Iatrogenic voiding dysfunction in prostate cancer

Medical and surgical therapy

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Iatrogenic voiding dysfunction in prostate cancer

- **Iatrogenic**
  - Radical Prostatectomy
  - EBRT
  - Brachytherapy
  - Focal therapies
  - Combination

- **Anatomic lesion**
- **Transient neuropraxis**
- **Terminal Neurological Lesions**
  - Incontinence
  - **great number of**
    - Low bladder compliance
    - Hyperactive detrusor
    - Low sensitivity

- **Voiding dysfunction**
  - OAB / radiation cystitis
  - Bladder neck / urethral stenosis
  - SUI
OAB/radiation cystitis treatment

• First-line treatment
  • Behavioural therapies
  • Lifestyle changes
  • Patient education

• Second-line treatment
  • Pharmacological

• Third-line treatment
  • Onabotulinumtoxin A, PTNS, SNM, surgery
  • Treat hematuria
Rational for treatment in OAB/radiation cystitis

• Treat bothersome symptoms
• Improve QOL

• Antimuscarinics
• β3- adrenoceptor agonist - Mirabegron
• GAG’s – radiation cystitis

• Onabotulinumtoxin A, PTNS, SNM, surgery – refractory OAB
Bladder neck / urethral stenosis

• RP-anastomosis -8% -Surgeon-dependent
  • haematoma and foreign materials such as clips or poor technical mucosal apposition with resultant urinoma

  surgical technique is the strongest predictor
  Sandhu et al, J Urol 2011

• RT-bulbo-membranous urethra -5% (time and type) -Technical-dependent
  • tissue and vascular injury (endarteritis)

  significantly increased risk of stress incontinence (46% vs. 12%)
  Park et al, Urology 2001
Bladder neck / urethral stenosis treatment

- Treatment of any stenosis should be individualised to the patient
- **Endoscopic** - dilatation or visual urethrotomy (cold knife, monopolar, bipolar or lasers)
- Recurrence rate of 30 to 50% (++; RT)
  - Urethral stents – is there a place for them?
- Bladder neck
  - **Bladder neck reconstruction + SUI surgery**
    - two-stage fashion
    - tertiary centre with reconstructive surgical experience
    - abdominal, abdominoperineal and perineal approaches
    - high success rates (70–100%)
    - worst in the salvage setting (RP + EBRT)
- Urethral stenosis
  - **anastomotic or substitution urethroplasty +/- SUI surgery**
    - localization, stricture length and sphincter involvement.
    - flap or BMG
    - high success rates (70–90%)
    - SUI 5-35%
Since improvements in continence are generally realized by 12 months, conservative management should be utilized in the first year after surgery.

- Artificial Urinary Sphincter- AUS
- AUS variables
- Slings
  - non adjustable
    - TO- Advance - repositioning
    - Compressive-Invance
    - Quadratic- Virtue –repositioning + compressive
  - adjustable
    - Argus
    - Remeex
    - ATOMS
- Ballons –Pro-ACT
- Bulking-agents
**REVIEW**

Incontinence after radical prostatectomy: Anything new in its management?

Romain Caramel, MD; Jacques Carclos, MD, FRCSC

Treatment of ERAS. InfiniGen Hospital, McGill University, Montreal, QC.

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**Systematic Review of Surgical Treatment of Post Radical Prostatectomy Stress Urinary Incontinence**

Simone Crivellaro, MD; Alessandro Morlacco, MD; Giovanni Bode, MD; Enrico Finazzi Agro, MD; Christian Gozzi, MD; Donatella Pistolesi, MD; Giulio Del Popolo, MD; and Vincenzo Ficarra, MD

Neurology and Urodynamics

DOI 10.1002/nau

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**Review Article**

The artificial urinary sphincter and male sling for postprostatectomy incontinence: Which patient should get which procedure?

Craig Y. Comiter, MD; Amy D. Dobberfuhl

Department of Urology, University of California, Irvine, Irvine, CA, USA

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**Review Article**

Contemporary surgical devices for male stress urinary incontinence: a review of technological advances in current continence surgery

Eric Chung, MD

Transl Androl Urol 2017;6(Suppl 2):S112-S121
Main topics

- There are no prospective RCTs to compare different surgical procedures
- There is no published guideline on when surgery should be performed, and what is the best surgical option
- There are no standardized protocols, outcomes measures, and definitions of UI severity and success of surgical procedure.
- Most experts agree
  - mild to moderate SUI - male sling (MS)
  - severe SUI - artificial urinary sphincter (AUS)
## Global results

