



Canadian Urologic Association Urethral Stricture Guideline

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Why a urethral stricture guideline?

- Costly disease (>\$200 million)
- Relatively common (0.6%) and likely increasing
- Frequently associated with complications (~40%)
- Reduced patient quality of life



Signs and symptoms

- LUTS >90%
- Genitourinary pain (dysuria, suprapubic, genital) – 23%
- Urinary tract infection (UTI) – 20%
- Gross hematuria – 11%
- Elevated post-void residual urine
- Ejaculatory dysfunction
- Incontinence



Stricture-related complications

- Occurs in ~40% of patients
- Acute urinary retention (32.6%)
- Difficult urinary catheterization (16.0%)
- Upper tract dysfunction (3.1%)
- Urethral abscess/urosepsis (5.0%)
- Urethral cancer (<1%)



Initial assessment

- History & physical examination
- Urinalysis, Urine C&S
- Optional: Patient-reported measures (IPSS, IIEF, SHIM, etc.)
- Optional: Uroflowmetry
- Optional: Post-void residual (ultrasound) assessment



Diagnostic investigations

- Cystoscopy
- Retrograde urethrogram (RUG)
- Voiding cystourethrogram (VCUG)
- Sonourethrogram (SUG)
- MR urethrogram (MRU)



PICO question 1

Should men with suspected urethral stricture undergo cystoscopy as the most accurate method to diagnose a clinically significant urethral stricture?

P - Men with suspected urethral stricture

I - Cystoscopy

C - Urethrogram or other

O - Diagnosis of urethral stricture

O - Urine infection, pain or patient comfort



PICO 1: Recommendations

- **We suggest using cystoscopy rather than urethrography for the initial diagnosis of suspected stricture**
Conditional recommendation, low certainty in evidence of effects
- **We suggest performing retrograde urethrography to further stage a urethral stricture or referral to a centre of expertise in reconstructive urology, when a recurrent stricture is suspected**
Conditional recommendation, low certainty in evidence of effects

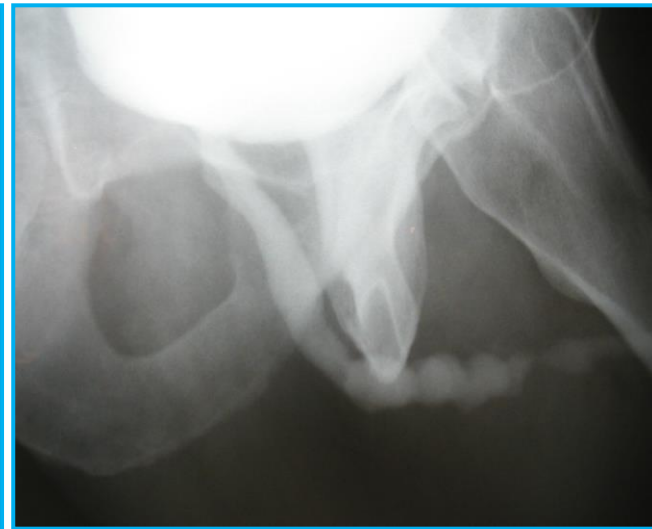


Diagnosis vs. staging

Diagnosis (cystoscopy)

vs.

Staging
(RUG +/- VCUG)





PICO 1: Recommendations

- **We suggest against using magnetic resonance urethrography for routine initial diagnosis of suspected stricture**
Conditional recommendation, low certainty in evidence of effects
- ***Best reserved for select cases:***
 - Complex trauma (PFUI, Straddle)
 - Suspected malignancy
 - Radiotherapy induced urethral stenosis
 - Associated rectourethral fistula



PICO 1: Justification

- Cystoscopy is **widely available** in most clinical settings, and requires **fewer resources** (such as costs, equipment and training) than urethrography or MRU
- The use of urethrography or MRU at initial diagnosis may lead to greater numbers of **missed cases of urethral stricture** (2–4 more per 100 men) and **unnecessary treatment** (0–6 more per 100 men) than when performing cystoscopy



PICO question 2

Should men with the INITIAL diagnosis of urethral stricture undergo endoscopic treatment compared to urethroplasty?

