



INCONTINENZA URINARIA MASCHILE

**CORSI TEORICO-PRATICI FINCO, DI FORMAZIONE PER I
PROFESSIONISTI DELL'INCONTINENZA
14-17 aprile 2008**

Dr. TOMMASO CORVASCE

UROLOGIA UNIVERSITARIA E CENTRO TRAPIANTI DI RENE

INTERNATIONAL CONTINENCE SOCIETY

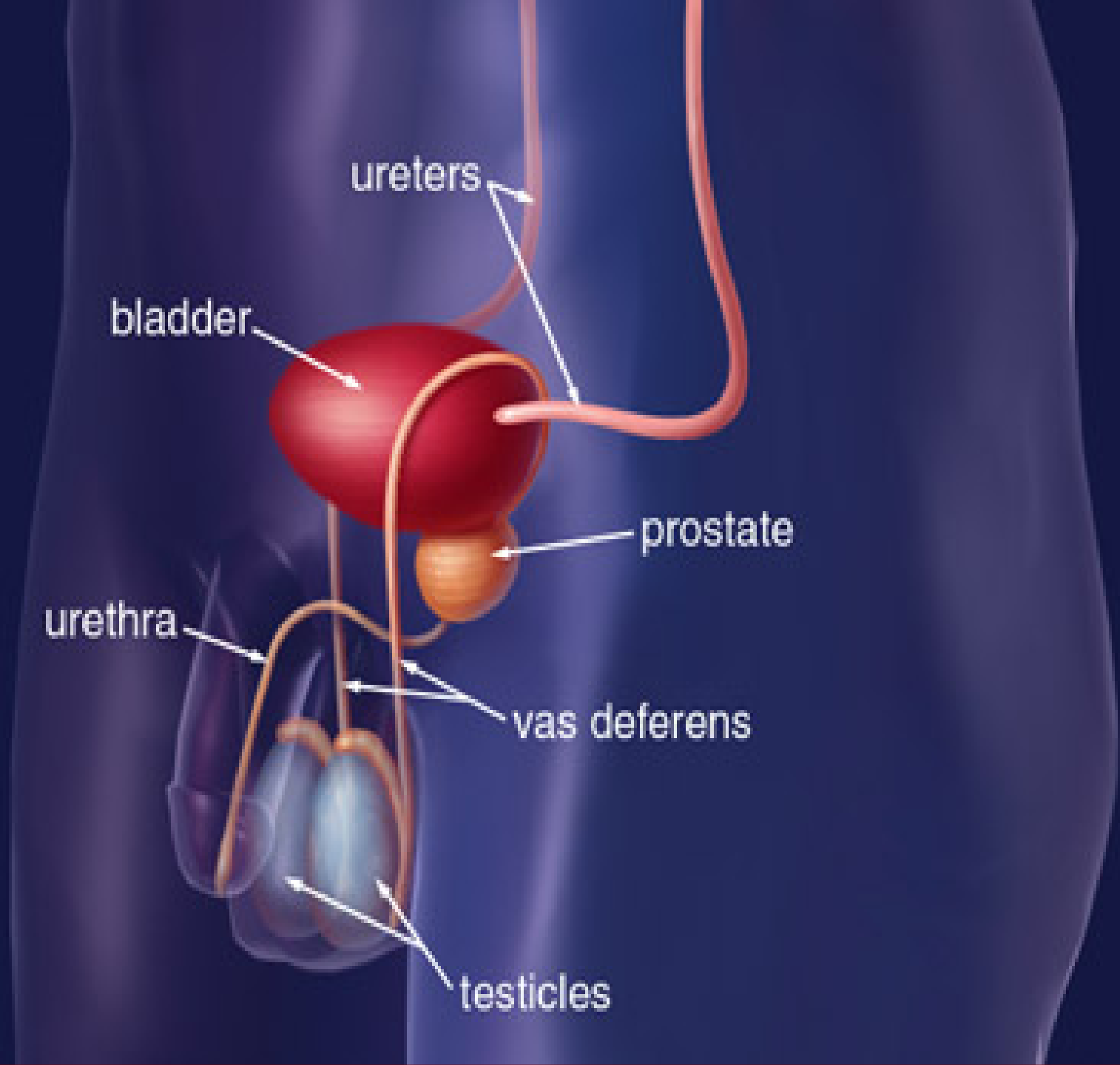
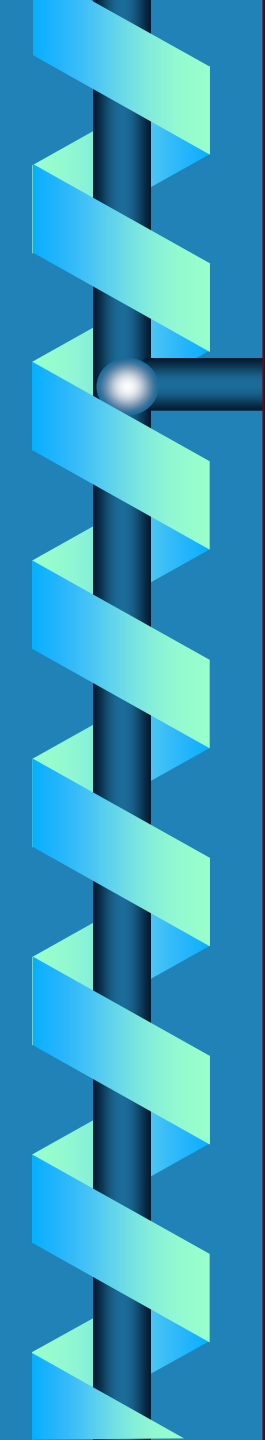
Incontinenza urinaria



