# Post- prostatectomy Incontinence - PPI


## Dr. Kolombo Ivan, MD, FEBU

**Assoc.Prof. Popken Gralf MD, PhD, Assoc.Prof. Otčenášek Michal MD, PhD, Dr. Klézl Petr MD, MBA, Dr. Kolombová Jitka MD, MBA, Assoc.Prof. Grill Robert MD, PhD, MHA**

**1-Charles University Prague, Department of Urology University Hospital Vinohrady Prague, 2 Department of physiotherapy and rehabilitation Hospital Mladá Boleslav, Czech Republic**

# RISKS OF RADICAL PROSTATECTOMY COMPLICATIONS

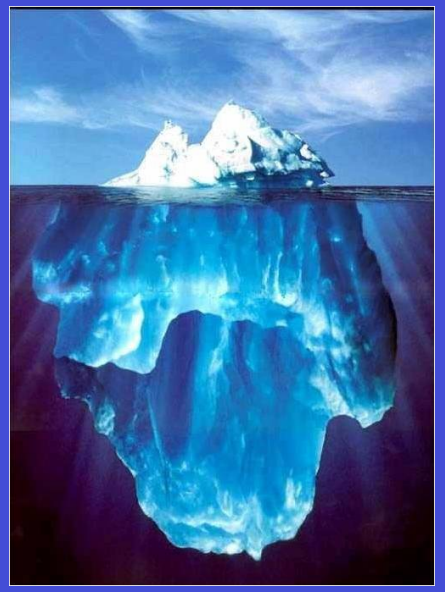
- **Multi-center study of over 1069 men provided self reported incidence of incontinence, impotence, and bladder neck contracture /stricture revealed the following results:**

  - Incontinence=65%
  - Impotence=88.4%
  - Bladder neck contracture/stricture=20.5%
  - Even though complications of post radical prostatectomy are common and affects overall quality of life, most patients would elect the same treatment again.

Journal of Urology 163,858-864, March 2000

# GENERAL MALE POPULATION URINARY INCONTINENCE

- Community population rate on incontinence in persons over 60 is 15-30%; 10-15% in women; 50% in institutionalized elderly
- Prevalence rate on incontinence in men ≥60 in Michigan study in 1998 was 19% with
  - 34.9% had urge incontinence
  - 7.9% had stress incontinence
  - 28.9 had mixed
  - 28.3% had other



Ostomy/Wound Management 44(6), 54-59, (1998)

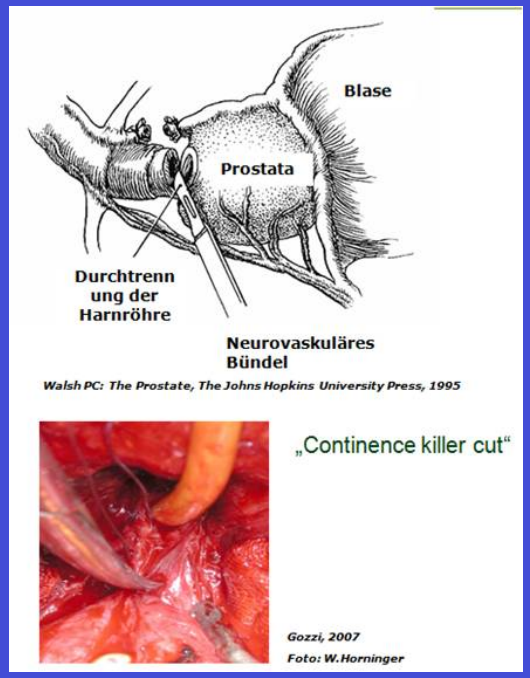
# RISKS FOR PPI

- Age
- Size and location of tumor
- Size and configuration of the prostate
- Presence and degree of bladder outlet obstruction and detrusor muscle dysfunction preoperatively
- **Surgical technique and skill of surgeon**: resection of neurovascular bundles, bladder neck preservation/reconstruction
- Other studies found no association based upon the above variables nor cancer stage, tumor grade

