile skin. Lastly, in the evaluation of the penile axis, 63.9% patients reported a 0–30° penile rotation, 27.8% a rotation of 30–50°, 2.8% of 50–70° and 5.6% > 70° of rotation. While 75% reported 0–30° curvature during erection, 19.4% reported 30–50° of curvature and 5.6% more than 50° (Table 1).

The voiding dysfunction symptoms were assessed through the AUASI score. The median AUASI was 2 (range 0–18) out of a maximum score of 35, where 80.6% patients had none or mild symptoms and 19.4% moderate symptoms. None presented severe symptoms (Table 2). For the hypospadias specific questions, 75% (n = 27) of patients void standing up and 91.7% (n = 33) void through the tip of the penis.

Only 30.5% (n = 11) of patients were sexually active. According the IIEF-15 scale, which evaluates erectile dysfunction, 72.7% (n = 8) of these patients had no erectile dysfunction and 27.3% (n = 3) mild dysfunction. In the satisfaction domain and orgasmic function domain, 90.9% of these patients referred satisfactory sexual intercourse and favourable orgasmic function. The 81% of patients considered had a high or very high sexual desire, only 2 reported a moderate desire. The last domain relates to the overall sex life satisfaction, 7 out of 11 patients had a moderately to very satisfying sex life, 2 were about equally satisfied and dissatisfied, and 2 moderately to very dissatisfied with their sex life. From this questionnaire it is noticeable that all patients sexually active present a very high confidence to get and keep an erection (Table 3).

When assessing the confidence rate of all the boys (n = 36) on getting and keeping an erection, regardless of their current sexual life, 72.2% (n = 26) referred a very high or high confidence, 22.2% (n = 8) moderate confidence and 5.6% (n = 2) a low confidence.

The psychological impact of the sexual function was evaluated through the SEAR questionnaire, which encompasses overall satisfaction with sex life and confidence in sexual performance. This questionnaire was addressed to men who have had intercourse regardless of current sexual activity only 14 young men answered it. In this scale higher scores indicates a more favourable response, the overall score was higher than 78 in 71.4% of the patients, and none had a score lower than 42.

The body and genital perception were assessed with the Genital Perception Scale (GPS). The body perception being positive or very positive in 88.9% of the patients. The genital perception was positive or very positive in 77.8% of the patients. This elucidates that there is a negative correlation between the genital and body perception 13.9% of these young men.

After answering the survey, 12 patients agreed to clinic evaluation. The cosmetic outcomes assessed by the consultant (position and shape of the meatus, shape of the glans and penile skin, and curvature) agreed with those referred by the patients in the HOPE-score.

## 4. Discussion

Hypospadias is a congenital malformation with a broad spectrum, from mild to extremely severe cases. It is possibly the congenital malformation with more surgical repair techniques described in the literature [16]. The variety in the severity of the cases and the numerous surgical techniques used, makes it difficult to compare post-operatory outcomes to determine the best treatment option for our patients. In addition, this surgery is performed during childhood and on a body area that will change greatly at puberty, which complicates the assessment of long-term results even more.

The number of long-term follow up studies evaluating hypospadias cosmetic, functional and psychosexual outcomes during adolescence and early adulthood is limited [17, 18], and most of the studies do not separate the different techniques of hypospadias repair used. In addition, the majority do not cover all the relevant outcome components (urinary, sexual function, aesthetic and psychological repercussion) needed to assess the overall result. Regarding the UA repair for distal and mid-shaft

**TABLE 1. Results of the hypospadias objective penile evaluation (HOPE) questionnaire.**

| Position meatus | Glandular (10 pts) | Coronal (8 pts) | Subcoronal (5 pts) | Mid-shaft (3 pts) | Proximal (1 pts) | Mean of points |
|---|---|---|---|---|---|---|
| | 24 (66.7%) | 12 (33.3%) | | | | 9.33 (SD +/− 0.95) |
| | Normal (10 pts) | Slightly abnormal (7 pts) | Moderately abnormal (4 pts) | Severely abnormal (1 pts) | | |
| Shape meatus | 30 (83.3%) | 5 (13.9%) | | 1 (2.8%) | | 9.30 (SD +/− 1.77) |
| Shape glans | 26 (72.2%) | 6 (16.7%) | 3 (8.3%) | 1 (2.8%) | | 8.75 (SD +/− 2.31) |
| Shape penile skin | 18 (50.0%) | 10 (27.8%) | 5 (13.9%) | 3 (8.3%) | | 7.58 (SD +/− 2.94) |
| Penile axis | 0–30° | 30–50° | 50–70° | >70° | | |
| Rotation | 23 (63.9%) | 10 (27.8%) | 1 (2.8%) | 2 (5.6%) | | 8.50 (SD +/− 2.43) |
| Curvature in erection | 27 (75.0%) | 7 (19.4%) | 1 (2.8%) | 1 (2.8%) | | 9.00 (SD +/− 2.02) |
| Final Score | | | | | | 8.75 (SD +/− 0.97) |