P - Men with (undifferentiated) initial diagnosis of stricture

I - Endoscopic management (dilation or DVIU)

C - Urethroplasty

O - Stricture recurrence and risk of complications



PICO 2: Clinically important outcomes

- Improvement in LUTS
- Health-related QOL
- Need for further procedures
- Complications (stricture and procedure related)
- Sexual dysfunction
- Genitourinary pain



PICO 2: Recommendation

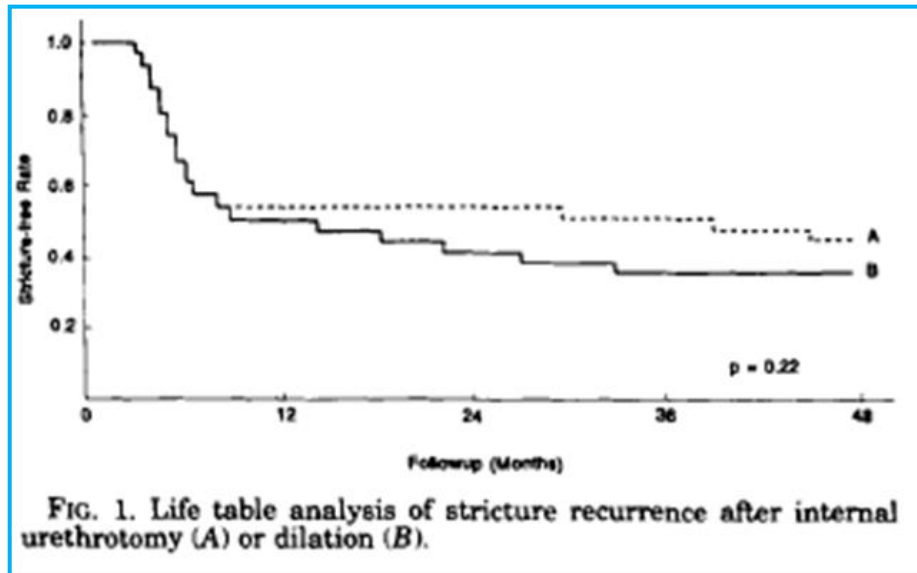
- **We suggest providing endoscopic management rather than urethroplasty for the INITIAL treatment of urethral stricture**
Conditional recommendation, very low certainty evidence in effects
 - Endoscopic management includes either DVIU or dilation
 - This recommendation applies to men with undifferentiated urethral stricture
 - But does not apply to trauma-related urethral injuries, penile urethral strictures (hypospadias, lichen sclerosus) or suspected urethral malignancy



PICO 2: Outcomes

Urethral dilation and DVIU have equivalent clinical efficacy

A: Dilation
B: DVIU



Steenkamp, Heyns and de Kock: J Urol 1997.



PICO 2: Justifications

- The **benefits** of urethroplasty may be moderately greater than with endoscopic management
 - 15% recurrence versus 30%, respectively
- But there may be an **increase (4% more) in complications** with urethroplasty than with endoscopic management
- The initial costs of urethroplasty may be moderately greater than endoscopic management



PICO 2: Justifications

- **Equity:** Urethroplasty is less widely available than endoscopic management and urethroplasty requires additional training
- **Patient values and preferences:** Most men will likely prefer not to wait for a referral for treatment, and therefore urethroplasty will probably be less acceptable than endoscopic management



PICO 2:

Urethroplasty as initial treatment

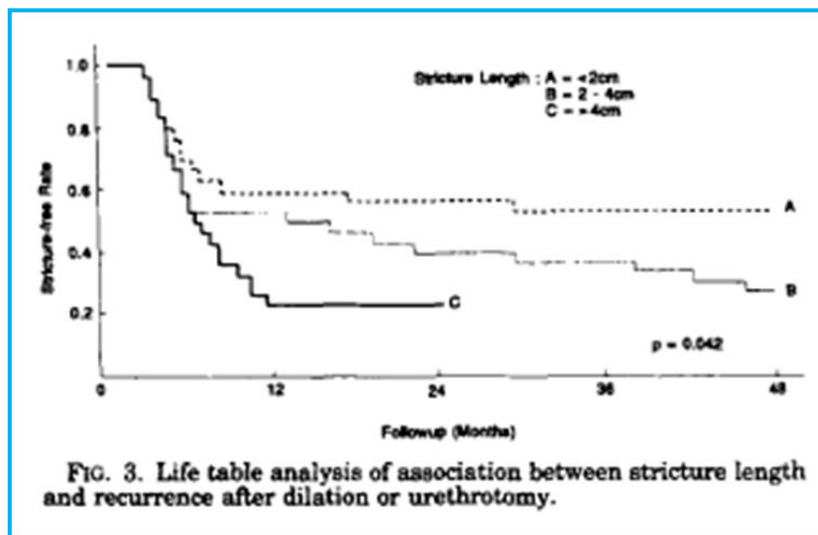
- May be appropriate for strictures at higher risk of recurrence:
 - Penile urethral strictures (hypospadias, lichen sclerosus)
 - Acute trauma
 - Complete obliteration
 - Longer strictures



Example: Stricture length

DVIU/dilation has poor efficacy in longer strictures

A: <2cm
B: 2-4cm
C: >4cm



Steenkamp, Heyns and de Kock: J Urol 1997.



