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SURGICAL TREATMENT FOR FEMALE URODYNAMIC STRESS INCONTINENCE

Urinary Incontinence

- **ICS definition:**
urinary incontinence (UI) as the complaint of any **involuntary leakage** of urine.
- Significantly impacts on Quality of life, both physically and psychosocially.
- By effectively identifying and treating incontinence -> improve quality of life.

Continence mechanisms in women

- Storage phase:
 - **Relaxed Bladder**: relatively constant low pressure absence of involuntary detrusor contraction
 - **Closed outlet**
- Continence is maintained:
urethral pressure $>$ intravesical pressure



Pathophysiology of urinary incontinence

- Urinary incontinence :
dysfunction in either storage or emptying function
- **Urethral sphincter** dysfunction
- **Bladder** dysfunction



Urodynamic stress incontinence (USI)

- The complaint of involuntary leakage on effort or exertion, or on sneezing or coughing
- Vesical pressure $>$ urethral pressure during sudden increasing intra-abdominal pressure without involuntary detrusor contraction
- Weakness of the **pelvic floor or sphincter**



Pathophysiology of female USI

- **BN hypermobility:**
 - Loss of BN support
 - Treatment target: restoration of support
- **Intrinsic sphincter deficiency (ISD):**
 - Sphincter dysfunction
- Both disorders in varying degrees.

Surgical treatment for USI

- Abrams et al. 2005:
 - Simple classification for operative procedures for USI
 - **1. Urethra/bladder neck stabilizing procedures**
effective for type 1- and to lesser degree
for type 2-incontinence
 - **2. Urethral sphincter augmentation**
most beneficial for ISD, type 3 incontinence



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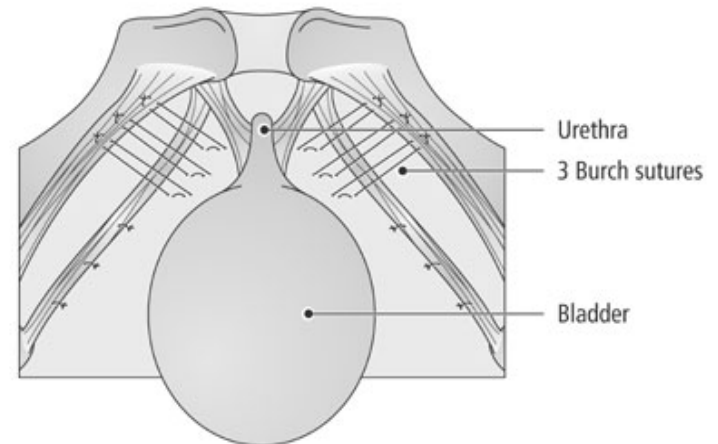
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Gold standard procedures for USI

- Retropubic bladder neck suspension (Burch)
- Slings
- Long-term success rate > 80%

Burch colposuspension

- John Burch 1961
- **Bladder neck and proximal urethra** supported by suspension of paravaginal tissues towards ipsilateral **ileopectineal (Cooper's)** ligaments on pelvic sidewalls.



Outcomes of Burch's colposuspension

- Jarvis 1994:
 - Obj conti rate: 84.3% (primary)
82.5% (previous anti-inconti surgery)
- Long term follow-up: (Bergman,1995; Alcalay,1995)
 - Cure rates: 82% (5 yrs f/u)
69% (12 yrs f/u)

Slings

- Pubovaginal sling
- Mid-urethral sling:
 - Retropubic sling (TVT/Sparc)
 - Transobturator sling (TVT-O, Monarc, Obtryx)
 - Single incision (MiniArc, Adjust, Solyx)

Tension-free vaginal tape (TVT)

- Ulmsten, 1995
- A woven prolene (polypropylene) tape
- Inserted at level of **midurethra**.
- Traverse **Retzius** space towards ant abd wall
- Tape left in situ without fixation ->**tension-free** manner.