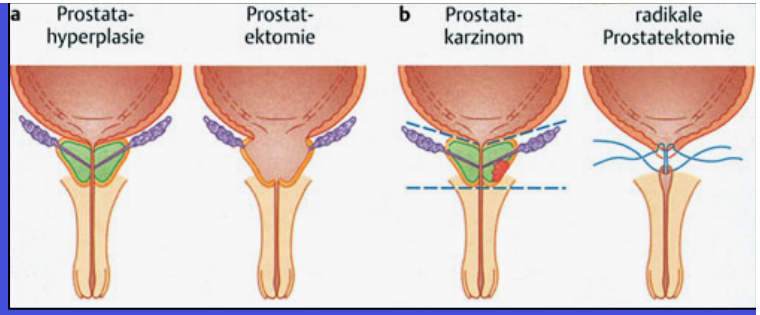
# ANATOMY

- There are 2 separate continence zones:

- Proximal urethral sphincter (PUS) includes
  - The bladder neck, prostate and prostatic urethra to veru montanum
- Distal urethral sphincter –DUS extending from the veru montanum to the bulbar urethra
  - Includes **slow twitch** intrinsic rhabdosphincter fibers that sustain urethral lumen tone
  - **Fast twitch** fibers of the periurethral extrinsic skeletal muscle layer that supplement the activity of slow twitch fibers
  - Intrinsic smooth muscle layer that is a continuation of the superficial layer of the detrusor muscle lining the posterior prostatic urethra



## POINTS OF DAMAGE POST OP



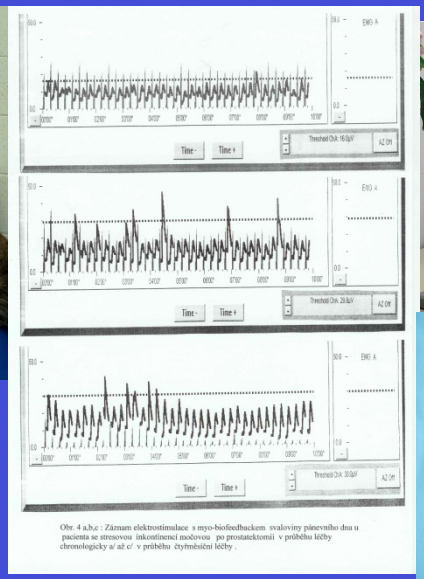

- Either the PUS or DUS must be intact to maintain continence
- After prostatectomy the PUS is destroyed and continence relies totally upon an intact DUS
- During a radical prostatectomy, the proximal portion of the DUS is also removed
- Continence therefore is dependent on an intact distal sphincter as well as normal bladder function (capacity and compliance without detrusor instability)
- Any bladder dysfunction resulting in an intravesical pressure that exceeds that of the distal urethral spincter resistence leads to PPI
- Urodynamically based studies point out that sphincter weakness with secondary detrusor weakness based upon reduced maximum urethral closure pressure, low leak point pressure and shortened urethral length lead to incontinence

# CONSERVATIVE TREATMENT

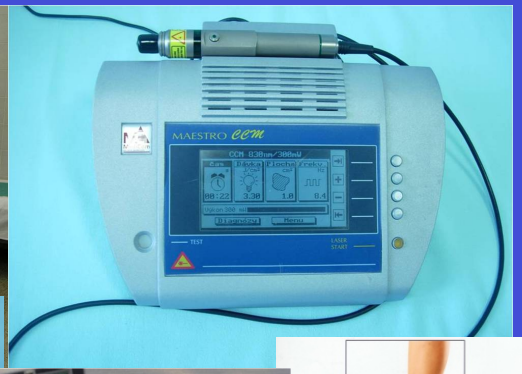
- Urodynamic Testing
- Role of Pelvic Floor Exercises
  - Commonly recommended
  - **May be effective when employed in an intensive, supervised program**
  - Improved continence at 3 mo (88% vs 56%). Difference diminished at 1 year (14%).

