

# Experience of Using Hypospadias Objective Penile Evaluation (Hope) Scoring System for Evaluating Cosmetic Appearance in Operated Hypospadias Patients

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## ABSTRACT

**Objective:** Using the HOPE score to assess the aesthetic appearance after hypospadias surgery.

**Methodology:** This cross-sectional analysis comprised of a sample of 60 patients aged 1 to 15 years (chosen via non-probability, consecutive sampling) admitted to the Dept. of Plastic & Reconstructive Surgery and scheduled for hypospadias surgery (from January to September 2018) after taking written informed consent from parents/guardians. Information pertaining to basic biodata, aesthetic appearance (gauged by HOPE score) before and after corrective surgery was recorded onto a structured questionnaire. SPSS 21 was used for data analysis.

**Results:** The mean age of the sample stood at 5 (SD  $\pm$  1) years. The commonest types of hypospadias encountered were coronal and sub-coronal accounting for a cumulative 50% of the entire sample. Snodgrass was the most commonly (60%) employed operative procedure. There was a significant improved in the HOPE score following corrective surgery with poor appearance decreasing from 50% to 5% ( $p < 0.05$ ) and excellent appearance increasing from 1.7% to 7.3% ( $p < 0.01$ ). The most appreciable results in terms of aesthetic appearance were yielded by Snodgrass procedure.

**Conclusion:** This study helped us to assess the outcome of patients with hypospadias surgery in terms of aesthetics, identification of the variables that effect the cosmetic appearance establishing the surgical procedures that yield best aesthetic results according to the type of hypospadias.

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**Key words:** Aesthetic Appearance, Snodgrass Procedure, Coronal Hypospadias, Corrective Hypospadias Surgery

## Introduction

Though correctable, hypospadias is the second most common congenital anomaly of the male external genital organs with an incidence of between 1 in 250 to 1 in 300 in alive babies.<sup>[1]</sup> In the 1970's and the 1980's

a boom in the prevalence of hypospadias was recorded in Europe as well as in America where surveillance systems recording a two-fold increase.<sup>[2]</sup>

No means have evolved yet to prevent this anomaly; consequently, corrective surgeries too have been on the rise and more evidence is needed regarding the aesthetic outcome each offers. Improving outcomes involves patient follow up which can be cumbersome

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regarding time and finance. Consequently, outcomes are based on short-term follow ups including assessment of obvious aesthetics, which after functionality, is the 2<sup>nd</sup> most important objective.<sup>[3]</sup>

Aesthetic and functional requirements translate to a penis, straight on erection possessing a meatus that is vertical and situated at the tip of the glans producing an uninterrupted, single urinary stream.<sup>[4]</sup> The ideal hypospadias procedure is single-staged while achieving these goals and the role of the fore-skin in contributing to the repair is variable among different communities.<sup>[5, 6]</sup>

A uniform consensus for evaluating outcomes of the many hypospadias surgery techniques has not evolved yet.<sup>[7]</sup> It is therefore difficult to compare the results of the different surgical techniques described and only subjective methods are being employed that can be unpredictable and unreliable. A good system of scoring should be reproducible, reliable, easy to interpret and representative of functional and cosmetic outcomes as well as any complications<sup>[8, 9]</sup>

The aim of such a scoring system would allow an objective comparison of the different repairs and allow innovation to be incorporated where needed.<sup>[10]</sup> In this research, we present our experience of using Hypospadias Objective Penile Evaluation (HOPE) score to evaluate the surgical outcomes of hypospadias in terms of aesthetic appearance.

## Methodology

This cross-sectional analysis comprised of a sample of 60 patients aged 1 to 15 years (chosen via non-probability, consecutive sampling) admitted to the Dept. of Plastic &

Reconstructive Surgery and scheduled for hypospadias surgery (from January to September 2018) after taking written informed consent from parents/guardians. Information pertaining to basic biodata, aesthetic appearance (gauged by HOPE score) before and after corrective surgery was recorded onto a structured questionnaire. Data was analyzed using SPSS v. 21.0.

