Management of late complications after continent urinary diversion: Case presentation

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Late complications of urinary diversion

Overall complication rate	60%
• Urinary tract infections/Bacteriuria	30%
– Pyelonephritis	20%
• Incomplete emptying/ residual urine	10-30%
• Ureteroenteric stricture	10-15%
• Urolithiasis	60%
• Rupture	2%
• Metabolic complications/consequences	

Amini et al. Current opinions urology 2015
Anderson et al. Urol Clin NA 2018

78 year old male

- Ileal orthotopic bladder substitute 10 years ago

- Presents with fever, flank pain on the right side
- Ultrasound: discrete right upper tract dilation, no residual urine
- Urine: Lc +++, Ec ++, nitrite positive

78 year old male

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- Diagnosis: right ascending pyelonephritis

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- Nausea, vomiting: metabolic acidosis?
  - vBGA with BE – 5

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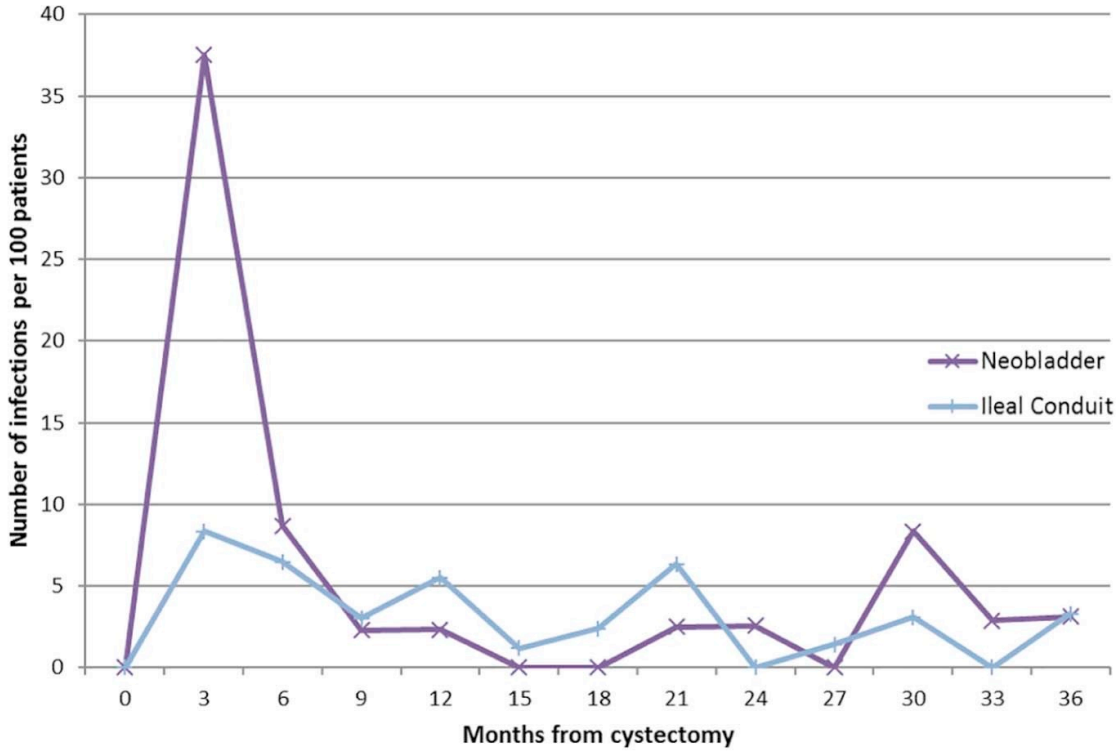
- Ultrasound: discrete right upper tract dilation, no residual
- Urin: Lc +++, Ec ++, nitrite positive
- Nausea, vomiting: metabolic acidosis?
  - vBGA with BE – 5
  - Residual urine via catheter 150ml

Urinary Tract Infections After Urinary Diversion—Different Occurrence Patterns in Patients With Ileal Conduit and Orthotopic Neobladder

Roy Mano, Hanan Goldberg, Yariv Stabholz, Danny Hazan, David Margel, Daniel Kedar, Jack Baniel, and Ofer Yossepowitch



No. patients at risk						
Ileal Conduit	120	100	86	79	71	63
Neobladder	48	44	42	40	38	35

11% rate of UIT

Discharged with antibiiotics

No difference between diversion type

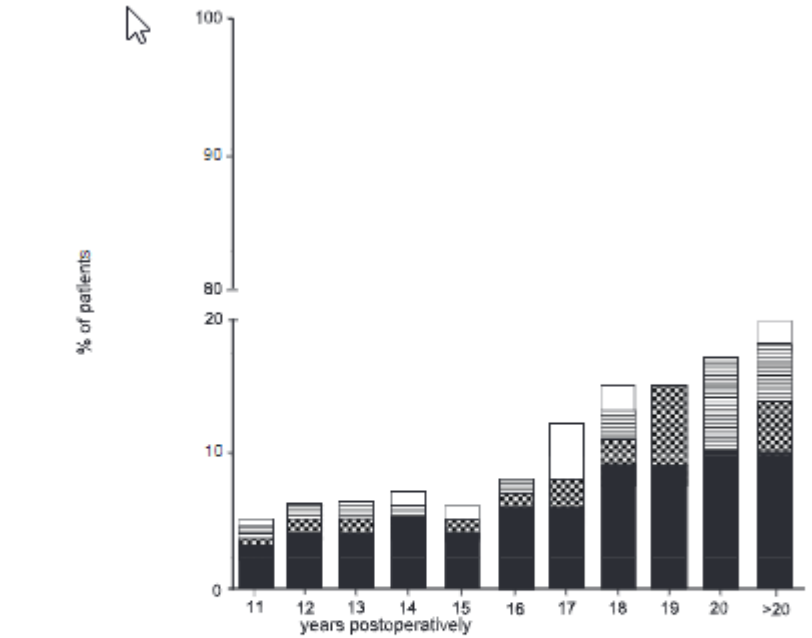
Clifford et al. World J Urol 2018

Mano R et al., Urology, 2018

Patients with an Orthotopic Low Pressure Bladder Substitute Enjoy Long-Term Good Function

