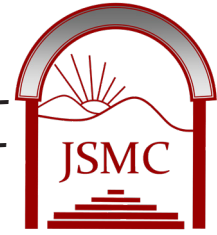


# EARLY OUTCOME OF MEATAL MOBILIZATION TECHNIQUE FOR DISTAL HYPOSPADIAS: BASED ON 5 YEARS' EXPERIENCE IN A PEDIATRIC SURGERY CENTRE-SHAR HOSPITAL-SULAIMANI CITY-KURDISTAN REGION-IRAQ



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## ABSTRACT

### *Background*

Hypospadias is a challenging field of urogenital reconstructive surgery with different techniques being currently used. Numerous reconstruction techniques have been described previously; none can be used to correct all forms of hypospadias. The ideal result of surgery is the construction of a good caliber urethra with a slit-like urethral meatus at the tip of the glans and a straight penis.

### *Objectives*

Assessing the early outcome of the meatal mobilization technique for repairing distal hypospadias regarding parent's satisfaction for the cosmetic appearance of glans, position of the meatus, and urine stream.

### *Patients and Methods*

The work approved by the ethics committee of the College of Medicine – University of Sulaimani (no.5, on 19/2/2019). Sixty male children enrolled in the pediatric surgery center in Shar hospital/ Sulaimani city / Kurdistan region-Iraq in the period of 5 years from July first, 2013 to June 30<sup>th</sup> 2018. Informed consent was taken from the parents in the form of face to face interview in the Kurdish language; for discussion of the options of treatment and possible complications. All the patients were followed up, weekly in the first month and monthly in the first 6 months, and yearly there after postoperatively.

### *Results*

Patients enrolled in the study, their age ranged from 6 months to 7 years, most of them were from the age group 7-12 months. The second and third age group were (13-18 months), (19-24 months) respectively. The most common complication following hypospadias repair by meatal mobilization technique (MEMO) technique was meatal stenosis (n=3, 5%) followed by urethrocutaneous fistula, breakdown requiring re-do surgery, and urethral stricture (n=2, 3.33%) (n=2, 3.33%) (n=1, 1.66%) respectively. The majority of the patient's parents were satisfied with the result of the repair, regarding the position of the opening, cosmetic appearance, and urine stream. While satisfaction among the parents concerning the stream of the urine was (n=54 90%).

### *Conclusion*

Meatal Mobilization Technique is a relatively safe and effective procedure for correction of all types of distal hypospadias including glandular, coronal, and subcoronal variants. It is associated with a minimal complication rate and a good parental satisfaction rate regarding the cosmetic appearance and urine stream.

**Keywords:** *Distal hypospadias; Hypospadias; Meatal mobilization outcome; Parental satisfaction.*

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## INTRODUCTION

Distal hypospadias is one of the most common genital anomalies, occurring in almost 65-75% of all hypospadias cases and it is characterized by incomplete development of the anterior urethra and is usually associated with a less complicated degree of chordee<sup>(1)</sup>.

Numerous reconstruction techniques have been described previously; none can be used to correct all forms of hypospadias<sup>(2)</sup>. The elasticity and rich proximal blood supply of the urethra has been demonstrated anatomically and many studies show that it may be safely mobilized in hypospadias repair<sup>(3)</sup>.

Hypospadias is a challenging field of urogenital reconstructive surgery with different techniques being currently used<sup>(4)</sup>. The ideal result of surgery is the construction of a good calibre urethra with a slit-like urethral meatus at the tip of the glans and a straight penis<sup>(5)</sup>. It has been found that about three-fold penile urethral length mobilization (from the opening to the tip of glans) allows tension-free urethral anastomosis in the case of distal hypospadias<sup>(6)</sup>.

The meatal mobilization technique, based on a procedure first described by Beck, allows the correction of almost all coronal and sub coronal hypospadias with no formation of a tabularized urethra or using a flip-flap procedure<sup>(2)</sup>. The meatal mobilization technique has proven to be a safe procedure for most distal hypospadias repair postoperatively and in the long-time follow-up<sup>(7)</sup>.

In patients with mild degrees of hypospadias and chordee, the mobilized urethral meatus can be placed out onto the glans without constructing a neourethra<sup>(8)</sup>. It must be kept in mind, however, that although the most minor forms of hypospadias are insignificant in physiologic terms, they too may merit repair based on the potential psychological stress associated with having a genital anomaly<sup>(9)</sup>.