**Inclusion Criteria:** All patients (with willing parents / guardians) aged 1 to 15 years, admitted to the study setting and scheduled for hypospadias repair surgery.

**Exclusion Criteria:** Patients with Urethral Fistula, Hypospadias with bilateral UDT & ambiguous genitalia, Scrotal Hypospadias and Perineal Hypospadias were excluded from the study. Also, patients who have undergone more than 3 surgeries were excluded from the sample.

The study tool i.e. The HOPE score is as follows graded aesthetic appearance on 5 basic principles, namely: (i) meatus position, (ii) meatus shape, (iii) glans shape, (iv) skin shape, (v) torsion and curvature in penile erection. It awarded from a minimum of 1 to a maximum of 10 points to each principle.

## Results

The mean age of the sample stood at 5 (SD  $\pm$  1) years with a range from 1 to 15 years. The commonest types of hypospadias encountered were coronal and sub-coronal accounting for a cumulative 50% of the entire sample.

<b>TYPE OF HYPOSPADIAS</b>	<b>FREQUENCY (N)</b>	<b>PERCENTAGE (%)</b>
<b>GLANULAR</b>	<i>08</i>	<i>13.3%</i>
<b>CORONAL</b>	<i>15</i>	<i>25%</i>
<b>SUB-CORONAL</b>	<i>15</i>	<i>25%</i>
<b>DISTAL PENILE</b>	<i>10</i>	<i>16.7%</i>
<b>MID-PENILE</b>	<i>07</i>	<i>11.7%</i>
<b>PROXIMAL PENILE</b>	<i>02</i>	<i>03.3%</i>
<b>PENO-SCROTAL</b>	<i>03</i>	<i>05%</i>

Table No.1: The frequency (N) and percentage of the types of Hypospadias

Snodgrass was the most commonly (60%) employed operative procedure.

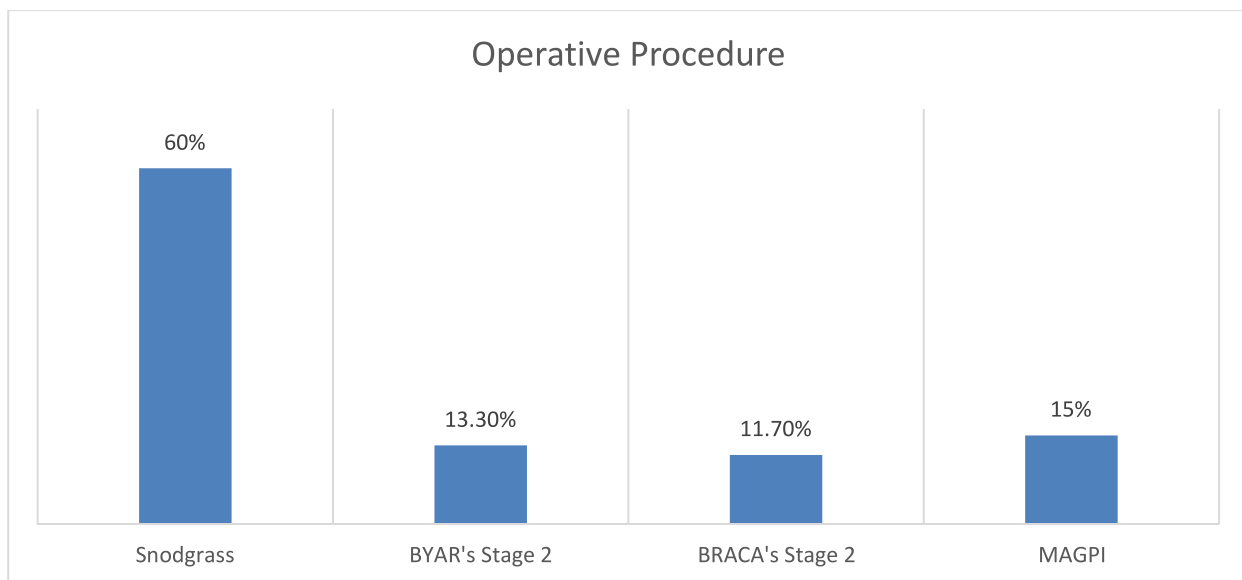


Figure No.1: The percentage wise distribution of the different operative procedures employed, ie, Snodgrass, Byar's stage 2, Braca's stage 2 and MAGPI.