PICO question 3

Should men with RECURRENT urethral stricture undergo urethroplasty as compared to endoscopic management as the best treatment option?

P - Men with recurrent urethral stricture

I - Urethroplasty

C - Endoscopic treatment (Either dilation or DVIU)

O - Stricture recurrence and risk of complications



PICO 3: Recommendation

- **We suggest performing urethroplasty rather than endoscopic management (DVIU or dilation) for the treatment of recurrent strictures**
- *Conditional recommendation, very low certainty in evidence of effects*



PICO 3: Justifications

- The **benefits** of urethroplasty may be moderately greater than endoscopic management with approximately 20% recurrence vs. 50%, respectively
- There may also be a **reduction in complications** (5% fewer) in complications with urethroplasty than with endoscopic management
- The initial **cost** of urethroplasty may be moderately greater but with stricture recurrence urethroplasty is more cost-effective



PICO 3: Justifications

- **Equity:** Urethroplasty is less widely available than endoscopic management, and urethroplasty requires additional training
- **Patient Preference:** Most men who have multiple recurrences may prefer urethroplasty, however, preferences may be variable



PICO 3: Patient preference

- Most men who have poor quality of life due to recurrent stricture will likely choose urethroplasty
- Men who are frail with multiple comorbidities, who want to avoid an in-hospital operative procedure, scheduling, timing or hospital stay, may choose DVIU or dilation for a recurrent stricture
- A shared decision-making model will help to understand patients' values and preferences



PICO 3:

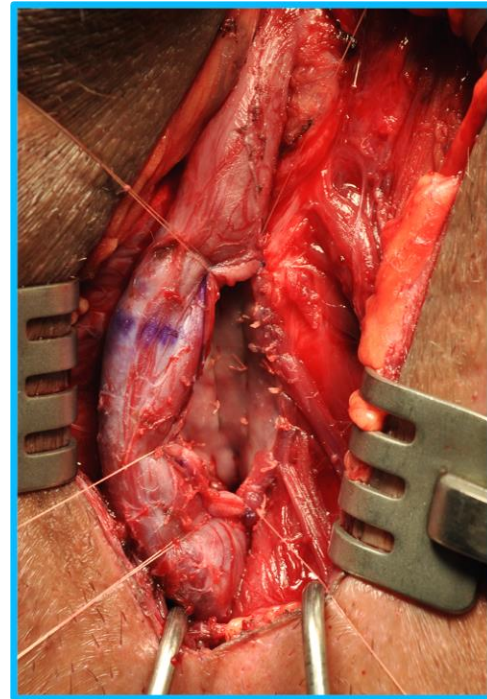
Repeat endoscopic treatment

- Unlikely to be successful
- May increase stricture complexity
- May be appropriate for:
 - Poor urethroplasty candidates (comorbidities, patient preference, etc.)
 - Select short (<2 cm) bulbar strictures with “durable” prior response



Urethroplasty

- **Bulbar strictures**
 - Anastomotic for short (<2 cm) strictures
 - Substitution urethroplasty for longer
 - Buccal mucosa is the preferred tissue
 - Onlay not tubularization
- **Penile strictures**
 - Typically requires tissue transfer



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Pelvic fracture urethral injury (PFUI)

- **Managed acutely with either SPC or aligning catheter**
 - SPC alone is safe and reliable
 - Endoscopic alignment is generally safe and may reduce or shorten urethral stenosis length
- Ideal timing of reconstruction is not known
 - Allow time for orthopedic injuries to heal
 - Approximately ~3months