Outcomes

- Ward and Hilton, 2004:
 - Randomized trial of TVT vs. Burch
 - 24 months f/u
 - Objective cure rate: TVT: 81% vs. Burch: 80%
- Nilsson, 2008:
 - After 11.5 years
 - Objective cure: 90%
 - (both negative stress and pad test)

The trend of anti-incontinence surgery

- Less invasiveness
- Less technical demand
- Long term efficacy
- Safety
- Improvement of QoL



Transobturator tape (TOT)

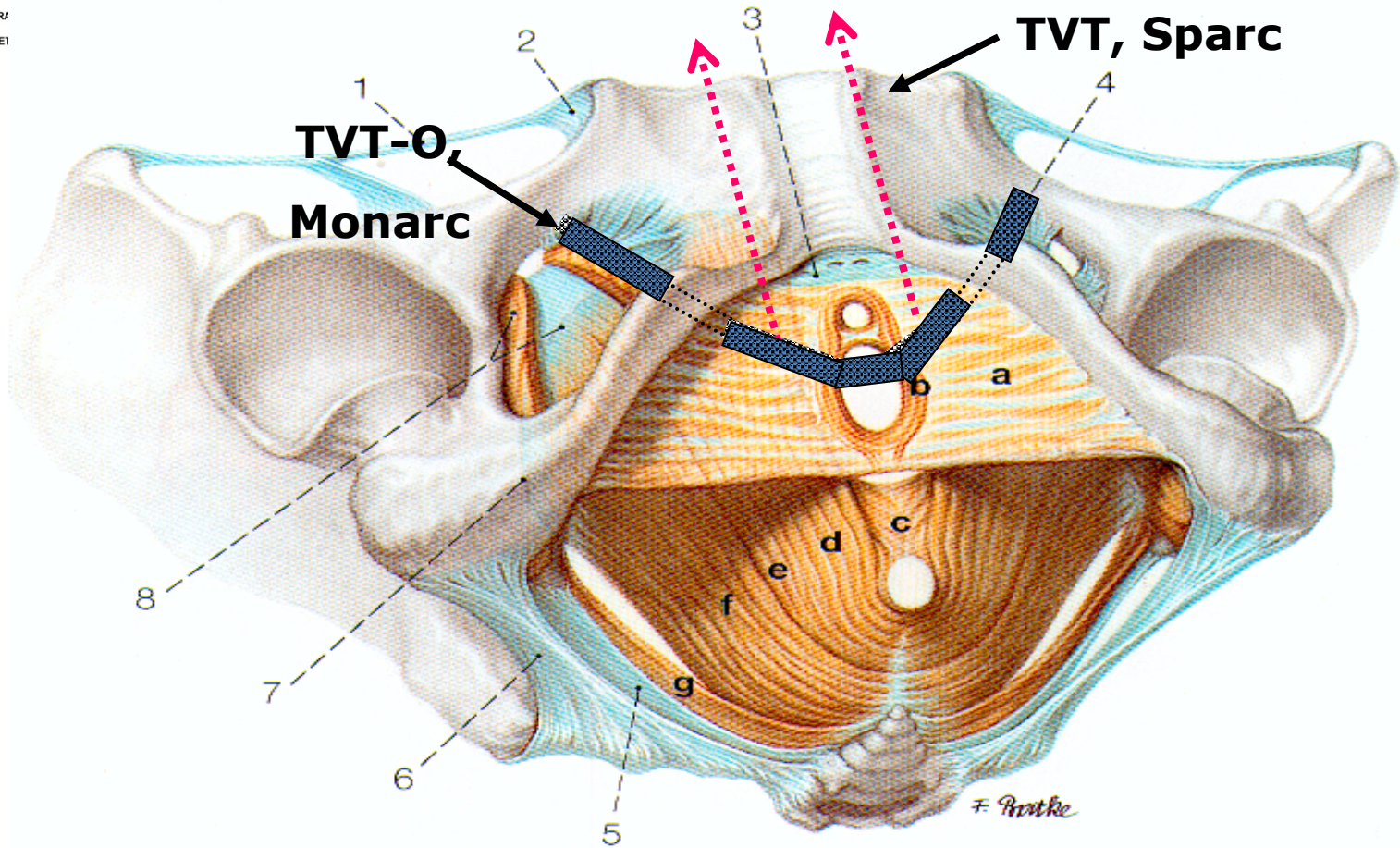
- Delorme, 2001:
Monarc : “outside-in” procedure
- de Leval, 2003:
TVT-O: “inside-out” procedure



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Transobturator sling (TVT-O, Monarc)



Transobturator slings

- Entirely perineal technique
- Risk of bladder injury: reduced to estimated 0.5%
- Avoid penetration of retropubic space
- Reduction of surgery-related complications
- Promising outcome after mid-term follow-up

Single incision sling

- Self-anchoring mini-tapes
- Minimize operative procedure
- Reduce thigh pain and risk for bladder injury by minimizing tape's trajectory.
- Shorter polypropylene mesh
- No exit skin cuts are needed.
- Wait for mid-term outcome.