Management of Distal Hypospadias at CHOP

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Hypospadiology:  
*Noun. hy–po-spayd’-ee-ah-low-gee*

1. The study of boys with hypospadias and the outcomes we witness.

2. A difficult science\(^1\) that is humbling and energy consuming

CHOP hypospadias results to 2005

- 1111 MAGPI – *follow up 2.3 months* – reoperation rate 1.2% 1992

- 50 Onlays *follow up not given*, reoperation rate 6% 1987

- 100 Island Flap repairs – *follow up not given*, reoperation rate 10% 1981

- 125 combined series Onlay and Tube “*at least 10 year follow up*”. 73/125 (58%) available. 14% fistula for tube repairs 0% for onlay 2004

- 12 Modified Island Tube *follow up not given*, 17% reoperation rate 2005

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1. Duckett J Urol 1992
2. Elder J Urol 1987
4. Patel J Urol 2004
5. Patel BJUI 2005
Hypospadias Advances

• Single Stage Repairs
  – Distal hypospadias, absence of severe penile curvature

• Optical Magnification
  – 4X Loupes, microscope (up to 10X)

• Reliable correction of chordee
  – skin vs corporal disproportion

• Reliable regional blockade

• Better Dressing
  – Keep it simple!
Distal Hypospadias: CHOP results to 2012-2014

- Total number of patients: 403 boys

- Median age at surgery: 7 months

- Urethral stent: 306/403 (76%)

- Anesthesia: GA for all patients
  - Caudal block: 307/403 (76%)
  - Penile block: 96/403 (24%)
## Distal Hypospadias: CHOP results to 2012-2014

<table>
<thead>
<tr>
<th>Type of repair</th>
<th>Number of patients (n=403)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIP</td>
<td>114</td>
</tr>
<tr>
<td>MAGPI</td>
<td>111</td>
</tr>
<tr>
<td>Thiersch-Duplay</td>
<td>75</td>
</tr>
<tr>
<td>Island onlay flap</td>
<td>51</td>
</tr>
<tr>
<td>Urethral mobilization/advancement</td>
<td>24</td>
</tr>
<tr>
<td>Pyramid</td>
<td>19</td>
</tr>
<tr>
<td>Mathieu</td>
<td>9</td>
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Distal Hypospadias: CHOP results to 2012-2014

- Complications: 39/403 (9.7%)

- F/U:
  - Mean: 13 months
  - Median: 4 months

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<th>Complication</th>
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<td>Urethrocutaneous fistula</td>
<td>21 (54)</td>
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<td>Glans dehiscence</td>
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<td>TOTAL</td>
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Distal Hypospadias: CHOP results to 2012-2014

- Complications: 39/403 (9.7%)
- F/U:
  - Mean: 13 months
  - Median: 4 months
- MAGPI procedure: often little to no follow up
- Follow up: 35 vs 3 months in patients WITH a complication vs no complication
  - Duration to complication discovery: 53 (1-120) months

### Complications

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### Duration of Follow up

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<th>Duration of Follow up (median, mean)</th>
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<tr>
<td>No (364 boys)</td>
<td>3, 10.9 months</td>
</tr>
<tr>
<td>Yes (39 boys)</td>
<td><strong>35, 34 months</strong></td>
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Distal Hypospadias, CHOP 2016-current

• Shift away from TIP procedure
  – Concerns for meatal stenosis, long term complication (penile curvature)
  – Dorsal inlay graft technique (inner preputial skin, penile shaft skin) in lieu of the TIP procedure

• Selective utilization of pre-operative testosterone for glans width <15mm
  – 2 doses given 5 and 2 weeks prior to repair

• Standardized anatomic assessment for each patient to determine risk factors for complication development

• Standardization of follow up algorithm until beyond toilet-training → puberty
Common Hypospadias Techniques

• Urethromeatoplasty
• Modified MAGPI
• Glans Approximation Procedure
• MIV (Modified Inverted V)
• Thiersch – Duplay
• Island Flap Onlay

• Snodgrass modification of Thiersch – Duplay
Common Hypospadias Techniques

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- Location of meatus
- Degree of penile curvature
- Glanular configuration
- Quality of urethral plate, shaft skin
Case Selection: Determining factors

- Location of meatus
- Degree of penile curvature
- Glanular configuration
- Quality of urethral plate, shaft skin
Conclusions

• Variety of techniques used based on patient’s specific anatomy

• Complication rate of 9.7%

• Objective measurements to improve surgical technique

• Extended follow up to capture all complications
THANK YOU