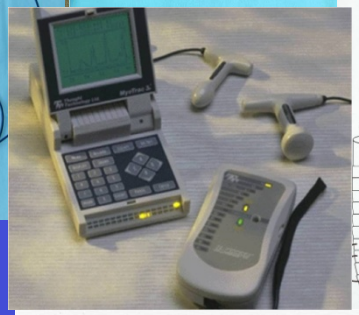
    [Van Kampen et al., Lancet 2000 355(9198):98-102]
  - Benefit of office based instruction is questionable
  - Sueppel et.al (2001) found that starting PFM exercises prior to surgery improved outcomes

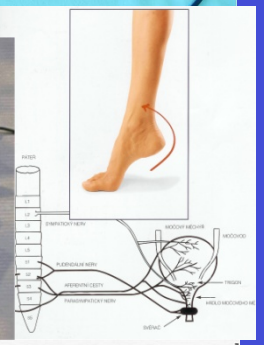
# CONSERVATIVE TREATMENT



Obr. 4 a,b,c : Záznam elektrostimulace s myo-biofeedbackem svaloviny pánevního dna u pacienta se stresovou inkontinencí močovou po prostatektomii v průběhu léčby chronologicky a/ až c/ v průběhu čtyřměsíční léčby .



- Medical: In addition to conservative measures:
  - Anticholinergics for detrusor instability
  - Onuf's nucleus motoneurons stimulation - duloxetin (Yentreve)
  - Complex agents - imipramin (Melipramin)

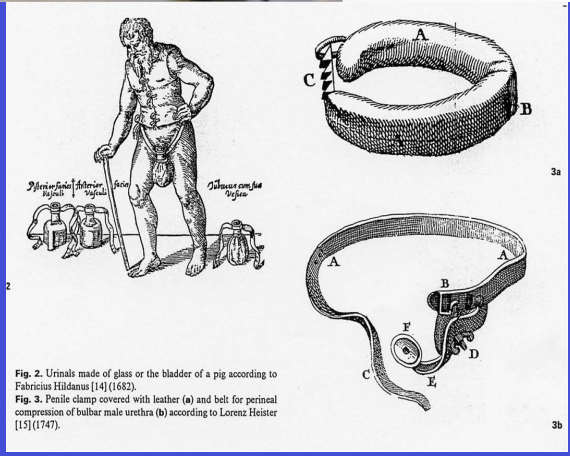



**Fig. 2.** Urinals made of glass or the bladder of a pig according to Fabricius Hildanus [14] (1682).
**Fig. 3.** Penile clamp covered with leather (**a**) and belt for perineal compression of bulbar male urethra (**b**) according to Lorenz Heister [15] (1747).

# Treatment Options

## *Conservative*

- ***Protection with pads***
- ***Cunningham penile clamp, C3-clamp***
- ***Condoms and cathetrs***
- ***Pelvic floor training***
- ***Electrostimulation***
- ***Magnetstimulation***
- ***Duloxetin (off-label-use)***