*The total HOPE score ranges from 1 being the worst appearance imaginable to 10 being perfect. SD: Standard deviation.*

**TABLE 2. Results of the American urological association symptom index (AUASI).**

| | Not at all (0) | Less than 1 time in 5 (1) | Less than half the time (2) | About half the time (3) | More than half the time (4) | Almost Always (5) |
|---|---|---|---|---|---|---|
| Emptying | 25 (69.4%) | 8 (22.2%) | 1 (2.7%) | 1 (2.7%) | | 1 (2.7%) |
| Frequency | 16 (44.4%) | 16 (44.4%) | 1 (2.7%) | 2 (5.5%) | 1 (2.7%) | |
| Intermittency | 29 (80.5%) | 5 (13.8%) | | | 1 (2.7%) | 1 (2.7%) |
| Urgency | 31 (86.1%) | 3 (8.3%) | 1 (2.7%) | 1 (2.7%) | | |
| Week stream | 22 (61.1%) | 11 (30.5%) | | 2 (5.5%) | 1 (2.7%) | |
| Hesitancy | 23 (63.8%) | 7 (19.4%) | 2 (5.5%) | 2 (5.5%) | 1 (2.7%) | 1 (2.7%) |
| | None (0) | 1 time (1) | 2 times (2) | 3 times (3) | 4 times (4) | 5 or more times (5) |
| Nocturia | 22 (61.1%) | 11 (30.5%) | | 2 (5.5%) | 1 (2.7%) | |

**TABLE 3. Results of the IIEF-15 scale.**

| Domain | Mean +/− SD |
|---|---|
| Erectile function: | |
| Mean +/− SD | 27.82 +/− 2.85 |
| No. less than 21 (%)—Moderate/Severe dysfunction (%) | 0% |
| No. between 21–25—Mild dysfunction (%) | 27.3% |
| No. 26 or greater—No dysfunction (%) | 72.7% |
| Mean +/− SD orgasmic function (0–10) | 8.36 +/− 2.24 |
| Mean +/− SD sexual desire (0–10) | 7.64 +/− 1.85 |
| Mean +/− SD intercourse Satisfaction (0–15) | 9.55 +/− 3.17 |
| Mean +/− SD overall satisfaction (2–10) | 7.91 +/− 2.38 |

*SD: standard deviation.*

hypospadias [19, 20], there are few reports of the outcomes, almost none refers to long-term follow-up and most of them are out of date.

In our series, despite the long period of time, the surgery was performed only by 2 senior surgeons, and all the cases were mid-distal hypospadias with mild curvature (curvature lower than 20°) that were resolved by releasing the chordee. For this reason, we assumed that the samples of patients were homogeneous allowing better assessment of different associations.

According to the HOPE-score analysis, the penile cosmetic outcomes are "fairly good" with a mean close to 9, similar to the 9.5 median reported by the series of Spinoit *et al.* [21] on modified tubularized incised plate urethroplasty procedure. Most of the five items assessed present a normal to slightly abnormal characteristic. However, the shape of the penile skin shows the worst outcome with 8 patients reporting moderately abnormal and severely abnormal characteristics. Furthermore, only 5.6% (n = 2) of the patients presented a penile curvature in erection of more than 50°. Though, according to the literature a higher rate of penile incurvation was expected. We speculate this positive result could be related to an adequate selection of patients for surgery.

Regarding the functional results, the majority of the patients did not present voiding dysfunction or any sign and symptoms of urethral stricture in the long-term follow-up. Also, most of them void standing up and through the tip of the penis. However, further uroflowmetry studies of these patients remain to be completed to confirm these findings.

