Continuing LUTS inspite of „successful“ surgery

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1. Pathophysiology of LUTS after surgery
2. LUTS after surgery
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   ◦ 2.2. Persistent voiding symptoms
   ◦ 2.3. Persistent storage symptoms
      • 2.3.1. Relation between BPE and OAB
I. Pathophysiology of LUTS after „successful“ surgery

Definitions

- LUTS
- Results of „successful“ surgery
I. Pathophysiology of LUTS after surgery

Definition of LUTS

- Voiding symptoms
  - Slow stream, splitting and spraying, intermittent stream, hesitancy, straining, terminal dribble

- Storage symptoms
  - Frequency, urgency, nocturia

- Post-evacuating symptoms
  - Feeling of incomplete emptying, post micturation dribble

I. Pathophysiology of LUTS after surgery

Definition of successful surgery results

- Relieving of obstruction
  - Direct effect of surgery

- Improving of symptoms
  - Improving of voiding symptoms
    - Direct effect of surgery
  - Improving of storage symptoms
    - Indirect effect of surgery
1. PATHOPHYSIOLOGY of LUTS

- OAB - detrusor overactivity
- Benign Prostatic Obstruction (BPO)
- Nocturnal polyuria
- And others...
- Distal ureteral stone
- Bladder tumour
- Detrusor underactivity
- Neurogenic bladder dysfunction
- Urethral stricture
- Urinary tract infection
- Foreign body
- Prostatitis
1. PATHOPHYSIOLOGY of LUTS
I. Pathophysiology of LUTS after surgery

Analysis of the pathophysiology of LUTS after TURP: Kuo’s study

- 185 patients who had persistent LUTS underwent multichannel videourodynamics and were classified into 6 groups according to the urodynamic results.
1. Pathophysiology of LUTS after surgery

Analysis of the pathophysiology of LUTS after TURP: Kuo’s study

- Normal videourodynamic tracing: 9.1%
- Detrusor overactivity: 9.6%
- Low detrusor contractility: 18.7%
- DO and low detrusor contractility: 14.4%
- Poor relaxation of urethral sphincter: 19.3%
- Bladder outlet obstruction: 27.8%

Kuo HC: Urol Int 2002;68(2):99-104
I. Pathophysiology of LUTS after surgery

Analysis of the pathophysiology of LUTS after TURP: Seaman’s study

- Urodynamic findings of 129 consecutive men (mean age 72 years) with post-transurethral resection urinary symptoms were retrospectively analyzed.

I. Pathophysiology of LUTS after surgery

Analysis of the pathophysiology of LUTS after TURP: Seaman’s study

- Obstruction 38%
- Impaired contractility 25%
- Intrinsic sphincter deficiency 8%
- DO in 50-76%
  - In patients without neurological disorders 50%
  - In patients with neurological disorders 76%

I. Pathophysiology of LUTS after surgery

Analysis of the pathophysiology of LUTS after TURP: Nitti’s study

- Detrusor overactivity 54%
- Obstruction 16%
- Sphincteric insufficiency 8%
- Detrusor underactivity 4%
- Sensory urgency 4%

I. Pathophysiology of LUTS after surgery

Analysis of the pathophysiology of LUTS after TURP: Nitti’s study

- There was no difference in the total, irritative or obstructive scores among obstructed, unobstructed or equivocal cases.

- Similarly there was no difference in scores among patients with and without detrusor instability.

2. LUTS after surgery

- 2.1. Newly-emerged symptoms
  - 2.1.1. Temporary symptoms after surgery
  - 2.1.2. Permanent
    - Stress urinary incontinence

- 2.2. Persistent voiding symptoms
  - 2.2.1. Persistent obstruction - direct surgery failure
  - 2.2.2. Detrusor underactivity

- 2.3. Persistent storage symptoms
2.1. Newly-emerged symptoms

- **Preoperatively**
  - Prostate size 50 ml
  - IPSS 25
  - Qmax 8ml/s
  - RV 60 ml

- **Postoperatively**
  - IPSS 5
  - Qmax 24 ml/s
  - RV 0 ml

- **Postoperatively**
  - IPSS 18
  - Qmax 10 ml/s
  - RV 50 ml

- **Postoperatively**
  - IPSS 18
  - Qmax 22 ml/s
  - RV 10 ml

- Still bothering frequency et nycturia
2.1. Newly-emerged symptoms

- **Preoperatively**
  - Prostate size 50 ml
  - IPSS 25
  - Qmax 8ml/s
  - RV 60 ml

- **Postoperatively**
  - IPSS 5
  - Qmax 24 ml/s
  - RV 0 ml
  - Incontinence
2.1. Newly-emerged symptoms

• 2.1.1. Temporary symptoms after surgery
  ◦ Dysuria
  ◦ Uregency, frequency, nocturia = OAB
  ◦ Incontinence

• 2.1.2. Permanent
  ◦ Urinary incontinence rate
    • After TURP 2.2%
    • After open prostatectomy up to 10%

EAU guidelines
2.1. Newly-emerged symptoms

Urinary incontinence following transurethral and transvesical prostatectomy: Retrospective study

- Incontinence rate of transurethral resection (216 patients)
  - immediately after catheter withdrawal: 19%
  - 1 month: 16%
  - 3 months: 8%
  - 6 months: 3%
  - 9 months: 2%
  - 1 year: 1.5%
  - 15 months: 0.5%

- Incontinence rate of transvesical prostatectomy (98 patients)
  - immediately after catheter withdrawal: 15%
  - 1 month: 12%
  - 3 months: 5%
  - 6 months: 2%
  - 9 months: 2%
  - 1 year: 1%
  - 15 months: 1%