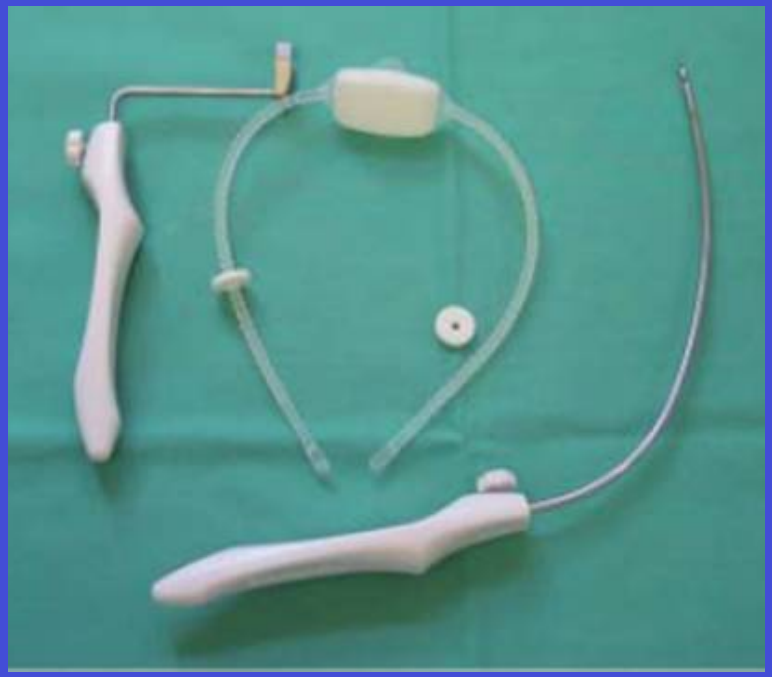
## *Obstructive*

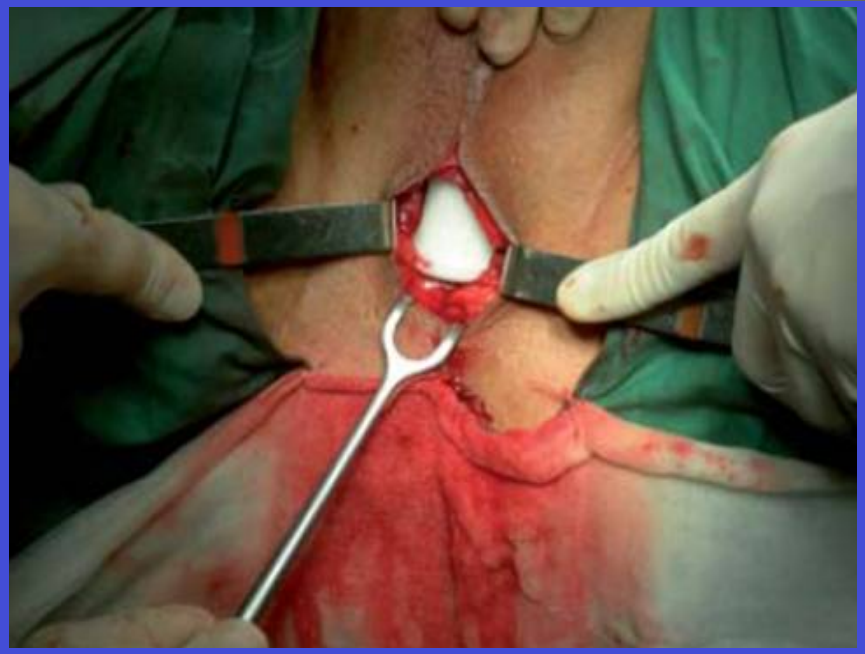
- ***Bulking Agents***
  - *autologous fat, glutaraldehyde cross-linked bovine collagen, calcium hydroxylapatite, pyrolytic carbon-coated beads, polydimethylsiloxane, ethylene vinyl alcohol copolymer, dextranomer hyaluronic acid, and polytetrafluoroethylene*
- *Faszienzügelplastik*
- *ProACT*
- *Suspension n. John +InVance*
- *Adjustiable male sling (Argus)*

## *Functional*

- ***Arteficial Urinary Sphincter***
- ***Functional Slings***
  - ***TOT (Atoms, AdVance)***
  - ***Stem cells???***