The sexually active patients of this series (11/36) did not present any erectile dysfunction and most of them recorded a satisfactory orgasmic function and sexual intercourse. Also, all sexually active and not sexually active patients referred a very high confidence in getting and keeping an erection. These findings are consistent to other series reports for distal and mid-shaft hypospadias repair regardless of the techniques used such as Onlay, Mathieu, Duplay, Duckett's technique or oral mucosal graft urethroplasty [18, 22, 23].

Regarding the psychosexual assessment, 14 of 36 men answered the SEAR questionnaire regardless their current sexual life. The vast majority documented high score in the scale which reveals an overall satisfaction with their sex life and a high confidence in sexual performance. Similar results were reported by Boris *et al.* [24], they found that all patients with distal hypospadias were pleased with their sexual performance and had a high self-esteem. In our case, this high degree of satisfaction is correlated with the good aesthetic perception that patients have of their genitals. This perception is related to confidence in their sexual life. Body and genital perception of these patients was evaluated through the GPS to determinate if their perception of the body was the same as the perception of their genitals. Only 13.9% (n = 5) referred a negative correlation, where the perception of the body is better than their genitals, being these patients not comfortable with their genitals cosmetic. Comparison of these findings with those in earlier studies is difficult because few studies have a similar inclusion criteria and long term follow up.

Overall, the results of cosmetic appearance, sexual and voiding function, and physiological impact in young men that when through UA technique for hypospadias repair in this series, are acceptable. However, a larger series with more sexually active patients is needed for a better assessment of the erectile dysfunction and psychosexual impact in adulthood. Moreover, further comparison with other repair techniques is required to improve our treatments and outcomes for hypospadias patients.

## 5. Limitations

There are no homogeneous studies in the literature that analyse mid-distal hypospadias treated with UA technique to compare our cosmetic and functional outcomes. Also, there are not many studies of long term follow up that encompasses all criteria, functional, cosmetic and psychosocial, necessary to determine the surgical success. Finally, similar to other studies the number of patients that participate in the study and replies the questionaries is significantly low, making these studies difficult [18].

## 6. Conclusions

Comparison of our findings with those of other studies reveals that a full penile urethral mobilization is an acceptable alternative procedure, which main advantage is to avoid the use of any non-urethral tissues to reconstruct the hypospadias urethra. The selection of cases must be cautious, and the surgery performed by an experienced surgeon to avoid complications. More complete and objective evaluation methods should be developed to assess long-term hypospadias repair outcomes.

### AVAILABILITY OF DATA AND MATERIALS

The data are contained within this article.

### AUTHOR CONTRIBUTIONS

SDRS—protocol/project development, data collection or management, manuscript writing/editing. APH—protocol/project development, data collection or management, manuscript writing/editing. VVC—data analysis. AEG—protocol/project development. RMPE—data collection or management.

### ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Reina Sofia University Hospital ethics board approved this study (No. 09/2020). Written consent was obtained from parents or legal guardian of patients who has not reached adulthood by mail.

### ACKNOWLEDGMENT

Not applicable.

### FUNDING

This research received no external funding.

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## REFERENCES


[1] Liu MMY, Holland AJA, Cass DT. Assessment of postoperative outcomes of hypospadias repair with validated questionnaires. Journal of Pediatric Surgery. 2015; 50: 2071–2074.

[2] Koff SA. Mobilization of the urethra in the surgical treatment of hypospadias. Journal of Urology. 1981; 125: 394–397.

[3] Hadidi A. Hypospadias surgery. 1st edn. Springer Berlin: Heidelberg. 2004.

[4] El Darawany HM, Al Damhogy ME. Urethral mobilization as an alternative procedure for distal hypospadias repair. Urology. 2017; 104: 183–186.

[5] Koenig JF, Kottwitz M, McKenna PH. Urethral mobilization for distal and mid shaft hypospadias with chordee. Journal of Urology. 2013; 190: 1545–1549.

[6] Sullivan KJ, Hunter Z, Andrioli V, Guerra L, Leonard M, Klassen A, *et al*. Assessing quality of life of patients with hypospadias: a systematic review of validated patient-reported outcome instruments. Journal of Pediatric Urology. 2017; 13: 19–27.

[7] Hammouda HM, Hassan YS, Abdelateef AM, Elgammal MA. New concept in urethral advancement for anterior hypospadias. Journal of Pediatric Urology. 2008; 4: 286–289.