There was a significant improved in the HOPE score following corrective surgery with poor appearance decreasing from 50% to 5% ( $p < 0.05$ ) and excellent appearance increasing from 1.7% to 78.3% ( $p < 0.01$ ).

OUTCOME	PRE-OPERATIVE		POST-OPERATIVE	
	<i>n</i>	%	<i>n</i>	%
EXCELLENT	01	1.7%	47	78.3%
GOOD	03	5%	6	10%
FAIR	17	28.3%	3	5%
POOR	30	50%	3	5%
BAD	09	15%	1	1.7%

Table No.2: Pre-operative and post-operative aesthetic results of the hypospadias surgery according to the HOPE scoring system assessed and represented in terms of frequency and percentage.

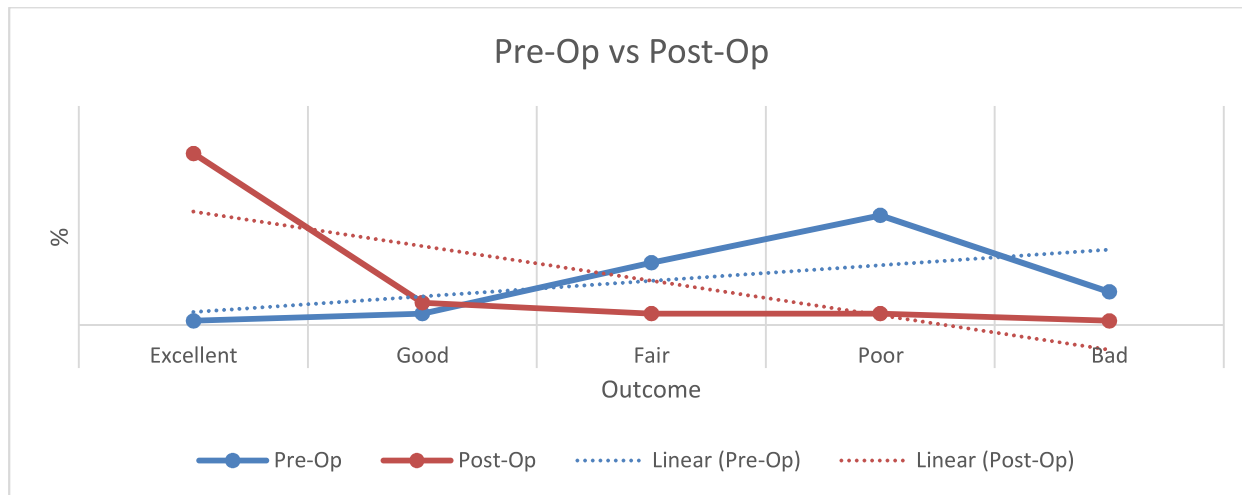


Figure No. 2: Illustration showing the pre-operative and post-operative aesthetic outcome evaluated as “Excellent, good, fair, poor, bad” of the HOPE scoring system.

The most appreciable results in terms of aesthetic appearance were yielded by Snodgrass procedure.