# ARGUS Adjustable Male Sling - Retropubic

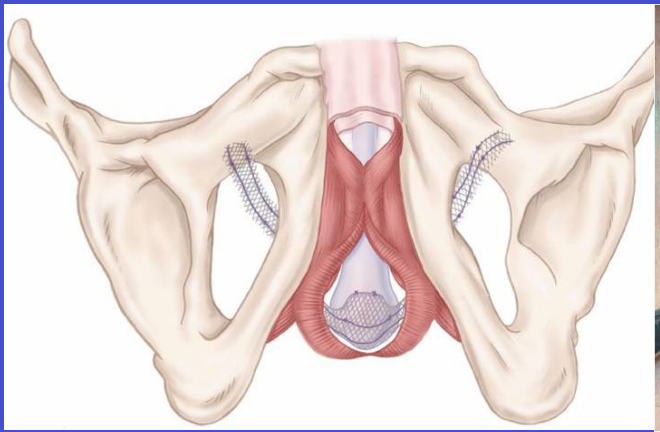


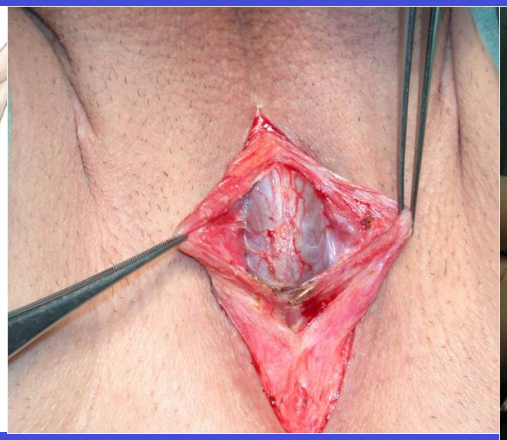


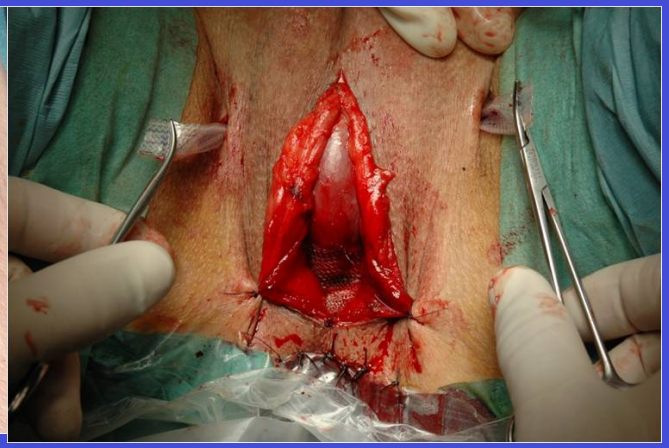
- Our Experience (2005-2015) - 78 Argus slings
- Continent 70%, Improve 10%, Failure 20%
- Bladder perforation 17%, Extraction 20%

# Slings – TOT – Atoms (2pts.)

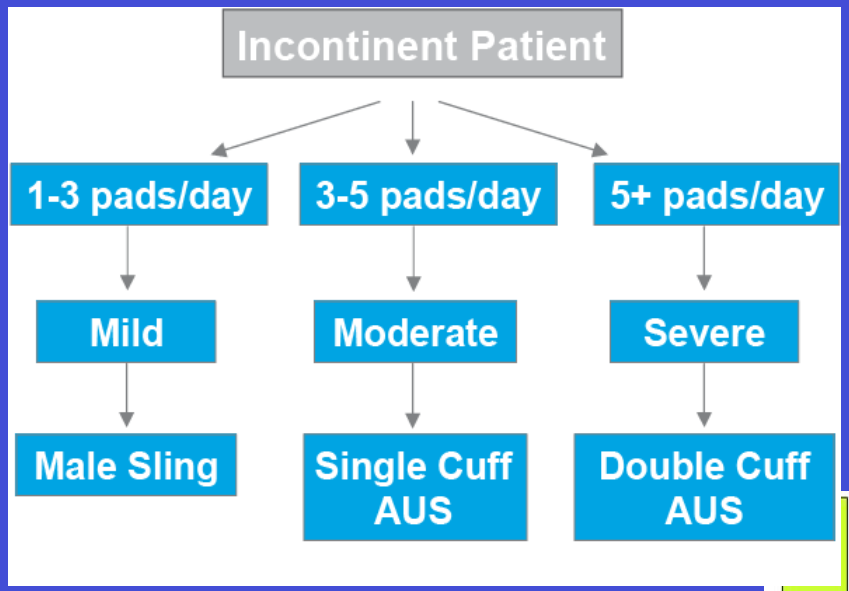
| Produkt | Firma | Zulassung | Heilung (%) | Besserung (%) | Material | Funktionsprinzip |
|---|---|---|---|---|---|---|
| I-Stop Toms | Brenner Medical | 2006 | 60 | 80 | Polypropylene Typ I | TOT Elevation |
| Advance | AMS | k.A. | 56 | 26 | Polypropylene Typ I | TOT Elevation |
| Seratim | Serag Wiesner | 2007 | k.A. | k.A. | Polypropylene Polygleacapron | Elevation Obstruktion |
| Atoms | A.M.I. | 2009 | 85 | 92 | Polypropylene Silikon | Elevation Obstruktion |
| Advance XP | AMS | 2010 | k.A. | k.A. | Polypropylene Typ I | TOT Elevation |