Marc A. Furrer, Beat Roth, Bernhard Kiss, Daniel P. Nguyen, Silvan Boxler, Fiona C. Burkhard, George N. Thalmann and Urs E. Studer*

From the Department of Urology, University of Bern, Bern, Switzerland



	11	12	13	14	15	16	17	18	19	20	>20
Urosepsis	1	0	0	1	1	0	2	1	0	0	7
Obstructive pyelonephritis	2	1	1	1	0	1	0	1	2	2	10
Ascending pyelonephritis	1	2	1	0	1	1	1	1	2	0	1
Lower UTI(≥10⁴cFa)	6	6	5	5	3	4	3	4	3	3	2
no.pts.assessed	172	137	122	99	83	67	54	44	35	29	20

UTI = urinary tract infection CFU = colony-forming units pts = patients

Figure 6. UTIs in 200 patients who lived 10 years or longer with ileal OBS.

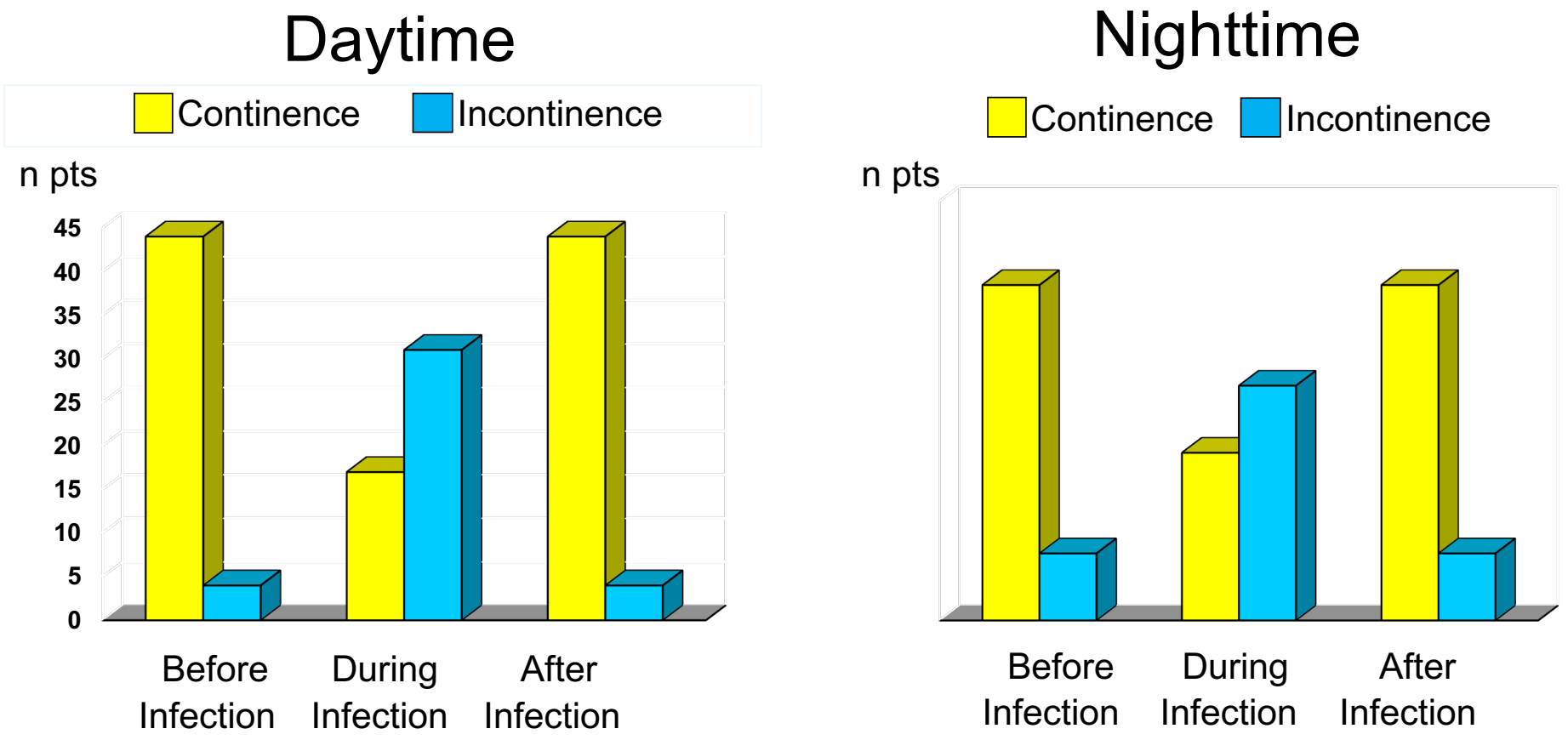
Lower UTI 30%

Pyelonephritis:

