Management of Urinary Complications after Prostatectomy

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Introduction/Learning Objectives

• Understand complex etiology of urinary incontinence after prostatectomy
• Identify issues in management of incontinence after prostatectomy.
• Develop an algorithm for management of recalcitrant anastomotic strictures
• Identify treatment options for urinary fistula including reconstructive procedures and indications for urinary diversion

Course Outline

• Etiology and Management of Urinary Incontinence
• Complex Urinary Incontinence Case Discussion
• Diagnosis and Management of Urethral Strictures after Prostatectomy
• Diagnosis and Management of Fistula after Prostatectomy
• Complex Stricture/Fistula Case

Incontinence: Natural History

• Most urinary incontinence resolves after prostatectomy
  — Can take up to 2 years
• Approximately 90% of men gain full continence one year after RP
• However, those that have significant incontinence 3 months or later unlikely to be completely dry

Urinary Incontinence after RP – Risk Factors

• Age
• BMI
• Medical Co-morbidities
• Anatomic Factors (eg membranous urethral length)
• Previous Treatment (eg RT)
• Surgeon Experience and Technique
• Intra-operative Maneuvers
• Post-operative Maneuvers (eg Pelvic Floor Exercises)

Urinary Incontinence: Conservative Measures

• Pelvic Floor Muscle Exercises
  — Hasten continence recovery in the post-op period
  — Improve continence rates in men with persistent incontinence after RP
• Biofeedback/Pelvic Muscle Stimulation
  — May be used as an adjunct
  — No significant improvement of pelvic floor muscle exercises alone
• Pharmacotherapy
  — Duloxetine
Differential Diagnosis of Urinary Incontinence after Prostatectomy

- Stress urinary incontinence
  - Surgery mainstay
- Urgency urinary incontinence
  - Medical therapy first line
- Overflow incontinence
  - Often associated with anastomotic stricture
- UTI
- Bladder cancer

Investigations

- U/A
- PVR
- Cystoscopy
- Urodynamics

Surgical Management of Urinary Incontinence

- Urethral bulking agents
- Male slings
- Artificial urinary sphincter

Recurrent urinary incontinence after previous anti-incontinence surgery

- Post-male sling failure
  - Artificial urinary sphincter is mainstay
- Post-artificial urinary sphincter
  - Algorithmic approach
  - Likely re-operative artificial urinary sphincter
  - Trans-corporal may play a role
- Urinary diversion
  - In VERY select cases

Definition

- Terms
  - Vesicourethral Anastomotic Stenosis
  - i.e. bladder neck contracture (BNC)
- Often urethral distraction injury
- Fibrotic narrowing of bladder neck and membranous urethra

DIAGNOSIS AND MANAGEMENT OF URETHRAL STRUCTURES AFTER PROSTATECTOMY

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### Incidence

- Historically 5-29% with open retropubic RP
  - 27.7% BNC for low volume surgeons (<40/year)
  - 22% BNC for high volume surgeons
- Contemporary series show improvements
  - 2-3% with ORP
  - 1-2% with robotic RP

### Risk Factors

- Early surgeon experience
- Poor mucosal aposition
  - Increased operative blood loss
  - Urine leak
  - Increased operative time
  - Non-nerve sparing technique
- Vasculopathy
  - Smoking, HTN, CAD, DM
  - Pelvic XRT
  - Elderly
  - Obesity
- Higher PSA
- Surgical technique
  - Robotic vs Open
  - Salvage RP (up to 42%)

### Presentation

- Generally present within 6-12 months
- Most common symptoms:
  - Slow urinary stream
  - Frequency
  - UTI
  - Incidental when not able to place catheter
  - +/- incontinence

### Evaluation

- History
- Focused physical exam
- Cystoscopy
  - Antegrade endoscopy when possible
- Labs
  - U/A and culture
  - PSA
- Uroflow/PVR

### Treatment Goals

- Prevent urinary retention
- Allow physiologic voiding
- Maintain continence

### Conservative Management

- Options:
  - Chronic urethral catheter
  - Suprapubic catheter
  - Clean intermittent cath
  - Self urethral balloon dilation
- Who:
  - Very poor surgical candidates
Endoscopic

- Urethral dilation
  - Only if present early (< 6 weeks) after RP
- Direct vision internal urethrotomy (DVIU)
  - Cold or hot knife
  - Holmium laser
- Urethral injection following DVIU
  - Mitomycin C
  - Steroids

Reconstruction

- Temporary suprapubic drainage
  - Urethral rest
  - Allows time for surgical planning
- Surgical Options:
  - Perineal urethroplasty
  - Abdominal-Perineal combined approach
  - Minimally invasive
  - Urinary diversion if end stage bladder/urethra

Conclusions

- Moderns BNC rates 1-3% 
- Basic workup includes:
  - Thorough H&P
  - Cystoscopy
  - U/A and culture
- Progressive treatment approach
  - DVIU +/- injection
  - Reconstruction

Diagnosis & Management of Fistula after Prostatectomy

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Aetiology

- Recto-urethral fistula (RUF) quite rare
- Prostatectomy the most common cause – because of frequency of procedure
  - Rectal injury reported at 1-2% - most recognised at time & repaired
  - RUF < 0.5%
- Risk Factors:
  - Previous radiotherapy
  - Previous anal surgery
  - Prior perineal/pelvic trauma
  - Cryotherapy
  - Immuno-suppressed

Presentation

- UTIs
- Faecaluria
- Haematuria
- Systemic symptoms – fever, malaise etc
Investigation

- Cystoscopy
- Sigmoidoscopy
- Pelvic MRI – probably best imaging modality
- Abdopelvic CT Scan – include upper tracts

Classic Management

- Diversion for 6 months
- Catheterisation
- Small number heal spontaneously
- Formal repair often needed – probably best for very large fistulae

Single-Stage Management

- Trans-rectal Approach
  - York-Mason procedure
  - Through rectum & sphincter
- Trans-anal Approach
  - Latzko technique
  - Preserves sphincter
  - Can utilise rectal advancement flap
  - Limited operating space
- Trans-perineal Approach
  - More familiar perhaps to urologists
  - Adequate space
  - Allows inter-position of remote tissue eg gracilis, omentum etc if required