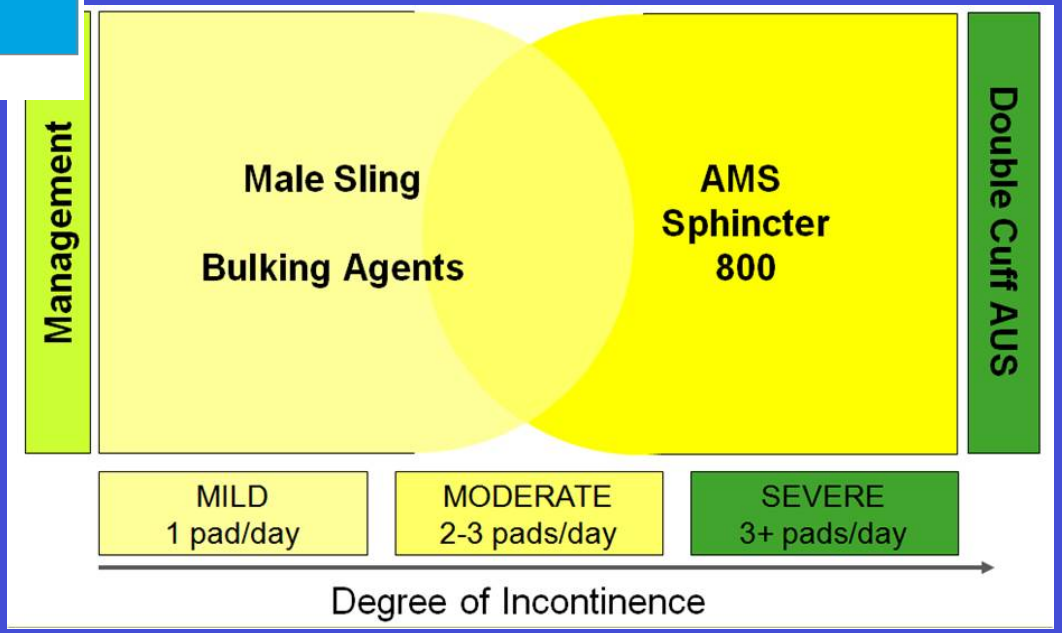




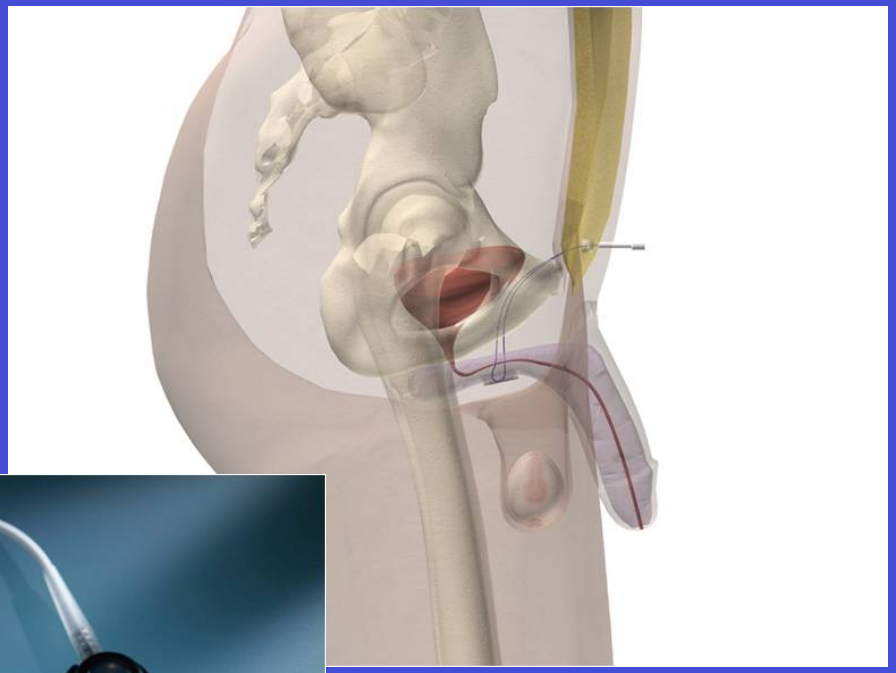


# *Male Incontinence Severity Level Guidelines for Surgical Treatment- Patient selection*