“Presenza di ogni perdita involontaria di urina”

Classificazione dell'incontinenza urinaria

- Incontinenza urinaria da sforzo
- Incontinenza urinaria da urgenza
- Incontinenza urinaria mista
- Ischiuria paradossa
- Enuresi *

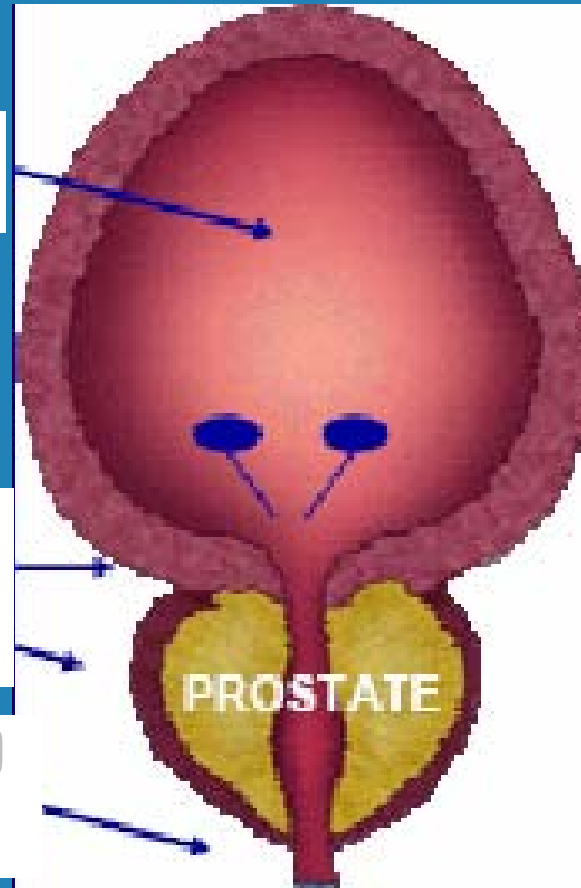


La Vescica e gli Sfinteri

vescica

Sfintere interno
(involontario)

Sfintere esterno
(volontario)