- ascending: 14%
- obstructive: 12%

Furrer et al. J Urol 2016

Incontinence and UTI's



All patients returned to their baseline voiding status upon antibiotic treatment

N. Dhar et al., J. Urol 2008

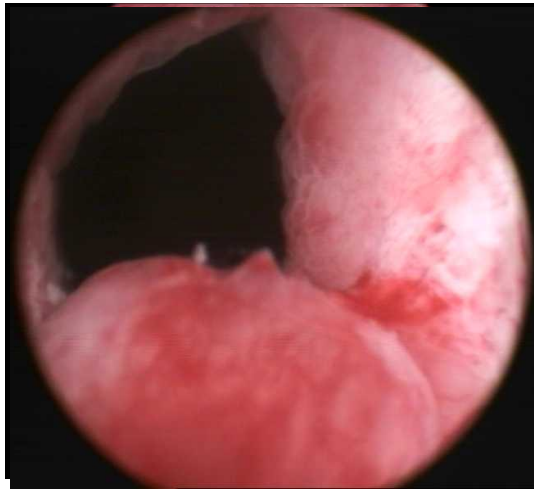
Residual urine

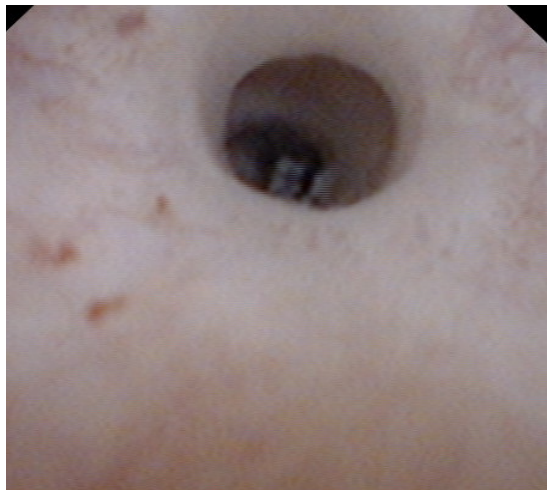
- Causes
  - Incomplete emptying
    - Patient compliance
    - Mucus blockage
    - Mechanical causes

Furrer et al. J Urol 2016
Amini et al. Current Opinions Urology 2015
Anderson et al. Urol Clin NA 2018