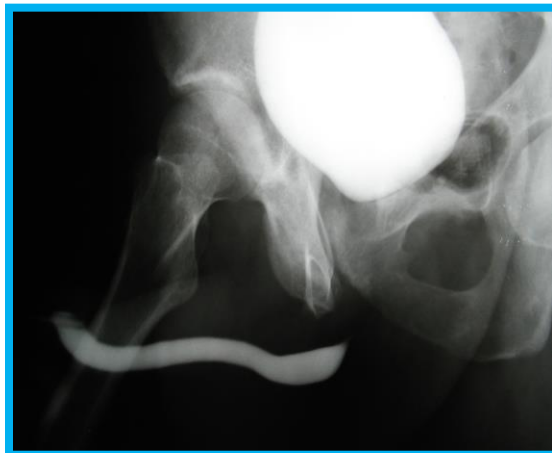
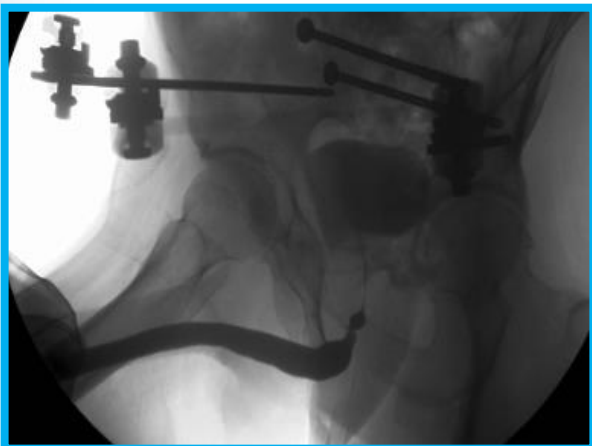


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PFUI cont'd

Preoperative assessment with combined urethrogram, cystogram, and cystoscopy





PFUI cont'd

- **Should be treated with delayed urethroplasty**
 - ~95% can be approached with single-stage perineal operation
 - 80–90% long-term success rate
- **Not with delayed endoscopic procedures**
 - Poor outcomes
 - Delays and complicates definitive treatment
 - Significant associated risks (i.e., “cut to the rectum”)



Straddle injury

- Poor outcomes with immediate repair
 - Extensive soft-tissue injury
- Suprapubic diversion (x 3 months)
- **Delayed urethroplasty**
 - Excision & primary anastomosis
 - Rarely buccal mucosa graft onlay urethroplasty



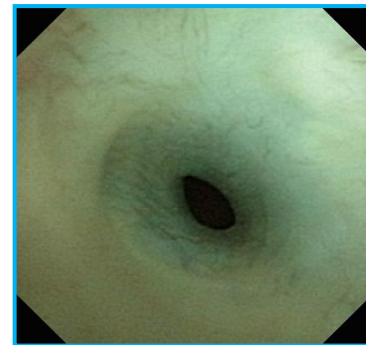
Hypospadias-associated urethral strictures (HAUS)

- Common complication of hypospadias
- Frequently associated with:
 - Urethrocutaneous fistula
 - Chordee
 - UTI/hair bearing urethra
 - Lack of skin/spongiosum
- **Unlikely to respond to endoscopic treatments**
- **Urethroplasty recommended but often requires several surgeries and multiple techniques**
 - Not for “dabblers” in urethral surgery



Bladder neck contracture

- Occurs after TURP (i.e., not radical prostatectomy)
- Incidence ~5%
- **Likely to respond to endoscopic treatments**
 - Urethral dilation
 - Cold knife incision
 - Hot-knife incision
 - Holmium laser incision
- Y-V plasty of bladder neck for recalcitrant cases

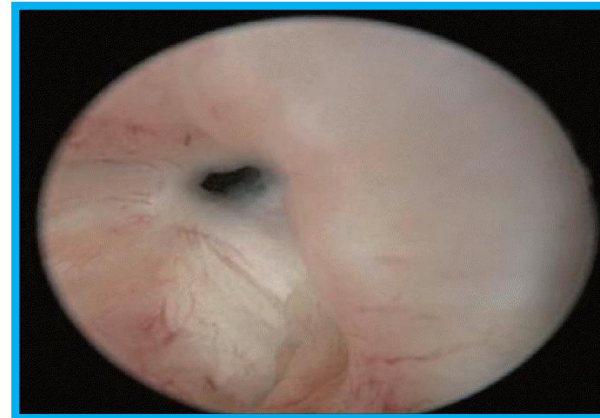


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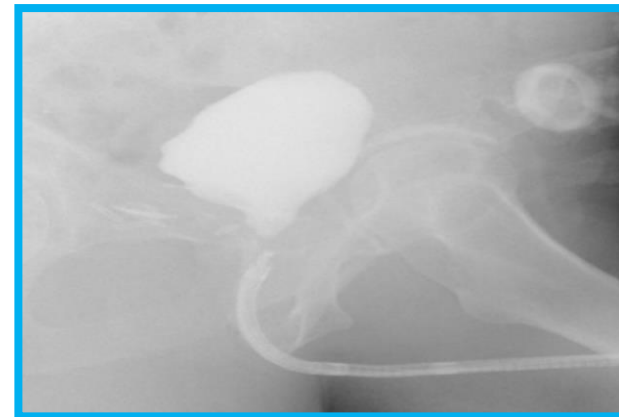