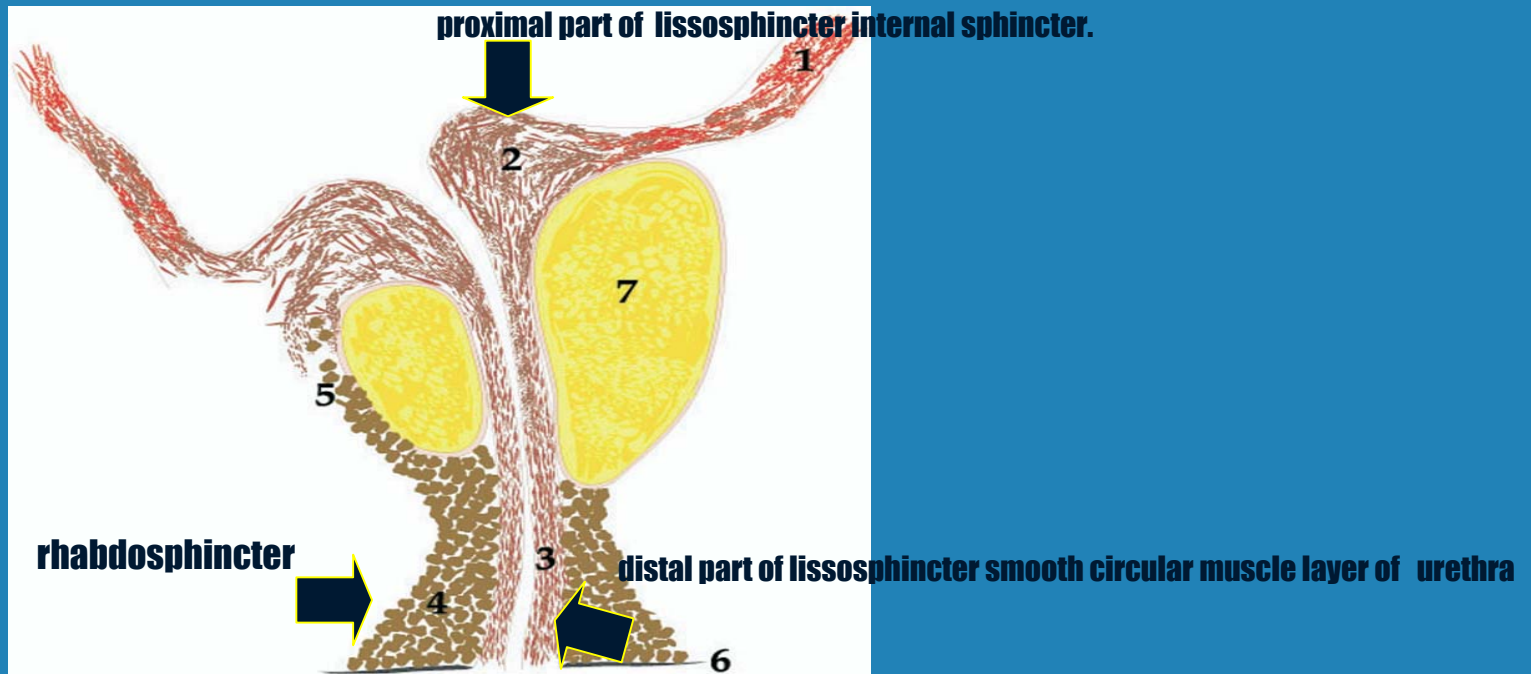


The Male Urethral Sphincter Complex Revisited:

An Anatomical Concept and its Physiological Correlate

Mamdouh M. Koraitim

From the Department of Urology, College of Medicine, University of Alexandria, Alexandria, Egypt Vol. 179, 1683-1689, May 2008 THE JOURNAL OF UROLOGY®



Revised concept of male urethral sphincter complex. 1 bladder musculature. 2 proximal part of lissosphincter internal sphincter. 3 distal part of lissosphincter smooth circular muscle layer of urethra. 4 rhabdosphincter. 5 prostatic part of rhabdosphincter. 6 perineal membrane. 7 prostate

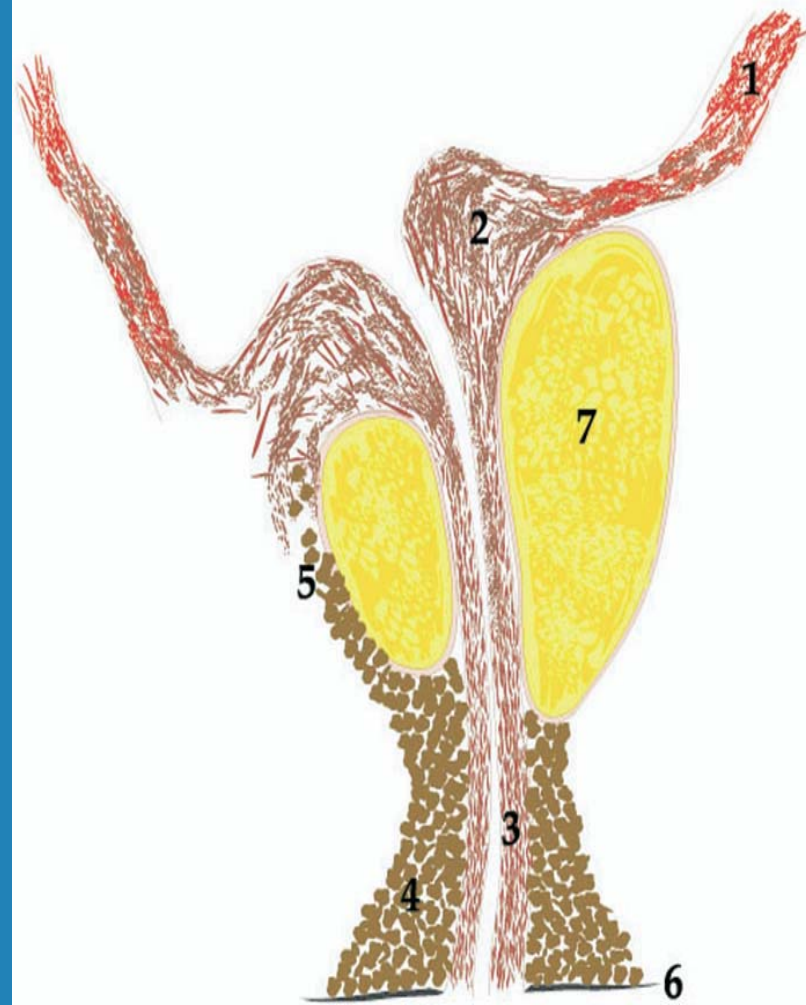
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- b **Group 1 consisted of 23 patients with a mean age of 69 years who had undergone retropubic prostatectomy for benign prostatic hyperplasia and were continent of urine.**
- b **Conceivably these patients had lost the proximal half of the lissosphincter and still had the distal half or inframontanal part plus the rhabdosphincter.**
- b **Group 2 consisted of 11 patients with a mean age of 71 years with post-prostatectomy incontinence after transurethral (8) and retropubic (3) prostatectomy.**
- b **Groups 3 and 4 consisted of 8 continent and 2 incontinent patients, respectively, with a mean age of 31 years who had undergone bulboprostatic anastomotic urethroplasty for strictures complicating a pelvic fracture urethral disruption. The only sphincteric element left in these patients was the proximal half or supramontanal part of the lissosphincter, in addition to a few insignificant skeletal muscle fibers scattered in the prostate.**
- b **Group 5 consisted of 8 patients with a mean age of 32.5 years with a normal urethra who served as controls for patients with urethroplasty**



