To Stage or Not to Stage: Surgeon Intuition and Early Complications in Proximal Hypospadias Repair

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September 27, 2019
Disclosures

• No authors have any disclosures to report
Background

• Proximal hypospadias (PH) has a broad range of pre-op phenotypes
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• The surgeon decides which PH repair technique to pursue
  – Single-stage vs Multi-stage
• Surgeon whim?
• Intuition?
• Experience?
• Science?
• Surgeon whim?
• Intuition?
• Experience?
• Science?

HOW DO (should) WE MAKE THE RIGHT CHOICE??
Aims

• To identify:
  1. Pre-operative characteristics contributory to staging decisions
  2. Early outcomes associated with single- and multi-stage repair
Hypotheses

• More atypical genital features
• Narrower glans and urethral plate widths
• Higher ratio of post- to pre-degloving penile length
• Longer urethroplasty

Surgeons choose multi-stage repair
Hypotheses

- More atypical genital features
- Narrower glans and urethral plate widths
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Surgeons choose multi-stage repair

Patients have higher complication rate + unplanned surgeries *
Methods

- Retrospective cohort study
  - Single-stage vs. Multi-stage
- Single-center
- Primary repair: 07/2011-03/2018
- Inclusion:
  - Included within a prospectively managed database of intra-operative data
  - Proximal hypospadias (either pre- or post-degloving)
- Exclusion:
  - No intra-operatively documented measurements
07/2011-03/2018

Proximal Hypospadias
Patients Identified
N=125

Excluded due to
Incomplete measurements
N=14

Included Patients
N=111 (89%)

Single-Stage
N=50 (45%)

Planned Multi-Stage
N=61 (55%)
Comparisons between cohorts

1. Clinical Characteristics
2. Intra-operative Findings
3. Rates of early post-operative complications and unplanned surgeries after final planned stage

Surgeons’ staging intuition
1. Clinical Characteristics
Multi-stage patients had higher rates of:

![Graph showing pre-degloving meatus location](image)

- Distal: Single-Stage 6%, Multi-Stage 11%
- Midshaft: Single-Stage 11%, Multi-Stage 22%
- Penoscrotal: Single-Stage 38%, Multi-Stage 68%
- Perineoscrotal: Single-Stage 4%, Multi-Stage 39%

*P<0.001
Multi-stage patients had higher rates of:

Penoscrotal Transposition

- Single-Stage: 8%
- Multi-Stage: 51%

*P < 0.001
Multi-stage patients had higher rates of:

![Bar Chart]

- Single-Stage: 16%
- Multi-Stage: 56%

*P* < 0.001
Multi-stage patients had higher rates of:

1+ Undescended Testes

- Single-Stage: 8%
- Multi-Stage: 23%

*P=0.04
Multi-stage patients had higher rates of:

DSD Evaluation

*P<0.001

18% Single-Stage
67% Multi-Stage
2. Intra-Operative Findings
Multi-stage patients had higher rates of:

*P<0.001
Multi-stage patients had higher rates of:

Chordee ≥ 60 degrees

- Single-Stage: 40%
- Multi-Stage: 87%

*P<0.001
# Intra-operative Measurements

<table>
<thead>
<tr>
<th>Glans Measurements</th>
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<td><strong>Median Glans Width (mm)</strong></td>
<td><strong>15</strong> (8-19), [N=49]</td>
<td><strong>13.5</strong> (7-20), [N=60]</td>
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| Penile Length Measurements | |
|-----------------------------| |

| Length of Urethroplasty (mm) | |
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3. Outcomes after final planned stage

- Median follow-up: 18.2 months (range: 0.1-70.8 months)
Single-stage patients have higher rates of complications

*P=0.04
Single-stage patients have higher rates of unplanned surgery

Unplanned Surgeries

Single-stage: 46%  
Multi-stage: 30%  
P=0.08
Conclusions

• Patients selected for multi-stage repair have more atypical genital features

• However, patients selected for multi-stage repair had fewer post-operative complications and unplanned surgeries
Future Directions

• Case-control studies to identify predictive factors of complications

• Lengthened follow-up with standardized documentation to clarify long-term outcomes