Urinary Incontinence Following Prostate Cancer Treatment

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Overview

- What is stress urinary incontinence?
- Anatomy of the bladder and prostate
- Physiology of urinary continence
- Complications of prostate cancer treatments
- What happens to the urinary sphincter after prostate cancer surgery?
- Incidence of stress urinary incontinence & risk factors
- Testing of patients with urinary incontinence
- Treatment
  - Injections, male sling surgery, artificial urinary sphincter
Learning about male stress urinary incontinence
Male stress urinary incontinence (SUI)

What is it?
• Urinary leakage without control when a person cannot stop urine from flowing out of the body when moving (laughing, lifting, bending, etc.)

How common is it?
• Worldwide, approximately 500,000 men suffer from SUI

• Nearly 1 in 20 men over 20 years of age have moderate to severe incontinence of any kind.
Because the prostate is close to bladder, bowel, and vital nerves for sexual function, prostate cancer and its treatments can disrupt normal urinary, bowel, and sexual functioning.
Male Urethral Sphincter
Damage/dysfunction of EUS: incontinence
Pelvic floor muscles

- Ischiocavernosus muscle
- Bulbocavernosus muscle
- Pelvic floor muscles
- Transverse perineal muscle
Urinary process

- Bladder stores urine
- Urine exits via the urethra
- Sphincter muscle surrounds the urethra
- Muscle contraction keeps urine in the bladder
- When the sphincter muscles relax, urine is able to exit the body
SUI strongly correlates with prostate cancer surgery

• Up to 50% of men report leakage immediately following surgery for prostate cancer\textsuperscript{63}
• About 9–16% of men have incontinence one year after treatment\textsuperscript{64}

Can also be a result of:\textsuperscript{4,65}

• Neurologic disorders
• Enlarged prostate surgery
• Radiation
• Pelvic trauma
Prostate cancer treatments

- Surgery
  - RALP/open/retropubic/perineal
- Radiation
  - External beam
  - Brachytherapy
  - Proton beam
  - Cyberknife
- Cryotherapy
- HIFU
Male SUI and prostate cancer treatment
SUI and prostate cancer treatment connection

• Approximately 70,000 radical prostatectomies are performed each year\(^4\)

• Approximately 9–16% of men have persistent post-prostatectomy incontinence 1 year after treatment\(^6^4\)
What happens after radical surgery for prostate cancer?
Mechanisms of postprostatectomy stress urinary incontinence (PPSUI)

Sphincter weakness

- Direct sphincter fibers’ damage
- Sphincter muscles’ innervation damage


Urethra surgically re-attached to the bladder
Before surgery

These two sphincters are gone.

Distal intrinsic striated sphincter
Distal extrinsic striated sphincter

After surgery

Internal proximal smooth muscle sphincter
Internal urethral sphincter
External urethral sphincter

This is also affected by surgery.
Post prostatectomy urinary incontinence (PPI)

- Overall prevalence continues to rise due to an increasing numbers
- Profound impact on the QOL

- Following robotic prostatectomy
  - 4–31%
  - 2 years after surgery: <10%

- Following open surgery
  - 7–40%
SUI after prostate cancer treatment: work up

- Medical interview (history) and physical exam; UA; bladder ‘scan’
- Questionnaires, pad usage (number, type, pad wt.)
- **Special tests**
  - Uroflowmetry
  - Urodynamic study
    - Special catheter
    - Water runs through bladder
    - Pressure measured while bladder fills and while urinating; flow measured while urinating
    - Takes about 30-40 minutes
PPI: Evaluation

- Cystoscopy
Can we do something before prostatectomy?
pelvic floor muscle physical therapy

- Effective in reducing the risk and severity of prolonged urinary incontinence after prostatectomy
- Early recovery of continence (3 months)
SUI after CaP treatment: how to treat?

How bothersome or severe is the incontinence???

• Urgency incontinence
  – Medications (to relax bladder)
    • Potential side effects
  – Radiation therapy can cause urgency incontinence

• Overflow incontinence
  – Surgery (if there is blockage to urinary flow @ bladder neck or urethra)

Stress incontinence
  – Simple (conservative) treatments
    • pads, behavioral changes (fluid restriction, dietary changes, smoking cessation, timed voiding, bladder training, pelvic floor muscle training)
  – Surgery (injections, slings, artificial urinary sphincter)
Short-term treatment options

Behavioral modifications
• Reduced fluid intake
• Planned restroom breaks

Intervention
• Pelvic floor physical therapy
• Kegel exercises
• Biofeedback

Coping
• Pads
• Diapers
• Catheters
• Penile clamps
Common bladder irritants to be avoided

<table>
<thead>
<tr>
<th>Bladder irritants</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Coffee</td>
<td>Sugar</td>
</tr>
<tr>
<td>Tea</td>
<td>Artificial sweetener</td>
</tr>
<tr>
<td>Honey</td>
<td>Chocolate</td>
</tr>
<tr>
<td>All alcoholic beverages</td>
<td>Tomatoes</td>
</tr>
<tr>
<td>Carbonated beverages</td>
<td>Tobacco</td>
</tr>
<tr>
<td>Caffeinated sodas</td>
<td>Citrus fruits and juices</td>
</tr>
<tr>
<td>Corn syrup</td>
<td>Spicy foods</td>
</tr>
</tbody>
</table>
Pelvic floor muscle physical therapy
Pelvic floor muscle exercises

**Quick contractions**

Tighten pelvic floor and Hold for 5 seconds. Release contraction by half and hold for 5 seconds. Relax.

