

Original Research Article

The Relation of Hipospadia Types With *Hypospadias Objective Penile Evaluation* Score in Padang

Abstract

Introduction *Hypospadias* was an abnormal growth of the penis where as the failure of urethral fold to grow resulting the meatus urethra located on the proximal ventral penis with or without chorde. The incidence of *hypospadias* was 1 per 250-300 of male children. The treatment is urethroplasty. The purpose of the *hypospadias* repair is to create functional neourethra, the validity and outcome cosmetic

Methods The design was analytic observational study with cross sectional comparative. Total sample was 26. The *HOPE* score was collected using the physical examinations and the picture taken by a DLSR D 5300 camera.

Results The percentage of *HOPE* score which is satisfied was higher in distal *hypospadias* compared to the proximal *hypospadias* (69,2%) and there was a significant difference in the type of *hypospadias* with *HOPE* score ($p < 0,05$)

Conclusion There is a significant difference between the *hypospadias* type with the value of *HOPE* Score, where as the distal *hypospadias* had the better *HOPE* Score.

Keywords: *Hypospadias* type, *HOPE* Score, urethroplasty.

INTRODUCTION

Hypospadias is an abnormal growth of penis. There is failure of urethral fold development led the urethral meatus moved from the normal position at penile granular into ventral proximal part of the penis, with or without chorde.^{1,2,3,4,5,6,7,8}

The incidence rate is 1 in 250-300 births of male baby and to get the cosmetic appearance of a normal penis with minimum complications.

Hypospadias Objective Penile Evaluation (HOPE) score is a scoring system to assess the cosmetic results of *hypospadias* repair. *HOPE* score meets the criteria of a valid measurement instrument, such the objectively, the reliability,

baby. In Indonesia, from the data obtained, the incidence of *hypospadias* in some government hospitals also seemed to increase.^{7,9,10,11,12}

At urology subdivision of M Djamil hospital, Padang, there was increasing rate of urethroplasty action year after year, from 15 cases in 2009-2011, to 65 cases in 2011-2014.^{9,13}

Hypospadias pathogenesis is still remain unclear, but there are some risk factors associated with *hypospadias*, including genetic, environmental, and endocrine

38 factors. Babies born from too young or too old mothers and with low birth weight are
39 atrisktoget hypospadias.⁹

40 Hypospadiaclassification, basedon urethral meatus position, is divided into distal and
41 proximal type. Distal hypospadiaincludesgranular, subcoronal, distal penile, midshaft, and
42 proximal penile part. Whileproximalhypospadiaincludespenoscrotal, scrotal, and perineal.¹⁴

43 Urethroplasty technique is growing rapidly. There are more than 200 urethroplasty
44 techniques. Complication of urethroplasty, such as bleeding, hematoma, meatal stenosis,
45 urethrocutaneous fistula, urethra diverticulum, *balanitis xerotica obliterans*, recurrent penile
46 curvature, stricture, intra-urethral hair growth, and could also be an urethroplasty failure.
47 Because the complication of this action is large, so it is necessary to do post-urethroplasty
48 follow up.¹

49 The aim of modern hypospadias repair is creating neo-urethral functional, straighten
50 the arch and gaining normal penis appearance cosmetically with minimal complication.
51 Since, modern hypospadias repair was found, the complication rate decreased. Currently, the
52 focus of hypospadias repair must be in increasing of cosmetic outcome.^{16,17,18}

53 Hypospadias Objective Penile Evaluation (HOPE) score is a scoring
54 system to measure cosmetic outcome in hypospadias repair. HOPE score has fulfilled valid
55 measurement instrumental criteria, those are objective, reliable, and valid. HOPE score
56 evaluates penile appearance on five basic surgically repairable items, includes meatal
57 position, the form of the gland, the form of penile skin and axis, penile torsion (observed in
58 condition of erection), and penile curvature. HOPE score total range from 1 to 10. The
59 interpretation of HOPE score is divided into two groups, not satisfied group with HOPE score
60 ≤ 4.5 , and satisfied group with HOPE score > 4.5 .^{14,19}

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62 METHODS

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64 This is an observational analytic study with comparative cross-sectional design,
65 conducted from December 2016 to January 2017 at urology department M Djamil Hospital,
66 Padang. We also performed home visit.

67 This study included 26 patients with all types of hypospadias who undergone urethroplasty
68 and met the following criteria : patients who undergone urethroplasty more than 6 months
69 before this study conducted with complete wound healing and without further intervention
70 plan.