2.2. Persistent voiding symptoms

- **Preoperatively**
  - Prostate size 50 ml
  - IPSS 25
  - Qmax 8ml/s
  - RV 60 ml

- Incontinence
  - Postoperatively
  - IPSS 5
  - Qmax 24 ml/s
  - RV 0 ml

- Postoperatively
  - IPSS 18
  - Qmax 22 ml/s
  - RV 10 ml
  - Still bothering frequency and nycturia
2.2. Persistent voiding symptoms

- **Preoperatively**
  - Prostate size 50 ml
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  - IPSS 18
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- Postoperatively
  - IPSS 18
  - Qmax 22 ml/s
  - RV 10 ml
  - Incontinence
  - Still bothering frequency et nycturia
2.2. Persistent voiding symptoms

2.2.1. Persistent obstruction-direct surgery failure

- Early failure with need of reoperation
  - Within 1 year after surgery
    - Reintervention rate: 2.3-4.3%

- Late failure with need of reoperation
  - Within 5 year after surgery
    - Reintervention rate: 8.9-9.7%
  - Within 8 year after surgery
    - Reintervention rate: 12.0-15.5%

2.2. Persistent voiding symptoms

2.2.2. Detrusor underactivity

- A total of 62 consecutive patients awaiting transurethral resection of the prostate
  - IPSS > 12,
  - Qmax < 13 ml/s

- Weak detrusor contractility without significant obstruction accounted for voiding dysfunction in 50% of the patients.
2.3. Persistent storage symptoms after surgery

- **Preoperatively**
  - Prostate size 50 ml
  - IPSS 25
  - Qmax 8ml/s
  - RV 60 ml

- **Postoperatively**
  - IPSS 5
  - Qmax 24 ml/s
  - RV 0 ml

- **Postoperatively**
  - IPSS 18
  - Qmax 10 ml/s
  - RV 50 ml

- Still bothering frequency and nocturia
2.3. Persistent storage symptoms after surgery

- **Preoperatively**
  - Prostate size 50 ml
  - IPSS 25
  - Qmax 8ml/s
  - RV 60 ml

- **Postoperatively**
  - IPSS 18
  - Qmax 22 ml/s
  - RV 10 ml
  - Still bothering urgency, frequency and nocturia
2.3. Persistent storage symptoms after surgery

- Persistent storage symptoms
  - Urgency
  - Frequency
  - Nocturia
2.3. **Persistent storage symptoms after surgery**

- Persistent storage symptoms
  - Urgency
  - Frequency
  - Nocturia

\[
\{ \text{Urgency, Frequency, Nocturia} \} \rightarrow \text{OAB}
\]
2.3.1. BPE/BPO and OAB

- Men with BPE/BPO without OAB symptoms

- Men with BPE/BPO and OAB symptoms
  - OAB symptoms are caused by obstruction
    - OAB symptoms disappear after relieving of obstruction
  - OAB symptoms are not caused by obstruction
    - OAB symptoms do not disappear after relieving obstruction
Prevalence of LUTS in men

- Prevalence of LUTS in men
- study EPIC (Irwin et al. 2009)
Prevalence of LUTS in men with OAB

- Prevalence of LUTS in men with OAB
- study EPIC (Irwin et al. 2009)

Inwin et al., Volume 56, issue 1, pages 1-236, July 2009
2.3.1. BPO and OAB

- Detrusor overactivity is associated with
  - aging
  - benign prostatic obstruction

- Persistent detrusor overactivity after TURP is the cause of more than a third of poor symptomatic outcomes following surgery

2.3. Persistent storage symptoms after surgery

Can persisting detrusor overactivity be predicted?

- Twenty-three patients who showed DO pre-operatively were included in this study.

- Cystometric findings at 3 to 6 months after surgery were compared with the pre-operative findings.

2.3. **Persistent storage symptoms after surgery**

Can persisting detrusor overactivity be predicted?

- **Neurogenic bladder** because of previous cerebrovascular disease in 4 patients
  - Persistent DO after surgery 100%

- **DO** because of BPH in 19 patients
  - Pattern 1: the continual sporadic onset and offset of DO 100%
  - Pattern 2: a single episode of DO at a bladder volume of <160 mL 33%
  - Pattern 3: a single DO episode at a bladder volume >160 mL 0%

2.3. Persistent storage symptoms after surgery

Can persisting detrusor overactivity be predicted?

- Preoperative single-photon emission computed tomography (SPECT) was performed on 14 patients.

- Among 14 patients who had pre-operative SPECT, all eight patients with low cerebral blood flow in the frontal region showed persisting DO.
2.3. Persistent storage symptoms after surgery
Can persisting detrusor overactivity be predicted?

- **Persistent detrusor overactivity and obstruction**
  - Postoperative persistent DO was more frequently noted in patients without clear obstruction (60%) on preoperative urodynamics (equivocal zone of A-G nomogram) than in those with obstruction (27%)
2.3. Persistent storage symptoms after surgery
Can persisting detrusor overactivity be predicted?

- **Persistent DO is associated with reduced perfusion of the bladder**
  - Cystometric measurements showed that in 30% patients DO was persistent after TURP.
  - There was a statistically significantly higher Resistive index (RI) of the bladder vessels in men with persistent DO.

Conclusions

- Complete urodynamic assessment in patients with persistent or recurrent LUTS following TURP is recommended to guide appropriate therapy.

- Permanent incontinence is relatively rare but serious complication of BPH surgery.

- Persistent voiding symptoms could be caused by persistent obstruction or detrusor underactivity.
Conclusions

- Persistent symptoms after „successful“ surgery are often storage symptoms caused by detrusor overactivity.

- Symptoms of OAB do not improve after surgery for BPO at least in 1/3 of cases.

- Patient should be informed about the failure rate of surgery and the persistence rate of OAB symptoms.