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Cairo – Egypt
Anastomotic urethroplasty - principles and practice
Anastomotic urethroplasty

- End-to-end anastomosis
- Augmented roof-strip anastomosis

Bulbar urethra
End-to-end anastomosis

Length
Bulbar urethral stricture of 1 cm or less

Penile chordee due to excessive urethral shortening

Guralnick and Webster, J Urol 2001

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Urethral reconstructability is proportional to the length and elasticity of the distal urethra

Morey et al., J Urol 2006

<table>
<thead>
<tr>
<th>authors</th>
<th>patients</th>
<th>length</th>
<th>success rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Santucci et al. 2002</td>
<td>168</td>
<td>1 to 4.5 cm</td>
<td>95%</td>
</tr>
<tr>
<td>Morey et al. 2006</td>
<td>22</td>
<td>2.6 to 5 cm</td>
<td>91%</td>
</tr>
<tr>
<td>Eltahawy et al. 2005</td>
<td>213</td>
<td>1 to 4.5 cm</td>
<td>98%</td>
</tr>
</tbody>
</table>
# Success rate according to stricture length in 165 patients with bulbar urethral strictures

<table>
<thead>
<tr>
<th>patients</th>
<th>%</th>
<th>length</th>
<th>success rate</th>
<th>failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>98</td>
<td>59.4%</td>
<td>1-2 cm</td>
<td>93.8%</td>
<td>6.2%</td>
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<tr>
<td>63</td>
<td>38.2%</td>
<td>2-3 cm</td>
<td>85.7%</td>
<td>14.3%</td>
</tr>
<tr>
<td>3</td>
<td>1.8%</td>
<td>3-4 cm</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0.6%</td>
<td>4-5 cm</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Barbagli 2006, unpublished data

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End-to-end anastomosis

Surgical technique: step by step
Preparation of the patient

Allen stirrups with sequential inflatable compression sleeves

Simple lithotomy position

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Methylene blue is injected into the urethra.
The distal extent of the stenosis is identified by inserting a 16-French catheter with a soft round tip.
Midline perineal incision
The urethra is freed from the bulbocavernous muscle.
The urethra is dissected from the corpora cavernosa.
The distal extent of the stenosis is identified and outlined.
The urethra is transected at the stricture level.
The stricture is removed
The urethra is spatuled for 1 cm on both ends

A total of 10 interrupted 4-zero polyglactin sutures are put in place before tying
The anastomosis is completed on the roof
A Foley 16-French grooved silicone catheter is inserted and the urethra is closed
The anastomosis is completed
Two ml of fibrin glue are injected over the urethra to prevent urinary leakage.
Post-operative care

- Patient is discharged from the hospital three days after surgery
- Patient is maintained on oral antibiotics until the catheter is removed
- Two weeks following surgery, the catheter is removed and voiding cysto-urethrography is obtained
Post-operative complications

- Urethrorrhagia due to nocturnal erection
- Temporary numbness or dysesthesia to the perineum
- Scrotal swelling
- Urethral fistula (4.8%)
Urethro-perineal fistula

pre

6 months later

post

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No free-tension anastomosis
## end–to–end anastomosis

<table>
<thead>
<tr>
<th>authors</th>
<th>patients</th>
<th>mean follow-up</th>
<th>success rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jakse et al. 1986</td>
<td>105</td>
<td>45</td>
<td>93%</td>
</tr>
<tr>
<td>Martinez-Pinero et al. 1997</td>
<td>150</td>
<td>44</td>
<td>84%</td>
</tr>
<tr>
<td>Santucci et al. 2002</td>
<td>168</td>
<td>70</td>
<td>95%</td>
</tr>
<tr>
<td>Eltahawy et al. 2005</td>
<td>213</td>
<td>40</td>
<td>98%</td>
</tr>
<tr>
<td>Barbagli 2006 (unpublished data)</td>
<td>165</td>
<td>64</td>
<td>91%</td>
</tr>
</tbody>
</table>

Center for Reconstructive Urethral Surgery
Surgical options in 15 patients following failed end-to-end anastomosis

Patients 15
- urethrotomy 9 (60%)
- two-stage repair 3 (20%)
- end-to-end anastomosis 2 (13%)
- buccal mucosal graft urethroplasty 1 (7%)

Barbagli 2006, unpublished data
Augmented roof-strip anastomosis

Surgical technique: step by step
Bulbar urethral stricture of more than 3 cm in length and a stricture that contains a particularly narrow or dense area of 1-2 cm in length
Two surgical teams work simultaneously
Methylene blue is injected into the urethra
The distal extent of the stenosis is identified by inserting a 16-French catheter with a soft round tip.
Midline perineal incision
The distal extent of the stenosis is identified and outlined.
The urethra is dissected from the corpora cavernosa
The urethra is transected at the stricture level
The distal and proximal urethral ends are mobilized from the corpora cavernosa.
The distal and proximal urethral ends are fully spatulated along the dorsal surface.
Two ml of fibrin glue are injected over the urethra
The buccal mucosal graft is applied over the fibrin glue.
The distal and proximal urethral edges are sutured to the apices of the graft
The distal urethra is pulled down and the proximal urethra is pulled up to cover the graft.
The distal and proximal urethral edges are sutured together along the midline as an end-to-end anastomosis.
Two ml of fibrin glue are injected over the urethra to prevent urinary leakage.
Post-operative care

- Patient is discharged from the hospital three days after surgery

- Patient is maintained on oral antibiotics until the catheter is removed

- Two weeks following surgery, the catheter is removed and voiding cysto-urethrography is obtained
Post-operative complications

- Urethrorrhagia due to nocturnal erections
- Temporary numbness or dysesthesia to the perineum
- Scrotal swelling
- Urethral fistula
### Augmented roof-strip anastomosis

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<th>success rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guralnick et al. 2001</td>
<td>29</td>
<td>28</td>
<td>93%</td>
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<tr>
<td>Peterson et al. 2003</td>
<td>53</td>
<td>58.8</td>
<td>86.8%</td>
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<tr>
<td>Barbagli et al. 2006</td>
<td>12</td>
<td>40</td>
<td>84%</td>
</tr>
<tr>
<td>Abouassaly et al. 2006</td>
<td>69</td>
<td>34</td>
<td>91%</td>
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</tbody>
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Madonna del Parto - Piero della Francesca
Monterchi - Arezzo