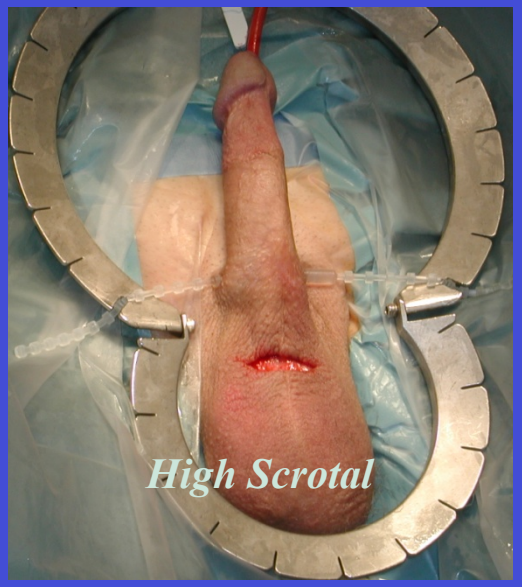


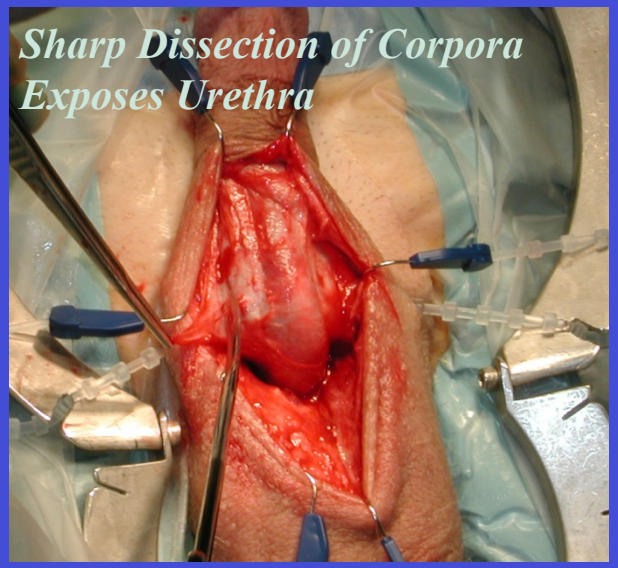



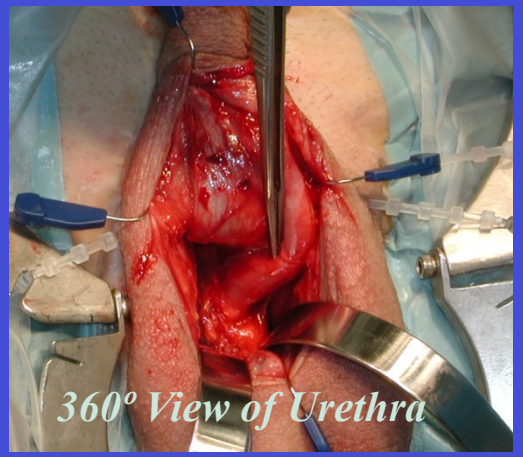
# Arteficial Urinary Sphincter (our experiance 2 pts.)