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- 1) Contenance at rest **is primarily a function of the lissosphincter (GRUPPO 3)**
- 2) **An intact rhabdosphincter does not guarantee continence (group 2) and its absence does not produce incontinence in the presence of an intact lissosphincter (group 3).**
- 3) **The whole length of the urethral sphincter is not essential to maintain continence. FPL may be shortened to almost half that of normal controls and the patient would remain continent (groups 1 and 3)**
- 4) **A minimal length of the urethral sphincter complex is essential to maintain continence, below which incontinence is inevitable (groups 2 and 4). This length is suggested to be more than 1.5 cm as found in this and other studies**
- 5) **The main urinary function of the rhabdosphincter is to maintain continence during stress conditions as shown by the results of UPP during the hold maneuver in patients in groups 1, 2 and 5**

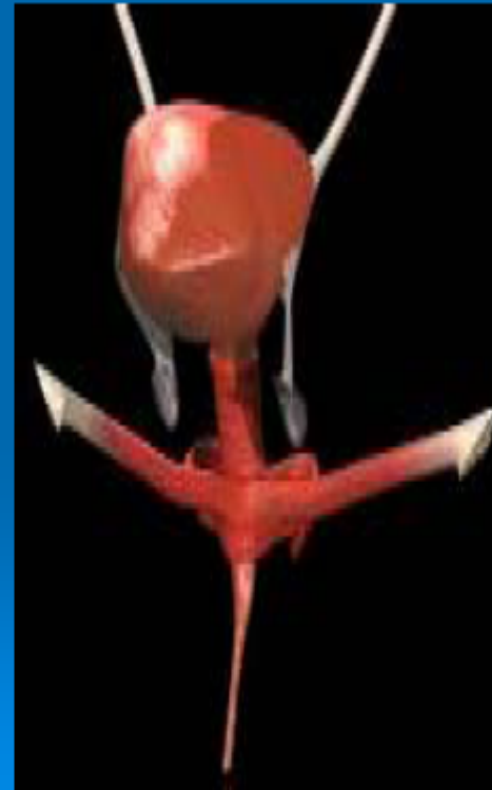
FISIOLOGIA DELLA CONTINENZA URINARIA MASCHILE

Fattori responsabili della continenza urinaria maschile

● vescicale

● uretrale

The Urinary System



- Upper Urinary Tract
 - Kidneys: Urine Production
 - Ureters: Transport urine to the bladder

- Lower Urinary Tract
 - Bladder and Urethra:
 - Urine Storage
 - Urine Voiding

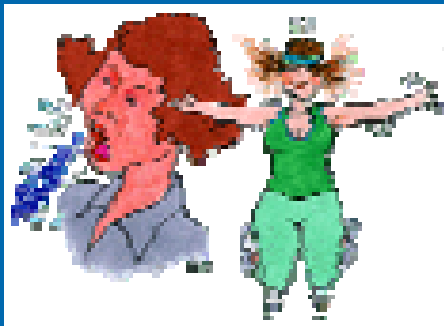
ASPETTI CLINICI DELLA INCONTINENZA URINARIA

- Urinary Incontinence → “I’m Wet.”
- Overactive Bladder (OAB)
 - “I feel the urge to go all the time.”
 - “I go all day long.”
 - “I go all night long.”
- Urinary Retention
 - “I can’t go when I want to.”



Bladder Control Problems

➤ Who is affected??



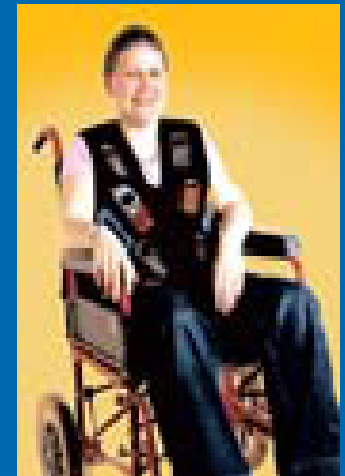
Women



Children



Men



Neurological injury



Elderly

INCONTINENZA URINARIA MASCHILE CAUSE REVERSIBILI

- **Delirium; dementia**
- **Infections: urinary, respiratory, skin**
- **urethritis; alcohol ingestion; acute illness**
- **Pharmacological agents : diuretics, sedative/hypnotics anti-cholinergics, calcium channel blockers antidepressants, Etc**

INCONTINENZA URINARIA MASCHILE CAUSE REVERSIBILI

- **Psychological causes: depression**
- **Endocrine disorders: Hyperglycemia
;excess urine output; excess fluid intake**
- **Restricted mobility: physical restraints,
musculo-skeletal disorders**
- **Stool impaction; chronic constipation**

CLASSIFICAZIONE CLINICA DELLA INCONTINENZA URINARIA MASCHILE

- **Stress**
- **Urge**
- **Overflow**
- **Functional**
- **Mixed component** (detrusor hypercontractability and impaired urethral contraction)
- **Neurogenic (brain-spinal cord damage)**