Mechanical Causes

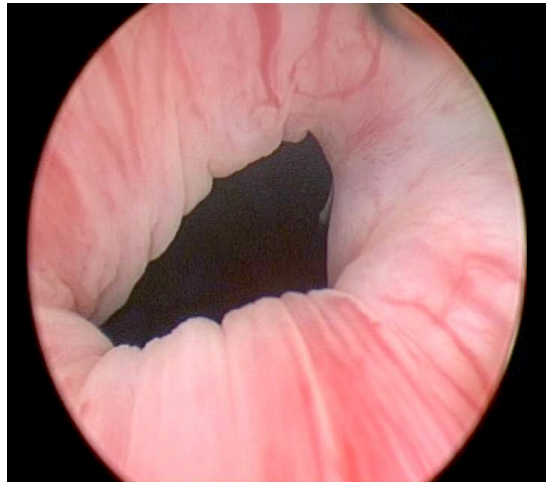
Mucosal Prolapse

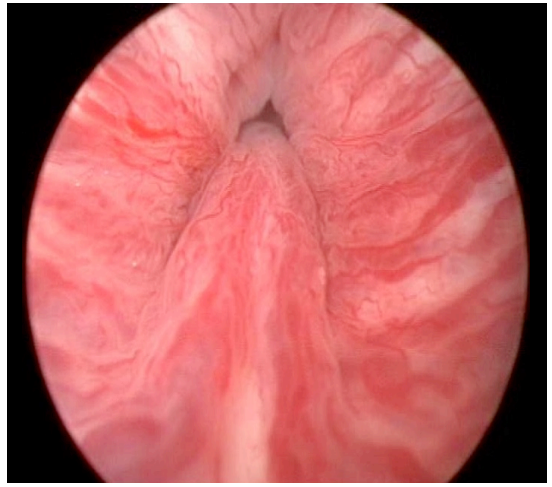




Urethral Stricture

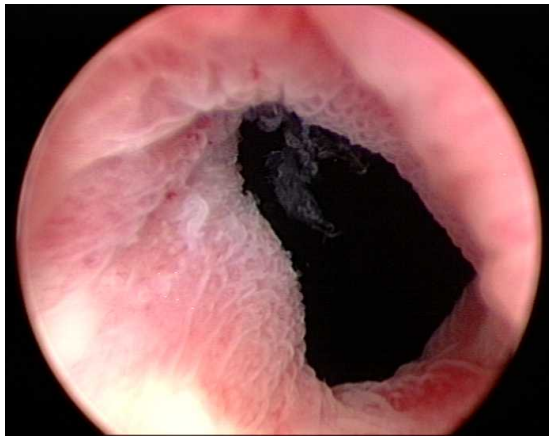
Anastomotic Stricture





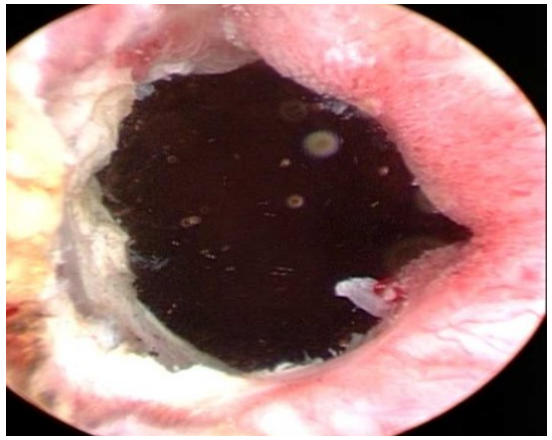
Residual Prostatic Tissue

Treatment of bladder outlet obstruction

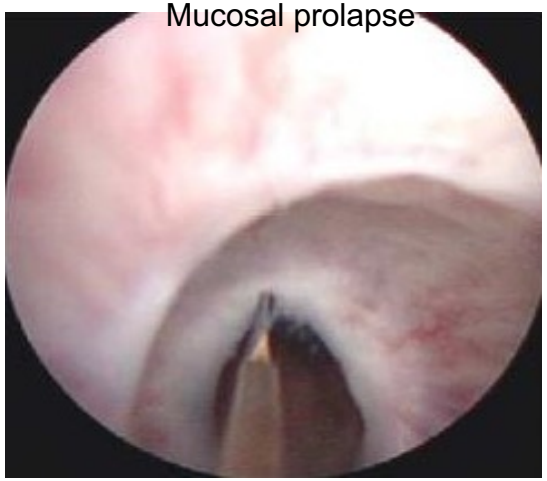


Mucosal prolapse

one loop



Desobstruction

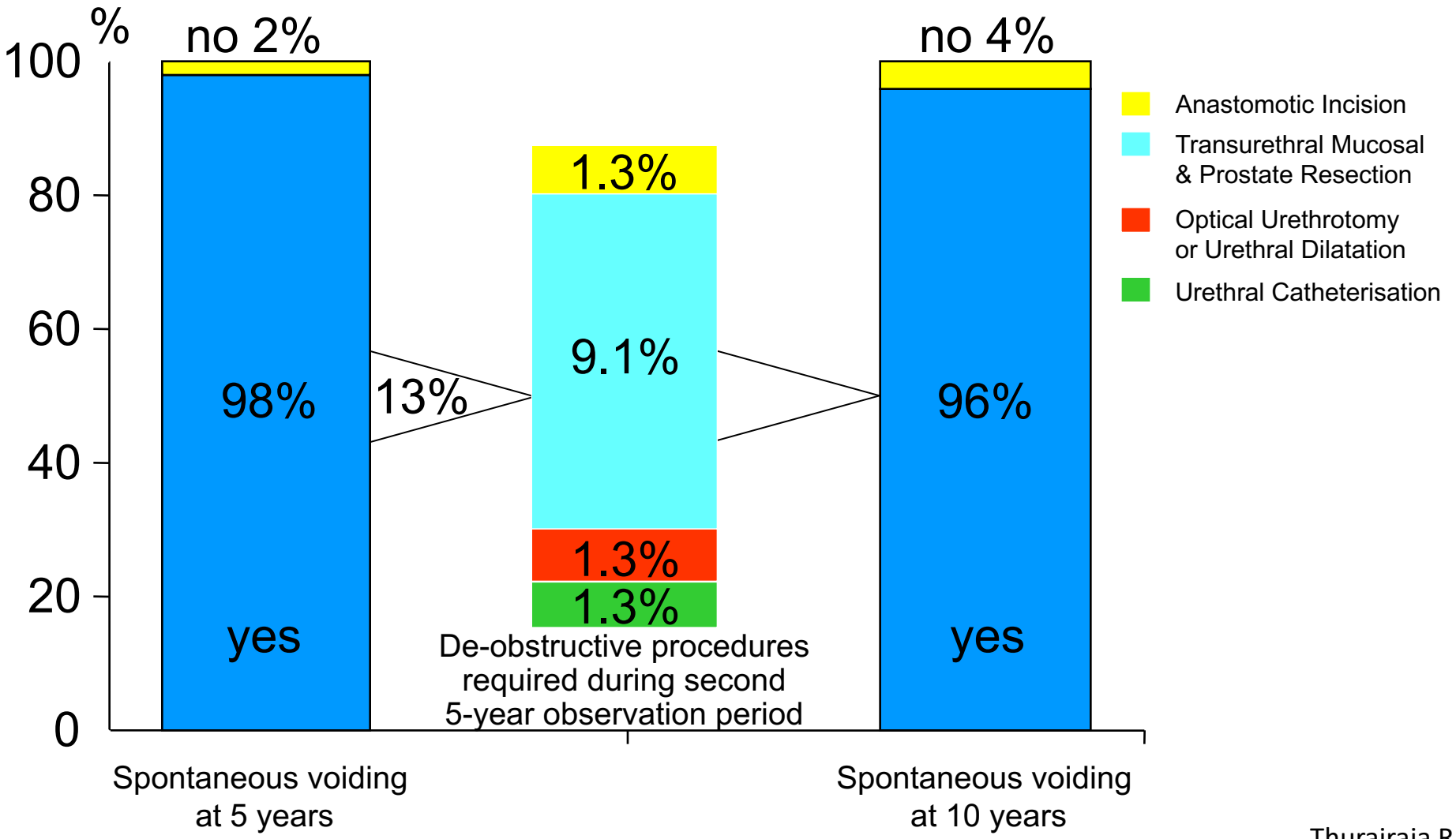


Urethral stricture

knife

Desobstruction

Spontaneous voiding in 77 patients with a minimum of 10-year follow-up

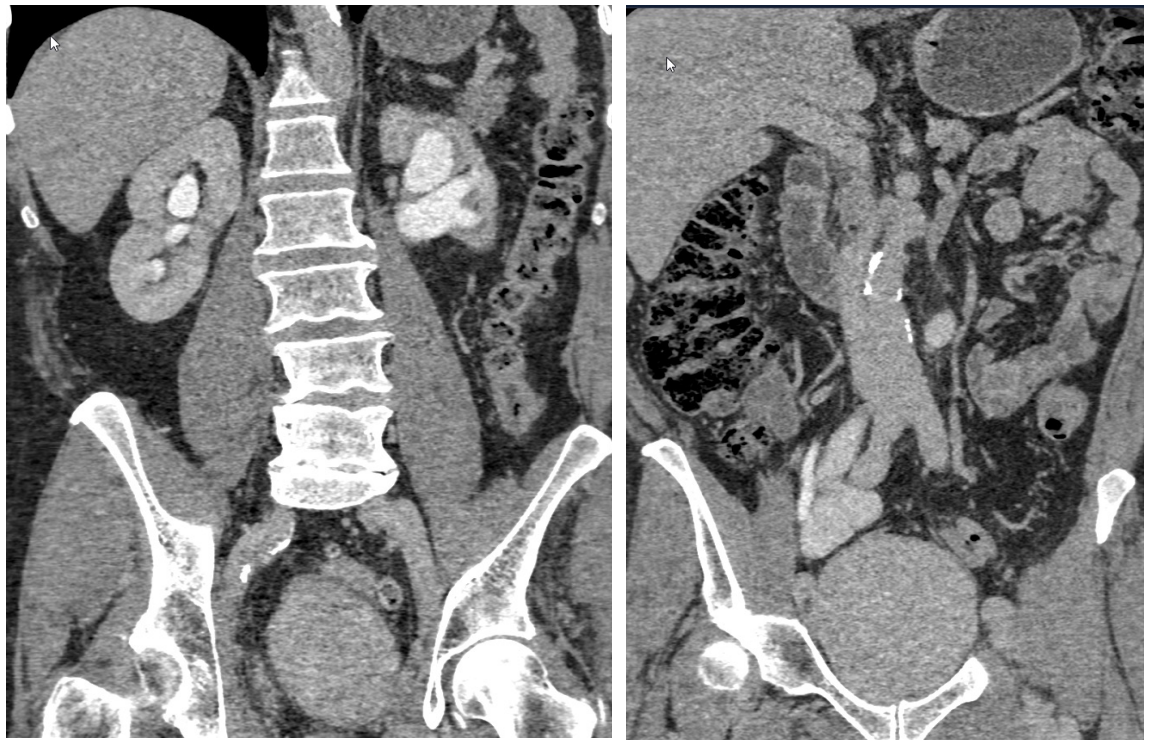


Thurairaja R et al., J Urol 2008

Anastomotic strictures

Hydronephrosis:

- unilateral: stenosis ureteroileal anastomosis 12% - (25%)
- bilateral: retention, stenosis afferent tubular segment