Vesicourethral anastomotic stenosis (VUAS)

- Occurs after radical prostatectomy ~5% (0.4–32%)
- Frequently associated with RT and Incontinence
- **Generally amenable to endoscopic treatment (>90%)**
 - May require multiple endoscopic treatments (1–3)
 - Possible role of intralesional agents (Mitomycin C)



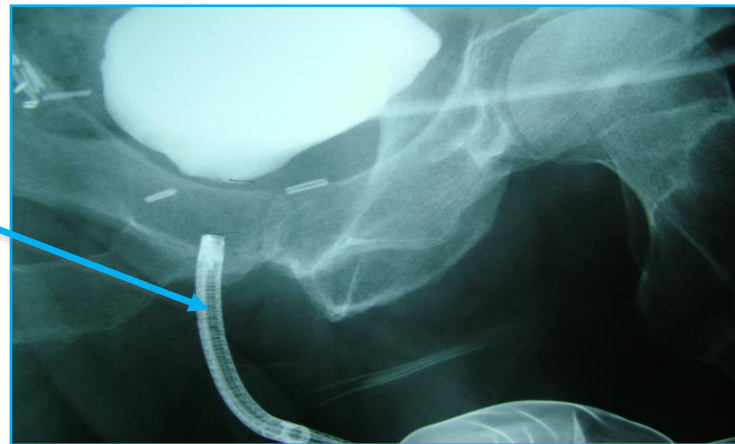
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VUAS cont'd

- **Reconstruction:**
 - After 3 failed endoscopic attempts
 - Or vesicourethral obliteration
 - Subsequent incontinence treatment
- **Urinary diversion:**
 - Small bladder capacity (<200 ml)
 - Extensive necrosis/cavitation
 - Osteomyelitis
 - Prostato-symphyseal fistulae

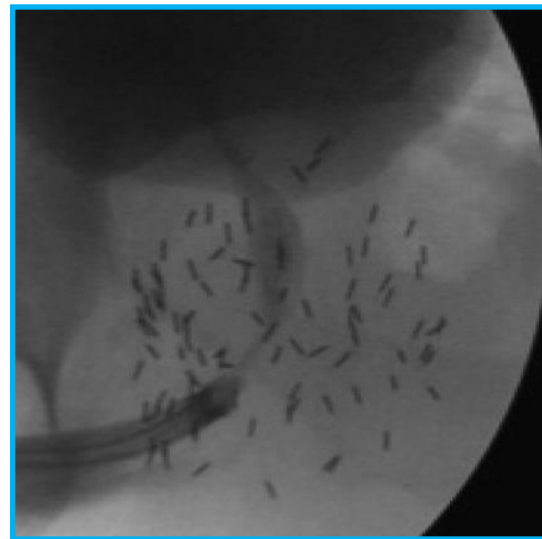


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Radiation stenoses/strictures

- Incidence 3–8%
- Insidious onset (>5 years after treatment)
- Infrequently an isolated entity
- **Refractory to endoscopic treatments**
- **Reconstruction is generally successful** (but)
 - Less return to “normal” voiding function
 - Risk of ED and Incontinence (especially if prior TURP)
- Urinary diversion can often be avoided



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Lichen sclerosus (aka BXO)

- **A chronic inflammatory, lymphocyte mediated skin disease** with a predilection for the anogenital area
- **Symptoms:** Leucoderma, itching, penile pain, phimosis
- **Initial treatment:**
 - Clobetasol bid (0.05%) x 8–12 weeks most commonly used
 - 40–90% improvement in cutaneous manifestations
- **~2–8% lifetime risk of malignancy (SCC)**
 - Mean time to diagnosis of penile cancer 12 years
 - Needs followup



Lichen sclerosus strictures

- Urethral involvement in 20-30% of patients with LS
- Insidious and progressive
 - May involve long segments of urethra
- Dense fibrosis and inflammation
- LS strictures are a challenge
- Perineal urethrostomy can be a good option
- Do not use skin (grafts/flaps) for Lichen sclerosus strictures