Incontinenza urinaria



perdita involontaria di urine
attraverso l'uretra



urge incontinence



iperattività del
detrusore



stress incontinence



difetto del
supporto
pelvico



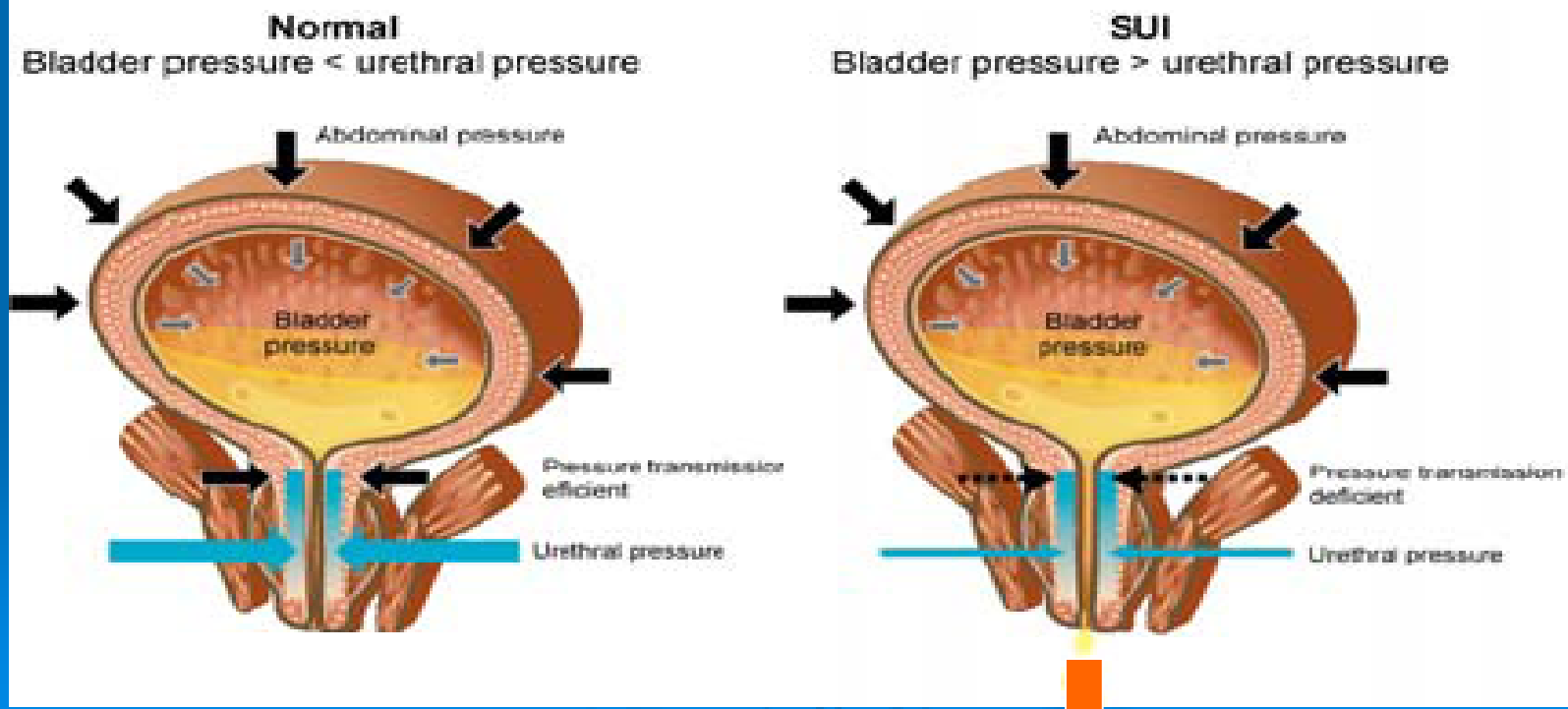
deficit
intrinseco

INCONTINENZA URINARIA MASCHILE DA SFORZO

Perdita incontrollata di quantità variabili di urina per aumenti improvvisi di pressione addominale (starnuti, colpi di tosse, manovre di Valsalva, sollevamento pesi, saltelli, rapporti sessuali ecc.)

Sfintere urinale ipoattivo

The Weak Urethra



CAUSE PIU' FREQUENTI DI IU DA STRESS NEL MASCHIO

CHIRURGIA UROLOGICA

PROSTATA

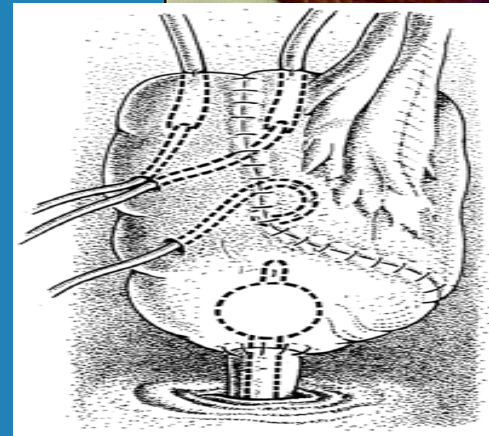
PROSTATECTOMIA RADICALE	[2 -18%]
TURP	[0,5-2%]
ADENOMECTOMIA TRANSVESCICALE	[0,5 -1%]
ADENOMECTOMIA RETROPUBICA	“ “