- More common left side
- Risk factors:
  - Longer ureter (extracorporeal robotic)
  - Postop. UTI
  - Tension
  - Leak
  - BMI

Ahmed et al. J Urol 2017
Liu et al. Front Urol 2022
Adnan et al. Cureus 2022

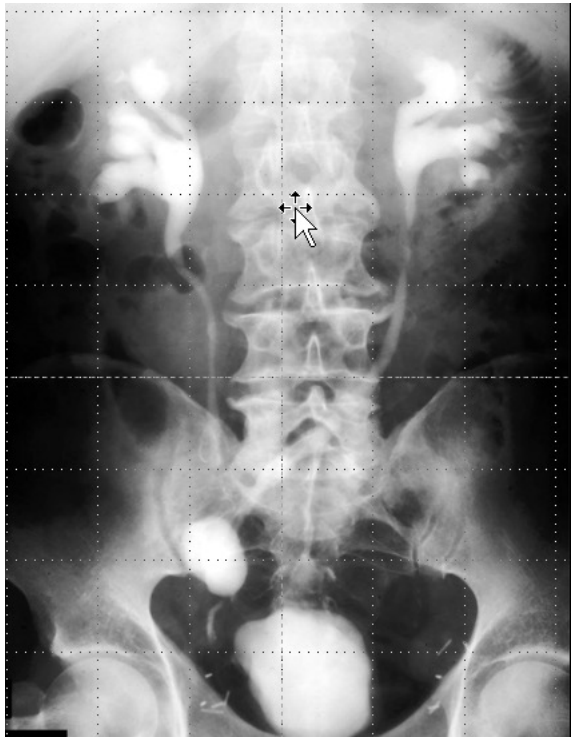
Ureteroileal Strictures After Urinary Diversion with an Ileal Segment—Is There a Place for Endourological Treatment at All?

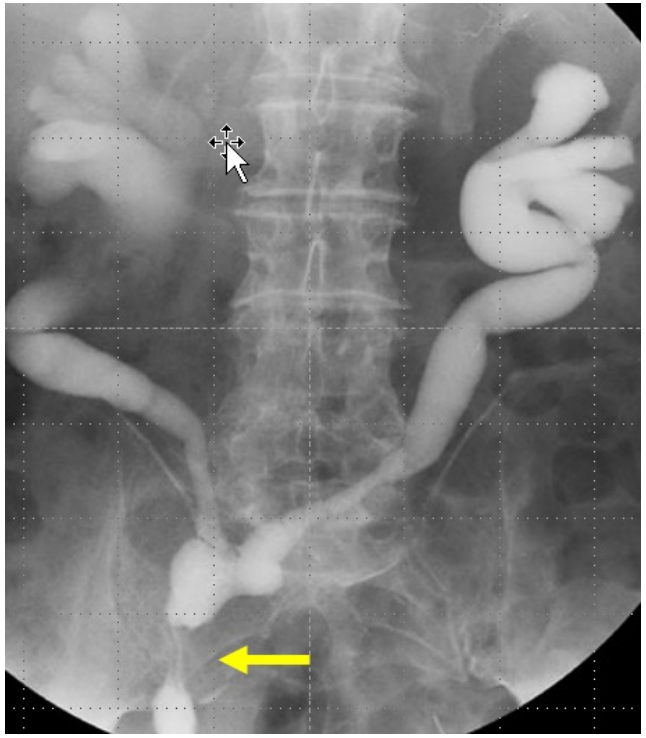
Treatment options:

- Endoscopic: 26% - 57%
  - < 1cm 50%
  - ≥ 1cm 6%
- Open/robotic: 91% - 100%
  - < 1cm 100%
  - ≥ 1cm 86%

Ahmed et al. J Urol 2017
Schoendorf et al. J Urol 2013

Stricture of the Afferent Isoperistaltic Tubular Segment: A Late and Rare Cause of Bilateral Dilation of the Upper Urinary Tract After Ileal Bladder Substitution