71

72 RESULTS AND DISCUSSION

73 From 26 patients who underwent urethroplasty in this study, 13 patients had proximal
74 hypospadias and 13 patients had distal hypospadias.

75

76 Age Distribution

77 **Table 1.** Age distribution of patients with hypospadias at M. Djamil General Hospital and
78 Ropanasuri Hospital from December 2016 to January 2017

Age Distribution of Sample			
Variables	F	%	Description
Age			
Proximal hypospadias			
0 – 4 yrs			
5 – 9 yrs	2	15,38	Mean : 10,77 ± 4,36
10-14 yrs	3	23,08	
15-19 yrs	6	46,15	
	2	15,38	
Distal hypospadias			
0 – 4 yrs			
5 – 9 yrs	0	0	Mean : 11,15 ± 3,85
10-14 yrs	4	30,77	
15-19 yrs	6	46,15	
	3	23,08	

79 (Source : Primary data)

80

81 Table 1 showed that hypospadias most commonly found in the 10 – 14 years age range
82 ($n = 6$), and mean age of distal hypospadias was higher than proximal hypospadias (mean 11,5
83 ± 3,85).

84 Mean age of hypospadias repair surgery in this study was 10,77 years in proximal type
85 and 11,15 years in distal type. In Indonesia, primary hypospadias repair surgery is generally
86 performed at the age of 6 to 18 months, although hypospadias repair at the age of 4 to 6
87 months had been reported.

88

89 **Table 2.** Comparison of mean of HOPE score.

Distribution of HOPE score		
HOPE score	Keterangan	p - value
Proximal hypospadias	Mean : 38,69 ± 7,33	

Distal hypospadias	Mean : 45,15± 2,97	0,01
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(Source : Primary data)

Based on table 2, the mean of HOPE score in distal hypospadias was higher than proximal type (45.15 ± 2.97 vs 38.69 ± 7.33) and that value was statistically significant ($p < 0.05$), thus we concluded that there is a significant association of the comparison of the mean of HOPE score.

However, this study did not found an association between *HOPE Score* and patients age when the operation is performed or the morphology of the penis before the surgery.

In table 3 we can see that the percentage of *HOPE score* which is satisfied was higher in distal hypospadias compared to the proximal hypospadias (69,2%) and there was a significant difference in the type of hypospadias with *HOPE score* ($p < 0,05$).

Many factors that lead to the high post surgery complications on the proximal type of hypospadias especially in cosmetic, it can be from the process of hypospadias disease itself, the degree of hypoplastic tissues of the penis, and inadequate of surgery techniques.¹⁴

Patients with proximal hypospadias often complained about the size of the penis after successful surgery, where as the penis in people with hypospadias is shorter than normal and the more severe the hypospadias type the shorter the length of the penis. This is because the corpus cavernosum and the *erectile bodies* of the penis is smaller than normal, and also the elasticity of corpus network in penis. Severe *chordae* where the degree of curvature $> 30^\circ$ often occurs after proximal hypospadias surgery, this is because the inadequate surgical technique. In addition, the *chordae* occurs because of the disproportion of corpus penis growth size, especially when the patient is experiencing puberty.²⁷

Table-3

The Relation of Hypospadias Type with <i>HOPE Score</i>							
Hypospadias type	<i>HOPE Score</i>				Total		<i>p-value</i>
	Satisfied		Dissatisfied				
	f	%	f	%	f	%	
Proximal	3	23.1	10	76.9	13	100	0.049
Distal	9	69.2	4	30.8	13	100	
(Sourcer: <i>Primary Data</i>)							

Mobilization of urethra aggressively on proximal hypospadias repair increases the risk of ischemic-induced urethral stricture and persistent chordae. The size of glans penis 14 mm or less on proximal type increases the complications during surgery, such as the occurrence of tension at the closing process of glans which causing the *glans dehiscence*, *meatal stenosis* and *urethral stricture*. That risk can cause the unsatisfactory cosmetic results.²⁷

CONCLUSION

The majority of proximal or distal hypospadias occur in the age 10-14 years, and the average age of distal hypospadias was higher than proximal hypospadias.

The mean value of *HOPE Score* on distal hypospadias was higher than proximal hypospadias.

There is a significant difference between the hypospadias type with the value of *HOPE Score*, where as the distal hypospadias had the better *HOPE Score*.

CONSENT

All authors declare that written informed consent was obtained from approved parties (parents or caregivers) for publication of these data.

ETHICAL APPROVAL

All authors hereby declare that the study was approved by the appropriate ethics committee and was performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki.

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