CAUSE PIU' FREQUENTI DI IU NEL MASCHIO

CHIRURGIA UROLOGICA

URETRA-VESCICA

- STENOSI
- IPOSPADIA
- VALVOLE URETRALI (gravi di tipo I e
in quelle di tipo III)
- CISTECTOMIA RADICALE CON
NEOVESICA
ORTOTOPICA
- FISTOLE URINOSE

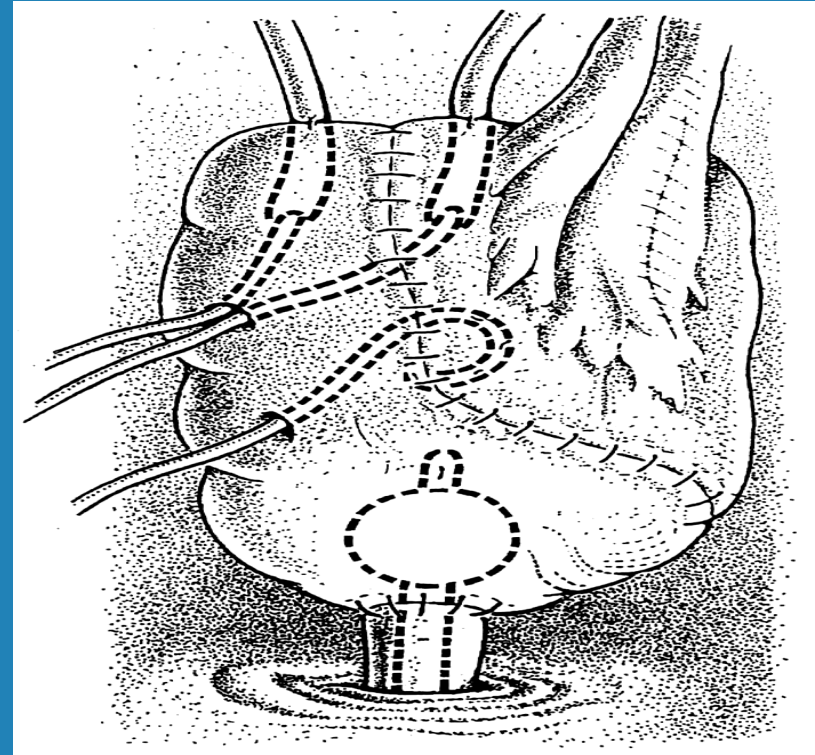


CAUSE PIU' FREQUENTI DI IU NEL MASCHIO

**NEOVESCICA ILEALE
ORTOTOPICA
INCONTINENZA**

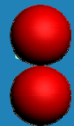


**-0-15% day
-15-45% night**



CAUSE PIU' FREQUENTI DI IU DA STRESS NEL MASCHIO

ESITI DI PROSTATECTOMIA RADICALE (RRP)



DANNO A CARICO DEI NN CAVERNOSI LESIONE SFINTERICA

DIRETTA/NON ADEGUATA PRESERVAZIONE APICE PROSTATICO E COLLO VESCICALE

**RESEZIONE ENDOSCOPICA DI ADENOMA DELLA
PROSTATA (TURP)**

ADENOMECTOMIA TRANSVESCICALE (ATV)

