

## Introduction

The Pediatric Penile Perception Score (PPS) was the first validated score to objectively assess the cosmetic outcome of hypospadias repair. It consists of 4 items rated by patient's parents and surgeons, with 4-point Likert scale, ranging from very dissatisfied to very satisfied. The score include size of the penis, glans, meatus, penile skin and curvature (1). The main limitation of this instrument is that it was validated for prepubertal hypospadias only. Nevertheless, the instrument has found acceptance in assessing hypospadias repair in adults (2).

Most pediatric Urologists are in favor of monitoring urine flow after hypospadias repair among toilette trained boys. This can be achieved by uroflowmetry and residual urine measuring if needed (3). The International Children's Continence Society (ICCS) suggests that uroflowmetry of Voided volume less than 50 mL is not enough for interpretation (4). Moreover, Yang et al further suggested that a voided volume >50% of expected bladder capacity is more reliable for the interpretation of uroflowmetry (5).

The aim of the present study is to evaluate the validity of urine flow monitoring added to Pediatric Penile Perception Score in evaluating distal hypospadias repair.

## Methods

Sixty boys with successful distal hypospadias repair age 5 to 10 years old (toilette trained) were enrolled in the present study. Twenty cases each group were evaluated more than 6 months post-operatively. Group I; boys underwent Tubularized Incised Plate (TIP) repair, Group II; boys with mental based flap (Mathieu) repair, while group III were boys with successful urethral mobilization. Exclusion criteria include, non toilette trained boys, age less than 5 or more than 10 years, recurrent cases or complicated cases with fistula or infection.

Children parents were asked to complete the PPS to express satisfaction with hypospadias repair with 4 items referring to their child penis. PPS was calculated by adding the scores of all 4 items for a range of 0 to 12.

After clear parents consent, four standardized views were photographed of the non-erect penis (figures 1 & 2). Antero-posterior, oblique and two views of the penis held so that the meatus and ventral side of the penis were visible. The 4 photos were given to the 5 Pediatric Urologists to assess the cosmetic appearance of the penis using PPS. The Urologists were not aware of child's identity nor the type of surgical repair.

We added the urine flow evaluation with the following questionnaires for child's parents according to Likert scale;

0 Very dissatisfied; urine weak, and deviated or splashed

1 Dissatisfied; urine weak and straight

2 Satisfied; urine strong and deviated or splashed

3 Very satisfied; urine strong and straight

Uroflowmetry was carried out for all cases. Two more photos of the child voiding pattern were prepared (figure3). The voiding photos and the Q-max results were given to the Urologists and the questionnaire runs as the following;

0 Very dissatisfied; deviated or splashed urine stream, and Q-max less than 10 ml/sec

1 Dissatisfied; straight urine stream and Q-max less than 10 ml/sec

2 Satisfied; deviated or splashed urine stream and Q-max > 10 ml/sec

3 Very Satisfied; straight urine stream and Q-max more than 10 ml/sec

The cases with low Q-max in the present series were subjected to ultrasound calculation of residual urine as part of follow up to early address un-noticed urethral narrowing



Figure (1): photo gallery of a 6 years old boy 5 months following successful TIP urethroplasty for Urologists PPS



Figure (2): Voiding pattern post successful hypospadias repair; very satisfied urine strong and straight (upper right); satisfied with strong deviated urine stream (upper left); dissatisfied with weak straight urine flow (lower right) and very dissatisfied weak and deviated stream (lower left)

## Results

Table (1), showed that the average postoperative parent's evaluation with Penile Perception Score (PPS) was significantly higher in group III (urethral mobilization)  $10.25 \pm 0.967$ . While PPS was comparable in the other two groups reaching  $9.85 \pm 0.933$  in group I and  $9.95 \pm 0.945$  in group II. On the other hand, Urologists cosmetic evaluation of cases of the present series showed comparable score to those of boys parents. Group I PPS was  $9.85 \pm 1.039$ , Group II PPS was  $9.9 \pm 0.852$ , while urethral mobilization group (III) has the best PPS reaching  $10.35 \pm 0.7$

On evaluation of urinary flow (table, 2) parents reports were  $2.6 \pm 0.502$  among group I boys,  $2.65 \pm 0.489$  among group II boys and  $2.85 \pm 0.366$  among group III boys. As regards Urologists evaluation, came as follows  $2.75 \pm 0.444$ ,  $2.7 \pm 0.470$  and  $2.9 \pm 0.308$  in the three groups respectively.

Two cases in group I (TIP urethroplasty) needed urethral dilatation for weak urine flow and low uroflowmetry (< 10 ml/sec.). On the other hand, one boy in group II (Mathieu repair) needed revision urethroplasty because of failed urethral dilatation with persistent low uroflowmetry (< 10 ml/ sec.)

Table(1):Penile perception score among 60 boys with successful hypospadias repair

	PPS Parents	PPS Urologists
Gp I (TIP)	9.85±0.933	9.85±1.039
Gp II (Mathieu)	9.95±0.945	9.90±0.852
Gp III (Urethral mobilization)	10.25±0.967	10.35±0.745

Table(2):Voiding pattern score among 60 boys with successful hypospadias repair

	PPS Parents	PPS Urologists
Gp I (TIP)	2.60±0.502	2.75±0.444
Gp II (Mathieu)	2.65±0.489	2.70±0.475
Gp III (Urethral mobilization)	2.85±0.366	2.9±0.308

## Conclusions

Voiding pattern and uroflowmetry seems to be important for objective evaluation of urethroplasty repair, and early address of complications. We suppose to popularize PPS with urine flow monitoring charts to be part of follow up strategy for hypospadias repair.

## References

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