Treatment success rate:

- Endourological dilation: 10%
- Open resection and reanastomosis: 100%

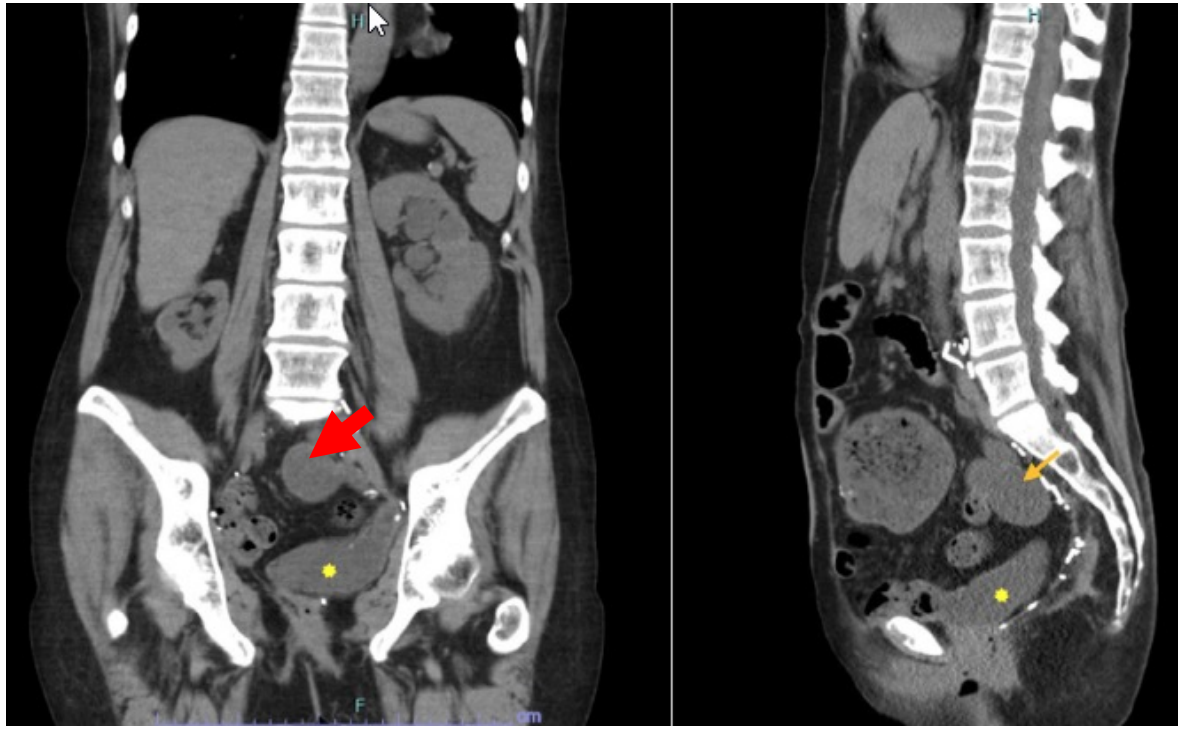
Kiss et al. J Urol 2013

Clinical Challenges in Urology

Late Complication of Orthotopic T-Pouch Ileal Neobladder Diversion

Muhannad Alsyouf and Siamak Daneshmand

Obstruction at level afferent limb valve mechanismus



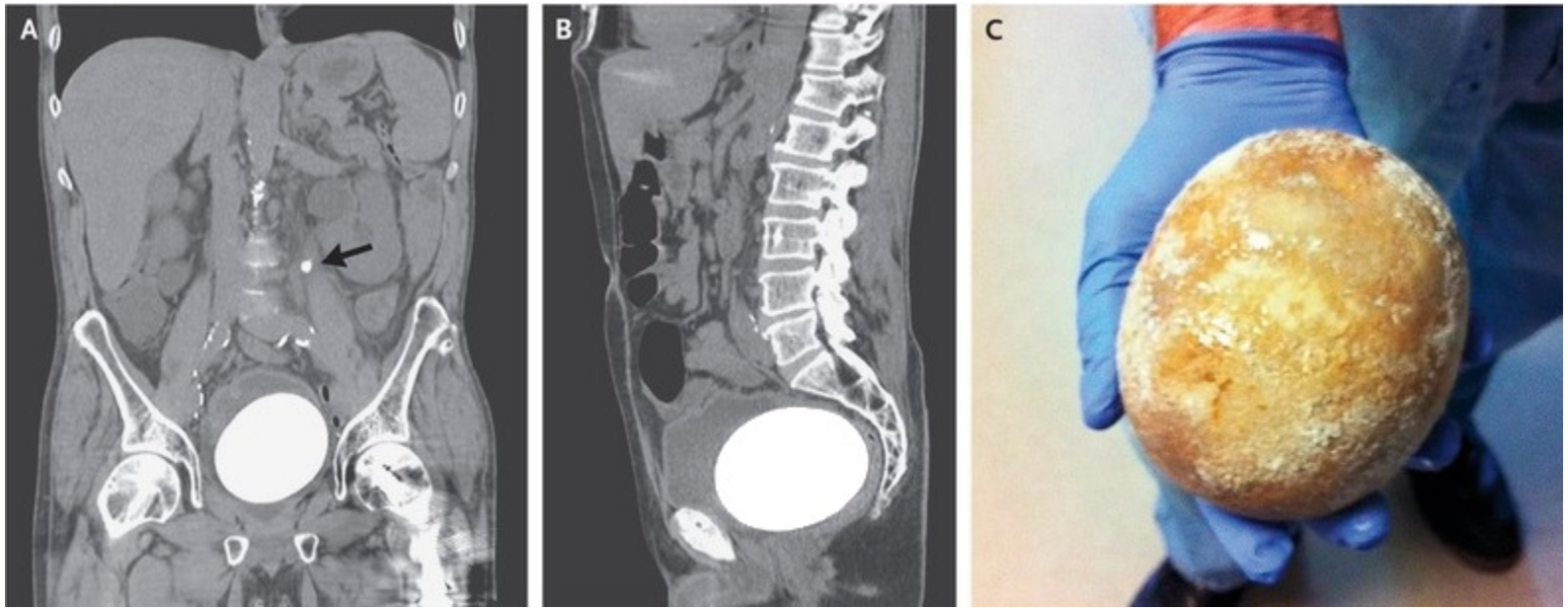
Treatment:

- Bilateral Nephrostomy
- Endoscopic dilation
- Afferent limb revision

Alsyouf et al. Urology 2022

Stones

- Nephrolithiasis: 2%
- Neobladder: 0- ?
- Continent cutaneous diversion: 60%

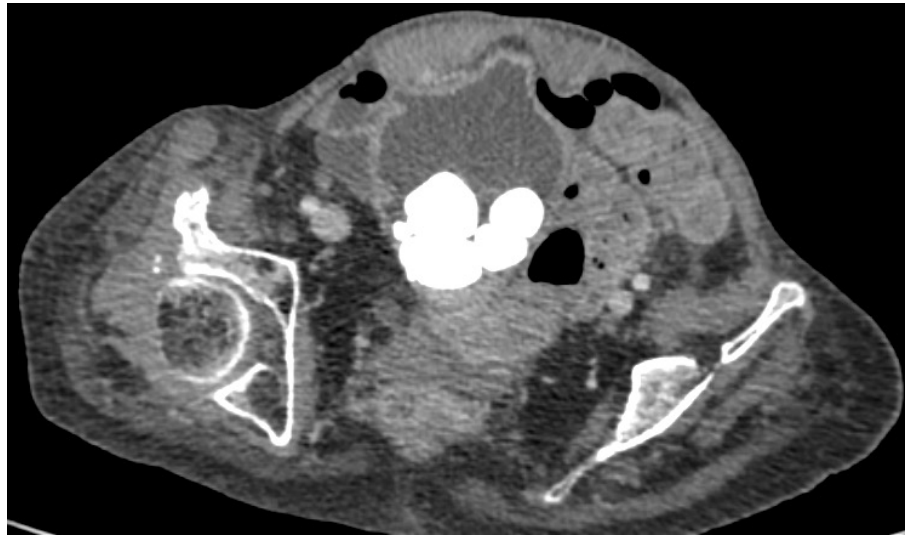


Nguyen et al. NEJM 2017
Furrer et al. J Urol 2016
Chenget al. Neurorurol Urodyn 2020

Risk factors:

- Bacteriuria/recurrent infections
- Non compliance irrigation
- Mucus
- Foreign bodies

- Irrigation:
  - Reduction from 43% to 7%



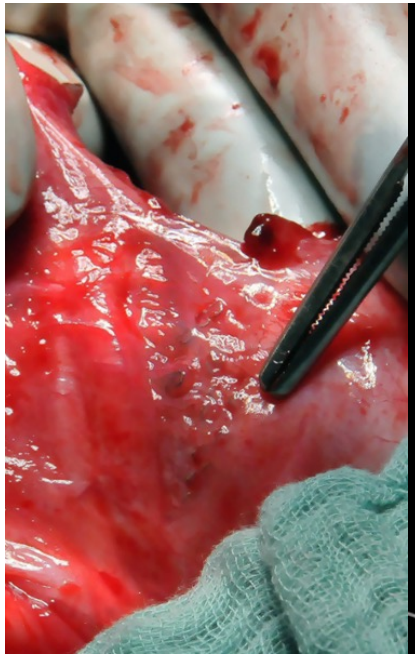
Hensle et al. BJUI 2004

Stones

- Treatment options
  - Endosopic continent channel
  - Percutaneous lithotomy
  - Open removal

    mid line incision

    catheter 5-10 days



Percutaneous Cystolitholapaxy Is Safe and Effective in Adult Patients With Lower Urinary Tract Reconstruction Utilizing Bowel

Stone free rate 90% (range 85-100%)

Stone analysis:

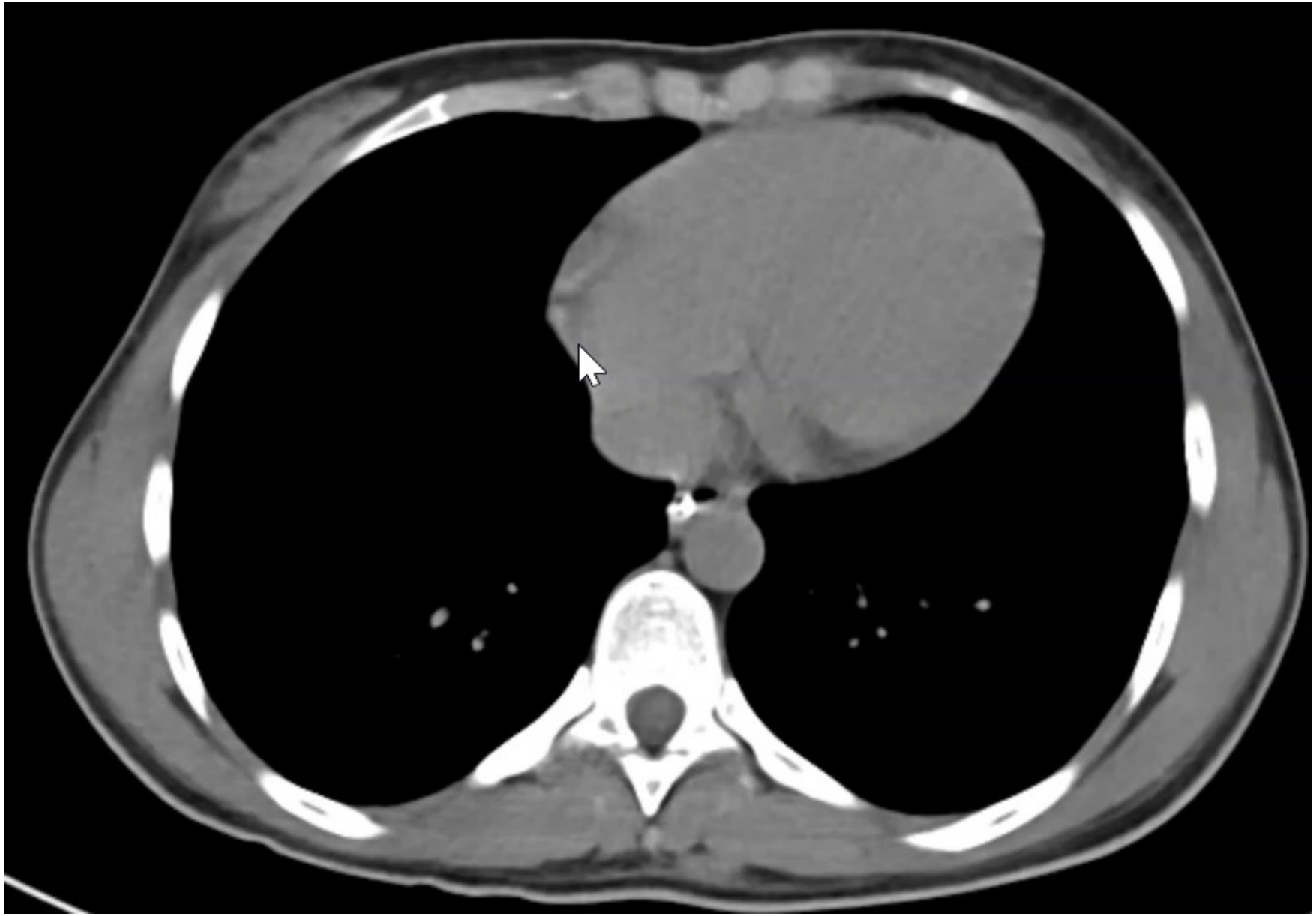
- > 30 % struvite stones (general population 15%)
- Recurrence rate 45%
- Low complication rate: Fever
- Operative time 1-2hours

Burns et al. Urology 2023

25 year old female

- Presents with sudden abdominal pain out of nowhere
- Last 4 days fasting, only oat milk and fruit juice
- Slight improvement with metamizol, then worse → emergency room
- Pain like menstrual pain initially, but then much stronger

- Abdomen painful, no peritonitis
- Pain above symphysis
- History of bladder extrophy with bladder augmentation and Mitrofanoff
- No problems catheterising



Treatment

- Catheter in place, rincage every 6 hours
  - 4 weeks

- Drain lower abdomen: E. coli
  - Antibiotics

Rupture

- Rare incidence under 2%
- Causes: traumatic catheterisation,
  overfull reservoir, blunt abdominal trauma
- Diagnosis: cystography
  increased creatinine due to reabsorption
- Treatment: conservative
  surgery

Kalogirou et al. Urol Int 2017
Gupta et al. Urol Int 2009
Choong et al. BJU 1998

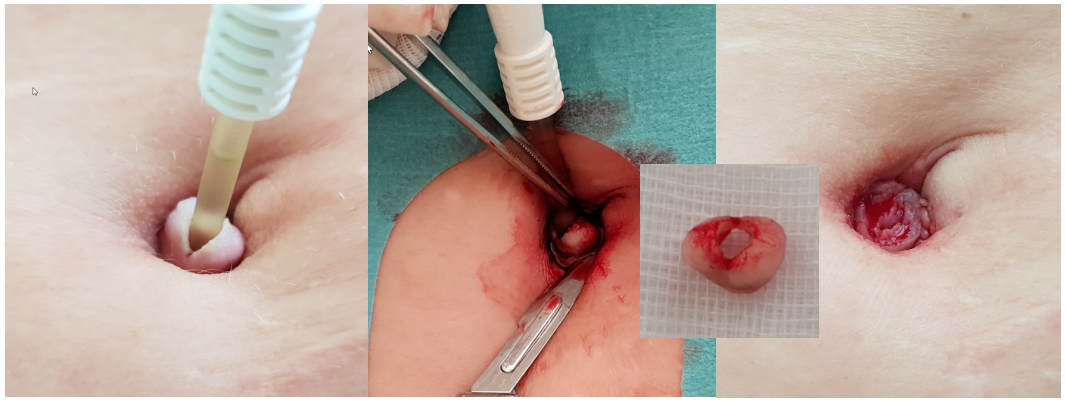
Outlet complications

- Incontinence 15-30%
- Stenosis 30%
- Tunnel stricture 15%
- Prolaps 3%

Hampson et al. Transl Androl Urol 2018
Anderson et al. Urol Clin NA 2018

Channel complications

Stenosis	2 – 30%
Granulation tissue	1.5%
Stomal prolapse	2-5%
Channel kinking	5-32%
Channel perforation	<1%



Furrer et al. Eur Urol Focus 2021
Liard et al. J Urol 2001
Hampson et al. Transl Androl Urol 2018

Summary

-Continent urinary diversion has a significant risk for complications

-Late complications occur in up to 60%

-Common late complications are :

- Infections
- Incomplete emptying
- Urolithiasis
- Strictures: ureteroileal, ileourethral

-Long-term surveillance is required to identify and treat complications in a timely fashion.

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Thank you