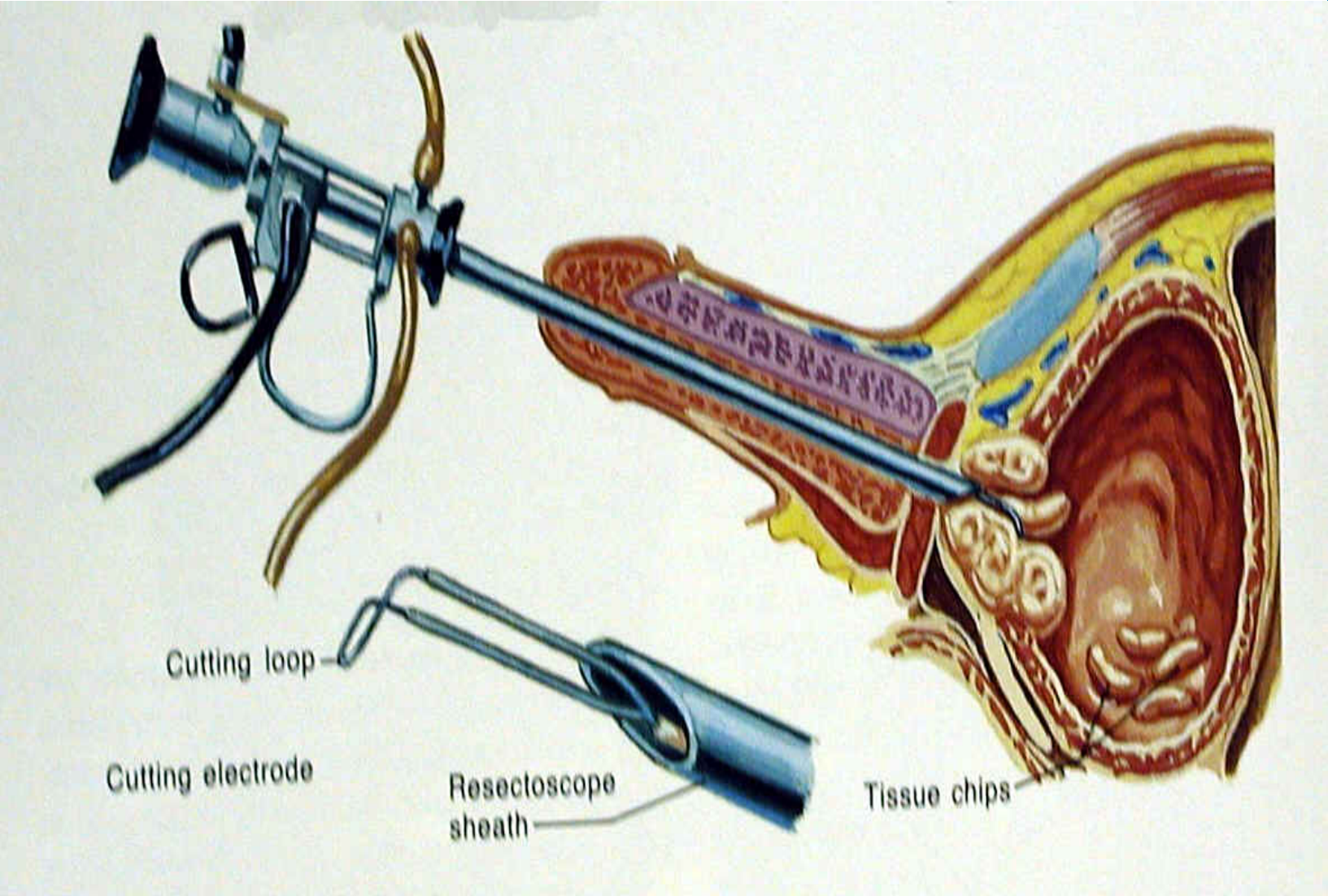


LESIONE SFINTERICA DIRETTA

IUS MASCHILE DOPO TURP O ATV

- **DANNO SFINTERICO PIU' FREQUENTE DA ORE 10 A ORE 2 DOPO TURP**
- **LESIONE DELLO SFINTERE DISTALE DURANTE ENUCLEAZIONE DI ADENOMA PROSTATICO CON ESTENSIONE DELLA MANOVRA OLTRE IL VERU MONTANU**

TURP



ADENOMECTOMIA TRANSVESCICALE

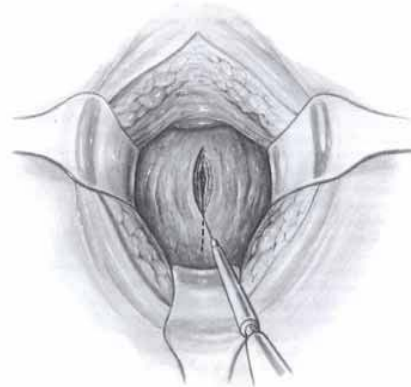
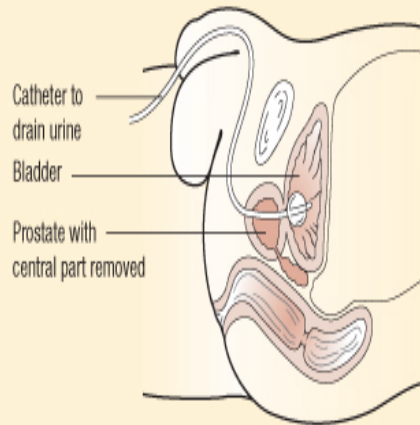
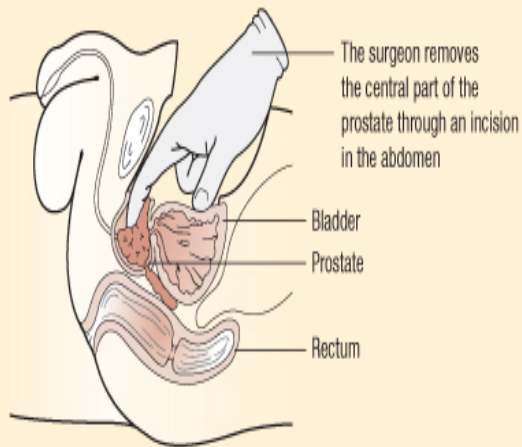


FIG. 1. Cistotomia longitudinale.

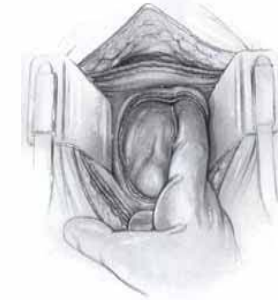


FIG. 3. Preparazione digitale del piano di clivaggio.