Continuous re-evaluation and assessment of outcomes may have a major impact on future clinical practice<sup>(4)</sup>. There are diverse outcome rates after meatal mobilization technique in the literature, the aim is to find early outcome after meatal mobilization technique in the center of Sulaimani pediatric surgery, which is a newly established center since 2011 in the area, draining about 2 million populations, covered by 5 pediatric surgeons.

## PATIENTS AND METHODS

The work was approved by the ethics committee of the college of medicine – the university of Sulaimani (no.5, on 19/2/2019). All methods were performed in accordance with the relevant guidelines and regulations. Sixty male children enrolled in the pediatric surgery center/ Sulaimani city /Kurdistan region-Iraq in the period of 5 years from July first, 2013 to June 30<sup>th</sup> 2018.

A detailed history was taken from the patient's parents, patients were thoroughly examined for assessment of the type of hypospadias and fitness for the general anesthesia, and investigations were sent like general urine examination, CBC, renal function test, viral markers, and ultrasound of genitourinary tract, echocardiography for selected patients and radiogram of the spine to exclude associated congenital anomalies.

Informed consent was taken from the parents in the form of face to face interview in the Kurdish language; for discussion of the options of treatment and possible complications.

All the patients were having distal hypospadias (glanular, coronal, and subcoronal) were included, while those who have thin ventral skin, not allowing the dissection of the penile skin from the urethra, or a fixed urethra were excluded. All the procedures were done by the same pediatric surgeon using (HEINE® HR 2.5x High-Resolution Binocular Loupes for dissection and suturing.

Under general anesthesia, a penile block with bupivacaine (2 mg/kg) is injected at the dorsal aspect of the base of the penis by the surgeon.

Optimal size Silicone urethral catheter was inserted as a stent to preserve the ventral urethral mucosa during dissection of the penile skin, prepuce skin hold by two sutures placed laterally at both edges. Subcoronal incision done and extended circumferentially through inner prepuce. Degloving of the shaft of the penis was started to dissect penile skin as far down as necessary for releasing chordee. A non-toothed tissue forceps used to assess the mobility of the urethra. Dissection of the urethral meatus started laterally and proceeded dorsally down to the albuginea fascia of the corporal bodies. After complete mobilization of the sufficient length of the penile urethra (three folds of the distance between the opening and the tip of glans), glanular wings created by dissecting corpus spongiosum and incising the glans at the midline with resection of a

triangular piece of glanular urothelium on both sides of the incision.

Urethral mucosa of the meatus is sutured to the glans at the tip using 6/0 vicryl for advancing the external urinary meatus distally to the tip of the penis. Glanular wings rotated ventrally and sutured by 6/0 vicryl. After reconstructing the inner prepuce, the excess skin is excised. And the wound closed with interrupted 6/0 vicryl. The urethral catheter was kept in place for 6 days. After putting a paraffin gauze on the wound a sterile sandwich dressing was done and fixed with plaster.

All patients were covered by prophylactic antibiotic according to the hospital policy in form of amoxiclav injection (Abbot) (50 mg/kg intravenously). Pre-emptive analgesia (diclofenac suppositories 12.5mg) inserted per anus in premedication. And the patient was discharged the same day based on day case surgery and asked to visit on 6<sup>th</sup> postoperative day for examination of the wound and removal of the dressing and the catheter and watching the urine stream.

All the patients were followed up, weekly in the first month, and monthly in the first 6 months postoperatively.

All demographic, clinical, blood workup, procedure, and outcome (Complications, Cosmetic appearance of the penis, the position of the opening, urine stream) data were collected and then analyzed by SPSS version 21.

## RESULTS

Most of the patients were from the age group 7-12 months and no patient was involved below the age of 6 months. The second and third age group were (13-18 months), (19-24 months) respectively, Table 1.

In more than half of the patients, the primary concern of the parents was abnormal opening for which they consult the paediatric surgeon, while the least cause of consultation was recurrent urinary tract infection (UTI). While cosmetic and abnormal stream forced the parents to seek advice in (n=12 20%) and (n=13 21.6%) of the patients respectively,

No patients with proximal hypospadias enrolled in the study, all were either having a distal shaft or distal hypospadias (n=16 26.6%) (n=44 73.4%). From the group of distal hypospadias, the most common type was sub coronal (n=23 38.3%) and the least common type was glanular (n=7 11.6%), while coronal was intermediate in cohesion composing (23.3%) of the patients.

The most common complication following hypospadias repair by MEMO technique was meatal stenosis (n=3, 5%) followed by urethrocutaneous fistula, breakdown requiring re-do surgery, and urethral stricture (n=2, 3.33%) (n=2, 3.33%) (n=1, 1.66%) respectively.