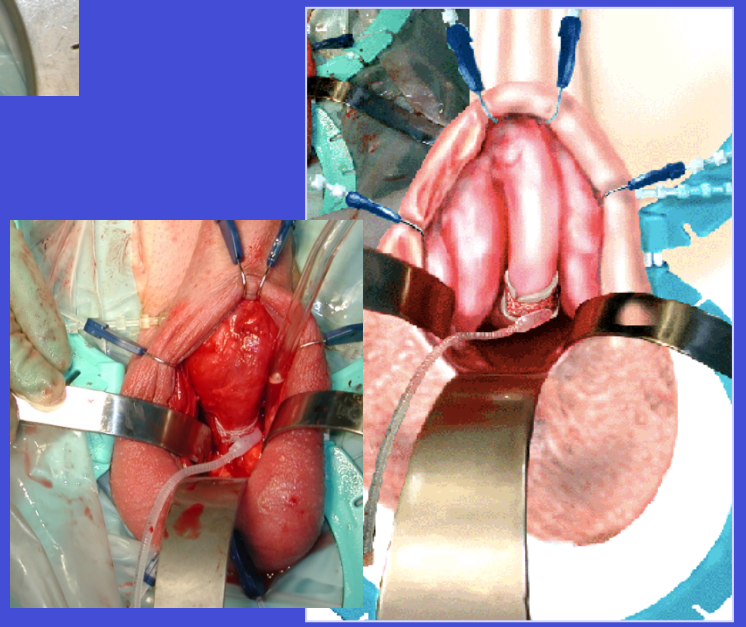


# Penoscrotal Incisions



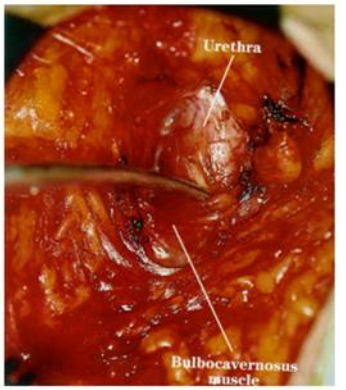



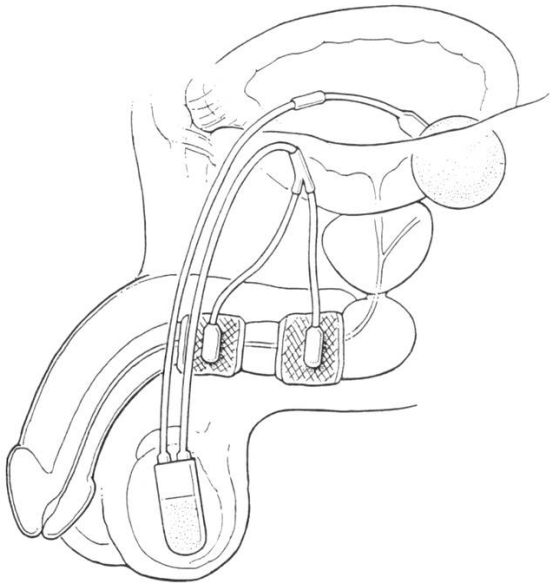



- All components placed via one incision
- Urethral dissection easier
- Direct vision pump placement
- Faster time
- Dual (IPP) also possible

# Surgical Variations - Double Cuff Procedure





Urinary sphincter with 2 cuffs in tandem, 1 reservoir and 1 pump.

# Thank you for your attention