Urethral Stricture Outcomes After AUS Cuff Erosion: Results from a Multicenter Retrospective Analysis

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Artificial Urinary Sphincter

• AMS 800® debuted in 1983
  • Multiple improvements in the interim

• Narrow-backed cuff, infection-retardant coatings, tubing changes, and smaller cuff sizes

• Complication rates have subsequently declined significantly

AUS Cuff Erosion

- Occurs in 2-15% of AUS patients

- Devastating complication
  - Device removal
  - Urinary diversion
  - Recurrent incontinence
  - Delayed reimplantation
  - Stricture formation

Raj GV et al. J Urol 2006..
Stricture After Erosion

• Regular monitoring needed

• Multiple repairs probable

• Increased fibrosis occurrence

• No established rate in literature

Raj GV et al. J Urol 2006..
Objectives

• Multi-institutional experience regarding urethral stricture occurrence following AUS cuff erosion
Methods

• Six sites each with IRB approval

• 80 patients from 1991-2014

• Idiopathic or iatrogenic
Methods

• Three repair types
  • Catheter only
  • Urethrorrhaphy
  • Anastomotic urethroplasty

• Consistent across institutions

• Only minor technical deviations
Methods

• 78 of 80 patients had stricture info

• 85 separate data points provided

• Extensive statistical analysis
Results

• Mean age 73.9 (range 20 to 92)

• 56 idiopathic, 24 iatrogenic

• 23% diabetics at AUS implantation

• 76% post-RRP (54), 10% post-RARP (7)

• 36% salvage XRT (29)
Results

• 32% had stricture after cuff erosion

• Stricture rate not influenced by repair type

<table>
<thead>
<tr>
<th>Repair type</th>
<th>Stricture</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Catheter only</td>
<td>15 (71.43%)</td>
<td>6 (28.57%)</td>
<td>21 (100%)</td>
</tr>
<tr>
<td>Urethrorrhaphy</td>
<td>26 (60.47%)</td>
<td>17 (39.53%)</td>
<td>43 (100%)</td>
</tr>
<tr>
<td>Urethroplasty</td>
<td>12 (85.71%)</td>
<td>2 (14.29%)</td>
<td>14 (100%)</td>
</tr>
<tr>
<td>Total</td>
<td>53 (67.95%)</td>
<td>25 (32.05%)</td>
<td>78 (100%)</td>
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</table>

Fisher's exact test ($p=0.207$)
Results

- Complete vs. partial erosion
  - Complete erosion more likely to stricture
  - Also complete erosion faster to stricture

<table>
<thead>
<tr>
<th>Erosion Amount</th>
<th>Stricture</th>
<th>Total (N=72)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Complete</td>
<td>5 (41.7%)</td>
<td>7 (58.3%)</td>
</tr>
<tr>
<td>Partial</td>
<td>45 (75.0%)</td>
<td>15 (25.0%)</td>
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</table>

Fisher's exact test ($p=0.037$)
Results

- Percent erosion associated with increased stricture rate

- Stricture-free survival shorter for increased percent erosion

<table>
<thead>
<tr>
<th>% Erosion</th>
<th>No</th>
<th>Yes</th>
<th>Total (N=60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-25%</td>
<td>17 (81.0%)</td>
<td>4 (19.0%)</td>
<td>21 (100%)</td>
</tr>
<tr>
<td>26-75%</td>
<td>14 (70.0%)</td>
<td>6 (30.0%)</td>
<td>20 (100%)</td>
</tr>
<tr>
<td>&gt;75%</td>
<td>10 (52.6%)</td>
<td>9 (47.4%)</td>
<td>19 (100%)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>41 (68.33%)</td>
<td>19 (31.7%)</td>
<td>60 (100%)</td>
</tr>
</tbody>
</table>

Fisher's exact test ($p=0.174$), Score test for trend ($p=0.057$)
Study Limitations

• Retrospective review

• Small population
  • Vast number of AUS cases

• High-volume surgeons
Conclusions

- Strictures occurred after 1/3 of AUS cuff erosions

- Repair type did not influence stricture rate

- Strictures more likely to occur after complete cuff erosion
References

• Leo ME, Barrett DM. Success of the narrow-backed cuff design of the AMS800 artificial urinary sphincter: analysis of 144 patients. J Urol 1993; 150: 1412.
• Raj GV, Peterson AC and Webster GD: Outcomes following erosions of the artificial urinary sphincter. J Urol 2006; 175: 2186.