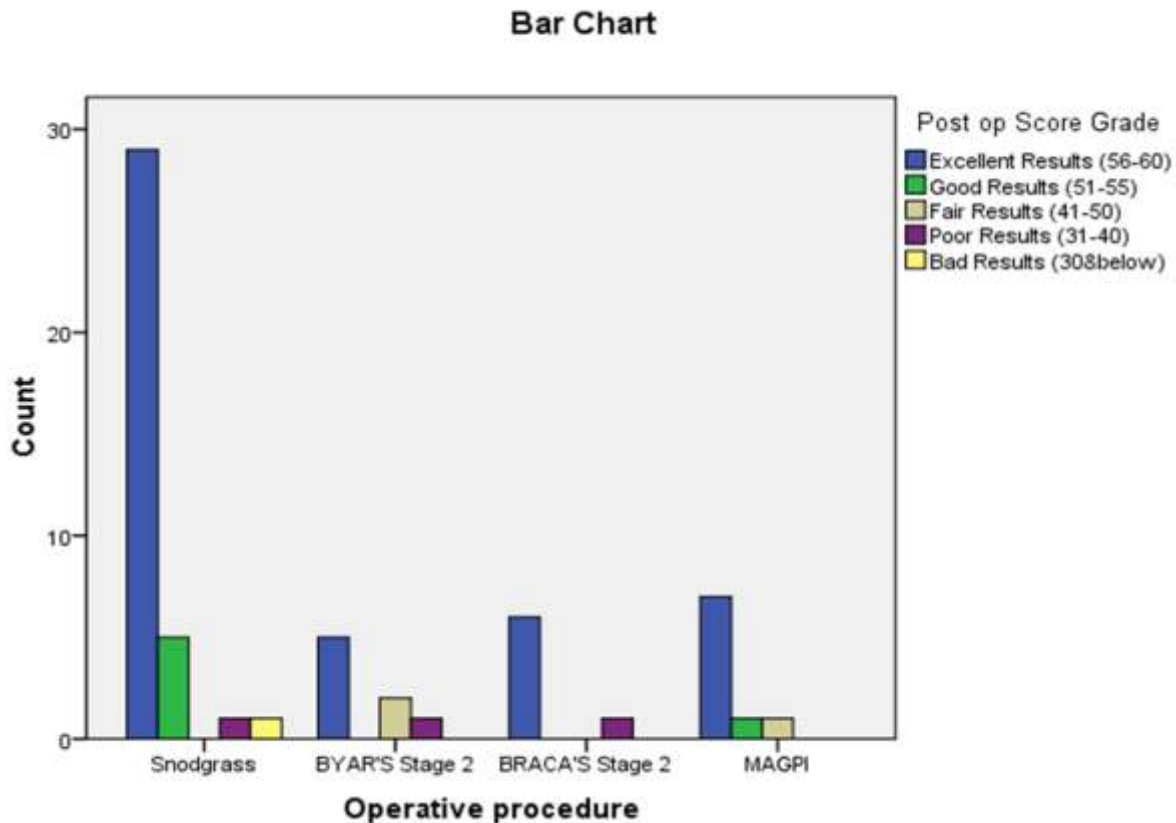


Figure:3: Post-operative scoring grades of HOPE scoring system (Excellent results, good results, fair results, poor results & bad results) yielded by different operative procedures like Snodgrass, Byar's stage 2, Braca's stage 2 & MAGPI. The most appreciable significant results were seen in Snodgrass procedure.

## Discussion

Though hypospadias surgery has its roots in the first century, recent advances in hypospadias surgery have refined the functional and aesthetic outcomes in the last decade.<sup>[11][12]</sup> Insights into the embryological origins of hypospadias and correction methods are in plenty. However, no consensus has been achieved for an objective and reliable comparison of the many techniques.<sup>[13, 14]</sup>

The HOPE scoring system mainly adopts an objective scoring method. The elements of this scoring system involve photography under standard conditions as well as abnormality assessment using reference

pictures, standardization of an acceptable penile appearance and independent panel scoring. It is reproducible and shows good intra and inter observer reliability and shows excellent validity when tested using parametric and nonparametric correlations.<sup>[15]</sup>

Scoring is possible by simple clinical assessment and observation. Therefore, the scoring system demonstrated good concurrence between parents and medical assessors. This relates to an enhanced understanding and subsequent co-operation between the patients and the surgeon.<sup>[16]</sup> In this research, the improved results have been objectively measured and others can

experience the same measurement utility if this tool is utilized in common practice.

## Conclusion

This study helped us to assess the outcome of patients with hypospadias surgery in terms of aesthetics, identification of the variables that effect the cosmetic appearance establishing the surgical procedures that yield best aesthetic results according to the type of hypospadias.

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