Repeat 5-7 times. Do 1 time a day.
*Begin 2-3 weeks after surgery*

**Long contractions**

Slowly squeeze pelvic floor for 10 seconds. Rest for 10 seconds. Progress to squeezing up to 15 seconds.

Repeat 5-7 times.
Do 1 times a day.
*Begin 3-4 weeks after surgery*
Penile clamps

Squeezer™

ActiCuf™ compression pouch

Cunningham clamp

C3 Penis Clamp

J Clamp
Coping solutions can be expensive, a nuisance and become problematic.

- Absorbent products can be costly, bulky, likely to leak and smell
- Catheters may be uncomfortable, and long-term use may cause urinary tract infections
- A penile clamp can control leakage but has to be moved often and can be painful and uncomfortable\(^{67}\)

### 5-YEAR COST OF PADS AND DIAPERS\(^ {68}\)

\[
\begin{align*}
\text{5 pads per day} & \times \text{5 years} = \text{$7,000} \\
\end{align*}
\]
Bulking agent injection
Long-term solutions: Male Sling System

• Undetectable to others
• High success achieved in patients with mild to moderate SUI\(^69\)
• Most patients are continent immediately following the procedure\(^70\)
• Operates on its own to restore continence
• 92% would undergo the procedure again\(^71\)
Long-term solutions: Male Sling System

Acts as a “hammock” to reposition and support the urethra, restoring bladder control\textsuperscript{69}

*Patient satisfaction rates reflect research results with use of the Male Sling

\textbullet\ 94\% would recommend a sling procedure to a friend.\textsuperscript{72}
**AdVance Male Urethral Sling**

- Supports, compresses or repositions urethra
- Outpatient surgery
- No moving parts
- 60-80% success rate
- Not effective for severe leakage
- Not very effective after radiation therapy
Gold standard treatment\textsuperscript{73}

Quality of life
- Provides proven, discreet bladder control\textsuperscript{73}
- Undetectable to others
- Mimics a healthy sphincter\textsuperscript{74}
- Most men with weakened sphincter muscle achieve continence\textsuperscript{75}
Artificial Urinary Sphincter (AUS)
Artificial urinary sphincter

- ‘Gold standard’ (since 1972)
- Urinary control achieved in 75-95%
- Long track record of excellent results
- Simple surgery; some require revision
- 3 parts
  - Pump, cuff, balloon reservoir
Artificial Urinary Sphincter – How does it work?

- Cuff around the urethra
- Inflated cuff closes urethra
- Patient squeezes pump to void
- Cuff automatically re-inflates
Artificial urinary sphincter

• Excellent control of urine leakage in severe cases

• Most effective treatment for SUI

• High patient satisfaction
Artificial Urinary Sphincter – Patient satisfaction

94.6%\textsuperscript{77} of patients\textsuperscript{*} are satisfied with their device

\textasciitilde90\%\textsuperscript{78} of patients are satisfied with their device long-term\textsuperscript{**}

\textasciitilde90\%\textsuperscript{79} of patients would have the surgery again

94\%\textsuperscript{80} of patients would recommend the device to a friend or family member

\textsuperscript{*}Non-urethroplasty patients
\textsuperscript{**}10yrs
What to expect for the procedure

- Outpatient procedure
- Small incisions, 2-4 cm
- A few days to return to non-strenuous activities
- Patient has to wait 4 to 6 weeks before using the implant to ensure full healing
As a surgical procedure, there are possible risks.

There are risks involved with any surgery. Not all patients are candidates for a male sling or AUS.

**Male Sling**
Possible side effects include, but are not limited to:

- Device failure
- Urinary retention
- Post-operative pain
- Irritation at the wound site
- Foreign body response

**Artificial Urinary Sphincter**
Possible side effects include, but are not limited to:

- Device malfunction or failure, which may require revision surgery
- Erosion of the urethra in the cuff area
- Urinary retention
- Infection, pain and soreness
SUI: Timing of surgery

- Most improvement in urine control in the first several months after surgery
- Pelvic muscle exercises may speed this up
- Mild improvement continues over 6 months to one year
- Very slight improvement may occur from 1-2 years
Cost and coverage

- Incontinence treatment is commonly covered by insurance
Stress urinary leakage: Take Home Messages

• Known significant side effect of prostate cancer treatment
• Different types and causes for urine leakage after prostate cancer treatment
• Variety of treatment options
• Short-term options can be expensive and uncomfortable
• Sling or AUS could offer a long-term solution
Living with urinary incontinence
Take Home Messages

• Urine leakage has negative impact on
  – Overall quality of life
  – Sexual satisfaction
  – Daily activities and social life
  – Return to work

• Successful treatments DO EXIST with high success rates
Living with urinary incontinence
Take Home Messages

• **Moderate leak:** male urethral sling (60-80% success)

• **Severe leak:** artificial urinary sphincter (AUS)
  – up to 95% success rate

• Seek help if it is needed!
Summary: Benefits of male sling & AUS

• The ability to achieve continence\textsuperscript{76}
• Urinate when desired\textsuperscript{76}
• Placed entirely inside the body, it is undetectable to others
• High patient satisfaction\textsuperscript{*73}
• Can help restore normalcy and renew confidence
INTRODUCTION AND EPIDEMIOLOGY

Normal lower urinary tract function is critical in maintaining urinary continence at low bladder pressure. Up to 16 to 20 million Americans have some type of urinary incontinence with potential major psychosocial consequences. Urinary incontinence is prevalent in men, although the overall numbers are lower than in women. The Epidemiology of Lower Urinary Tract Symptoms (EpiLUTS) study examined rates of urinary incontinence in both men and women in the United States, United Kingdom, and...
THANK YOU