The majority of the patient's parents were satisfied with the result of the repair, regarding the position of the opening, cosmetic appearance, and urine stream. While satisfaction concerning the stream of the urine was most common among the parents (n=54 90%).

**Table 1. Age group distribution.**

<b>Age group( Months)</b>	<b>Frequency</b>	<b>Percentage</b>
<b>7 – 12</b>	19	31.66
<b>13 – 18</b>	13	21.66
<b>19 – 24</b>	11	18.33
<b>25 – 36</b>	6	10
<b>37– 48</b>	4	6.66
<b>49 – 60</b>	4	6.66
<b>&gt;60</b>	3	5

Table 2. Causes of consultation of the parents on behalf of the patient.

Variable	Frequency	Percentage
Cosmetic	12	20
Abnormal opening	33	55
Recurrent UTI	2	3.33
Abnormal stream	13	21.66

Table 3. Types of hypospadias.

Type of hypospadias	Frequency	Percentage	
Distal	Glanular	7	11.66
	Coronal	14	23.33
	Sub coronal	23	38.33
Distal shaft	16	26.66	

Table 4. Complications of the reconstruction of distal hypospadias with MEMO.

Complications	Frequency	Percentage
Meatal stenosis	3	5
Urethra cutaneous fistula	2	3.33
Breakdown, requiring redo-surgery	2	3.33
Urethral stricture	1	1.66
Urethral diverticulum	0	0

Table 5. Parent's satisfaction.

Variable	Frequency	Percentage
Cosmetic appearance	51	85
Urine stream	54	90
Position of the meatus	48	80

## DISCUSSION

Hypospadias with its various types is a common pediatric problem which is mostly treated after six months of age when tissues of the glans and urethra are feasible for manipulation and surgery. Hypospadias will cause anxiety for the parents, who usually consult the physician about it. The result of this study shows that parent's consultations were after the age of six months and most of the patients were in the age group 7-12 months, as shown in Table 1. This is parallel with the recommendations by Gianantonio Manzoni<sup>(10)</sup>, although not going with the others<sup>(11-14)</sup>. We may explain delayed presentation after a neonatal period by a shortage in raising awareness of the population by the media and doctors, as also parents thought that the baby is (too small for anesthesia and repair) and more than half of the mothers who are caregivers for the babies are young and illiterate and have no idea about the exploration of the body of their babies and finding any congenital defects, lastly the baby not exposed in this age for the relatives to find the anomaly by some experienced person.

The primary concern of the parents was an abnormal opening through which urine was coming out in the penis of their baby (n=33, 55%) as shown in table 2, followed by the second concern which is abnormal urine stream (n=13, 21.66%).

Among 60 patients with distal hypospadias included in this study, subcoronal was the most common type (n=23, 38.33%) which goes with the finding by Paulozzi LJ<sup>(15)</sup>. The operative technique used for the babies with the distal type hypospadias with all variants, and the outcome of the operation was assessed by the parent's satisfaction according to their primary concern at the consultation. The majority of parents were satisfied with the cosmetic appearance in (n=51, 85%) and urine stream (n=54, 90%), while the satisfaction for the position of the opening in the glans was as high as 80% of the parents approved as shown in table V. this finding is comparable with the findings by Joel F. Koenig<sup>(3)</sup>.

Complications occurred in 8 (13.33%) patients which is slightly higher than the recorded rate by Castagnetti Maria-Grazia<sup>(16)</sup>.

Meatal stenosis developed in three (5%) patients which were successfully treated by gentle dilatation in one case and meatotomy in two cases. Many studies mentioned that there was no meatal stenosis<sup>(17-19)</sup> but

Hussam Hasan et al<sup>(20)</sup> reported a higher rate of meatal stenosis (10%), While Hamed M.El Darawany<sup>(21)</sup> reported a slightly lower rate (3.33%).

Urethra-cutaneous fistula occurred in 2 patients (3.33%) which is higher than Joerg Seibold et al<sup>(17)</sup> but all others did not report any fistula.

Breakdown of the glanular stitches happened in 2 patients (3.33%), but it did not happen in others<sup>(19, 20)</sup>.

Urethral stricture occurred in one case which is treated by simple dilatation, but this complication was not reported by Hussam Hassan<sup>(20)</sup>.

In conclusion, Meatal Mobilization Technique is a relatively safe and effective procedure for correction of all types of distal hypospadias including glanular, coronal, and subcoronal variants. It is associated with a minimal complication rate and a high parental satisfaction rate regarding the cosmetic appearance and urine stream.

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### Conflict of interest

No any conflict of interest to be declared

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