### Table 1. Results of postprostatectomy incontinence surgical procedures

<table>
<thead>
<tr>
<th>Surgery</th>
<th>Success (cure/improved)</th>
<th>Most common complications (typical range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bone anchored male sling</td>
<td>65%–80%</td>
<td>Infection/erosion 2%–3%</td>
</tr>
<tr>
<td><strong>Invance</strong></td>
<td></td>
<td>Urinary retention 1%–2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pelvic pain 16%–19%</td>
</tr>
<tr>
<td>Retroluminal sling</td>
<td>63%–80%</td>
<td>Infection/erosion &lt;1%</td>
</tr>
<tr>
<td><strong>Advance</strong></td>
<td></td>
<td>Urinary retention 3%–23%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pelvic pain 0%–10%</td>
</tr>
<tr>
<td>Quadratic sling with fixation</td>
<td>70%–79%</td>
<td>Infection/erosion 0%</td>
</tr>
<tr>
<td><strong>Virtue</strong></td>
<td></td>
<td>Urinary retention 0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pelvic pain 12%–19%</td>
</tr>
<tr>
<td>Artificial urinary sphincter</td>
<td>&gt;80%</td>
<td>Infection/erosion 5%–8%</td>
</tr>
<tr>
<td><strong>AMS 800</strong></td>
<td></td>
<td>Urinary retention 0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mechanical failure 6%–23%</td>
</tr>
</tbody>
</table>
AMS 800

- AMS 800 artificial urinary sphincter (AUS) remains the gold standard treatment for persistent moderate and severe SUI.
- Highly durable, effective (up to 90%) and safe surgical option in male SUI with high patient satisfaction rate
- Complication rate is the highest for AUS but this maybe due to the longest follow up
- Reoperation rate for AUS is around a third of the cases,
  - 50% caused by mechanical complications
  - 50% by non-mechanical complications
AUS - recurrence

Double Cuff

Transcorporal Cuff

Fig. 3 Diagram illustrating transcorporal cuff placement.
Male sling

• Mild to moderate degree of SUI with adequate residual sphincter function and good detrusor contractility

• The **adjustable** MS has a **theoretical advantage** over non-adjustable MS
  • Can be revised easily to provide further urethral compression
  • Useful in the event of persistent and/or recurrent urinary incontinence without the need for another MS or salvage AUS surgery.

• **BUT**
  • the non adjustable and adjustable slings appear to be **equally effective**,  
  • **adjustable** slings have a **higher explantation** rate
# How to choose

Indications and contraindications for the surgical management of postprostatectomy incontinence

<table>
<thead>
<tr>
<th>Surgery</th>
<th>Indication</th>
<th>Contraindication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retroluminal sling</td>
<td>SUI</td>
<td>History of radiation</td>
</tr>
<tr>
<td></td>
<td>Mild-moderate leakage</td>
<td>Poor residual sphincter function</td>
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<tr>
<td></td>
<td></td>
<td>Prior AUS</td>
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<tr>
<td>Quadratic sling with fixation</td>
<td>SUI</td>
<td>Detrusor hypocontractility</td>
</tr>
<tr>
<td></td>
<td>Moderate-severe leakage</td>
<td>Prior AUS</td>
</tr>
<tr>
<td></td>
<td>[OK in radiated patient if &gt;6 months prior]</td>
<td></td>
</tr>
<tr>
<td>Artificial urinary sphincter</td>
<td>SUI</td>
<td>None</td>
</tr>
<tr>
<td></td>
<td>Any degree of leakage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[OK in radiated patient]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[OK after prior AUS]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[OK after sling]</td>
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</tbody>
</table>

SS urinary incontinence; AUS, artificial urinary sphincter.
The future

- Stem cell therapy consist of intrasphincteric and submucosal injections of stem cell
- Most preclinical trials have used muscle-derived stem cells and adipose-derived stem cells.
- The evidence shows that these therapies are effective and safe
- Doses of stem cells, numbers of doses, and methods of administration must be further assessed in double-blind, placebo-controlled trials
- Stem cell therapy are very attractive but are not currently commercially available or have proven long term outcome.
Acellular Urethra Bioscaffold: Decellularization of Whole Urethras for Tissue Engineering Applications

Irina N. Simões¹,²,³, Paulo Vala⁴, Shay Soker², Anthony Atala², Daniel Keller³, Rute Noiva⁶, Sandra Carvalho⁵, Conceição Peleteiro⁵, Joaquim M. S. Cabral⁵, Daniel Eberli⁵, Cláudia L. da Silva¹ & Pedro M. Baptista⁴,⁶,⁷

Patients with stress urinary incontinence mainly suffer from malfunction of the urethra closure mechanism. We established the decellularization of porcine urethras to produce acellular urethra bioscaffolds for future tissue engineering applications, using bioscaffolds or bioscaffold-derived...
Best iatrogenic voiding dysfunction treatment

• Stay on the BSC in prostate cancer
• Avoid possible complications
• Choose for treatment the solution that best match
  • Indication
  • Own experience
Muito obrigado!

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