[8] Deibert CM, Hensle TW. The psychosexual aspects of hypospadias repair: a review. Arab Journal of Urology. 2011; 9: 279–282.

[9] van der Toorn F, de Jong TPVM, de Gier RPE, Callewaert PR, van der Horst EH, Steffens MG, *et al*. Introducing the HOPE (Hypospadias Objective Penile Evaluation)-score: a validation study of an objective scoring system for evaluating cosmetic appearance in hypospadias patients. Journal of Pediatric Urology. 2013; 9: 1006–1016.

[10] Krull S, Krause H, Mohnike K, Roehl F, Koehn A, Hass H, *et al*. Outcome after hypospadias repair: evaluation using the hypospadias objective penile evaluation score. European Journal of Pediatric Surgery. 2018; 28: 268–272.

[11] Barry MJ, Fowler FJ, O'leary MP, Bruskewitz RC, Holtgrewe HL, Mebust WK, *et al*. The American urological association symptom index for benign prostatic hyperplasia. Journal of Urology. 2017; 197: S189–S197.

[12] Rosen RC, Riley A, Wagner G, Osterloh IH, Kirkpatrick J, Mishra A. The international index of erectile function (IIEF): a multidimensional scale for assessment of erectile dysfunction. Urology. 1997; 49: 822–830.

[13] Rosen RC, Cappelleri JC, Gendrano N. The international index of erectile function (IIEF): a state-of-the-science review. International Journal of Impotence Research. 2002; 14: 226–244.

[14] Cappelleri JC, Althof SE, Siegel RL, Shpilsky A, Bell SS, Duttagupta S. Development and validation of the self-esteem and relationship (SEAR) questionnaire in erectile dysfunction. International Journal of Impotence Research. 2004; 16: 30–38.

[15] Mureau MAM. Psychosexual and psychosocial adjustment of hypospadias patients. Nederlands Tijdschrift voor Geneeskunde. 1997; 141: 188–191.

[16] Adorisio O, Elia A, Landi L, Taverna M, Malvasio V, D'Asta F, *et al*. The importance of patient selection in the treatment of distal hypospadias using modified Koff procedure. Journal of Pediatric Urology. 2010; 6: 139–142.

[17] Springer A. Assessment of outcome in hypospadias surgery—a review. Frontiers in Pediatrics. 2014; 2: 2.

[18] Thiry S, Saussez T, Dormeus S, Tombal B, Wese FX, Feyaerts A. Long-term functional, cosmetic and sexual outcomes of hypospadias correction performed in childhood. Urologia Internationalis. 2015; 95: 137–141.

[19] Gite VA, Nikose J V, Bote SM, Patil SR. Anterior urethral advancement as a single-stage technique for repair of anterior hypospadias: our experience. Urology Journal. 2017; 14: 4034–4037.

[20] Mollaeian M, Sheikh M, Tarlan S, Shojaei H. Urethral mobilization and advancement with distal triangular urethral plate flap for distal and select cases of mid shaft hypospadias: experience with 251 cases. Journal of Urology. 2008; 180: 290–294.

[21] Spinoit A-, Radford A, Ashraf J, Gopal M, Subramaniam R. Modified tubularized incised plate urethroplasty in distal hypospadias repair: stepwise technique with validated functional and cosmetic outcome. Journal of Pediatric Urology. 2017; 13: 86–87.

[22] Nelson CP, Bloom DA, Kinast R, Wei JT, Park JM. Patient-reported sexual function after oral mucosa graft urethroplasty for hypospadias. Urology. 2005; 66: 1086–1089.

[23] Rynja SP, Wouters GA, Van Schaijk M, Kok ET, De Jong TP, De Kort LM. Long-term followup of hypospadias: functional and cosmetic results. Journal of Urology. 2009; 182: 1736–1743.

[24] Chertin B, Natsheh A, Ben-Zion I, Prat D, Kocherov S, Farkas A, *et al*. Objective and subjective sexual outcomes in adult patients after hypospadias repair performed in childhood. Journal of Urology. 2013; 190: 1556–1560.


**How to cite this article:** Sharmila Devi Ramnarine, Alberto Parente, Veronica Vargas, Alvaro Escassi, Rosa María Paredes. Long term follow-up on young adults that underwent hypospadias repair through urethral advancement in childhood. Revista Internacional de Andrología. 2024; 22(1): 23-28. doi: 10.22514/j.androl.2024.004.