FIG. 4. Sezione dell'uretra prostatica con forbici curve.

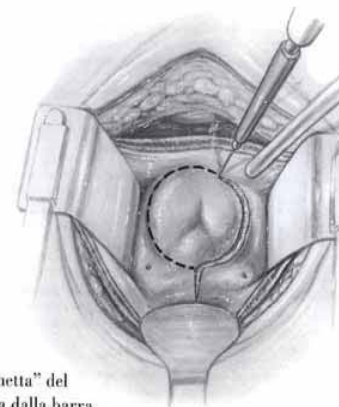


FIG. 2. Incisione a "racchetta" del collo vescicale, a partenza dalla barra ureteretica.

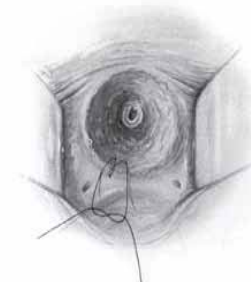


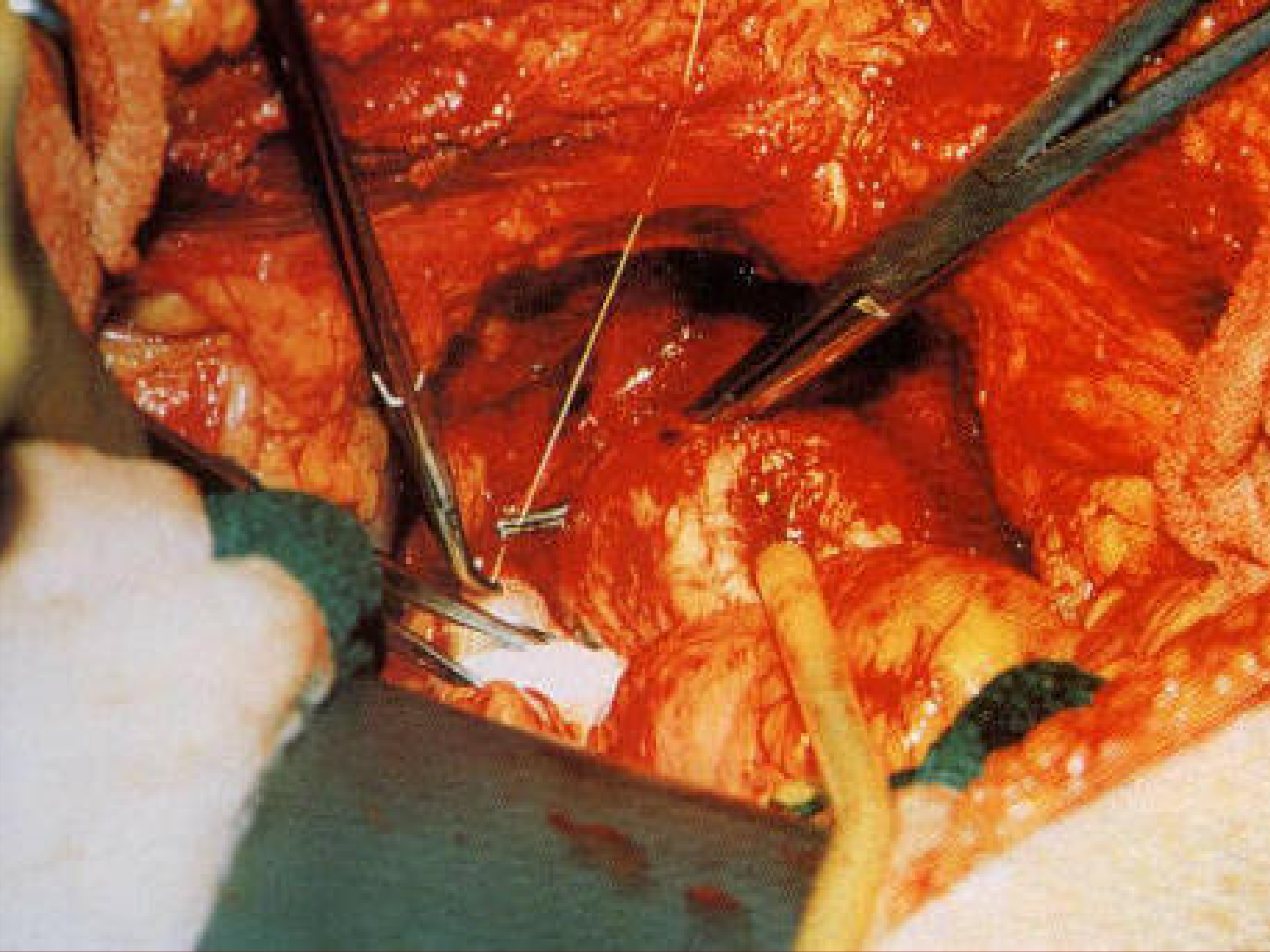
FIG. 5. Primo dei 6 punti ad "X" in catgut, a scopo emostatico, che vengono posizionati su tutto il contorno del collo.

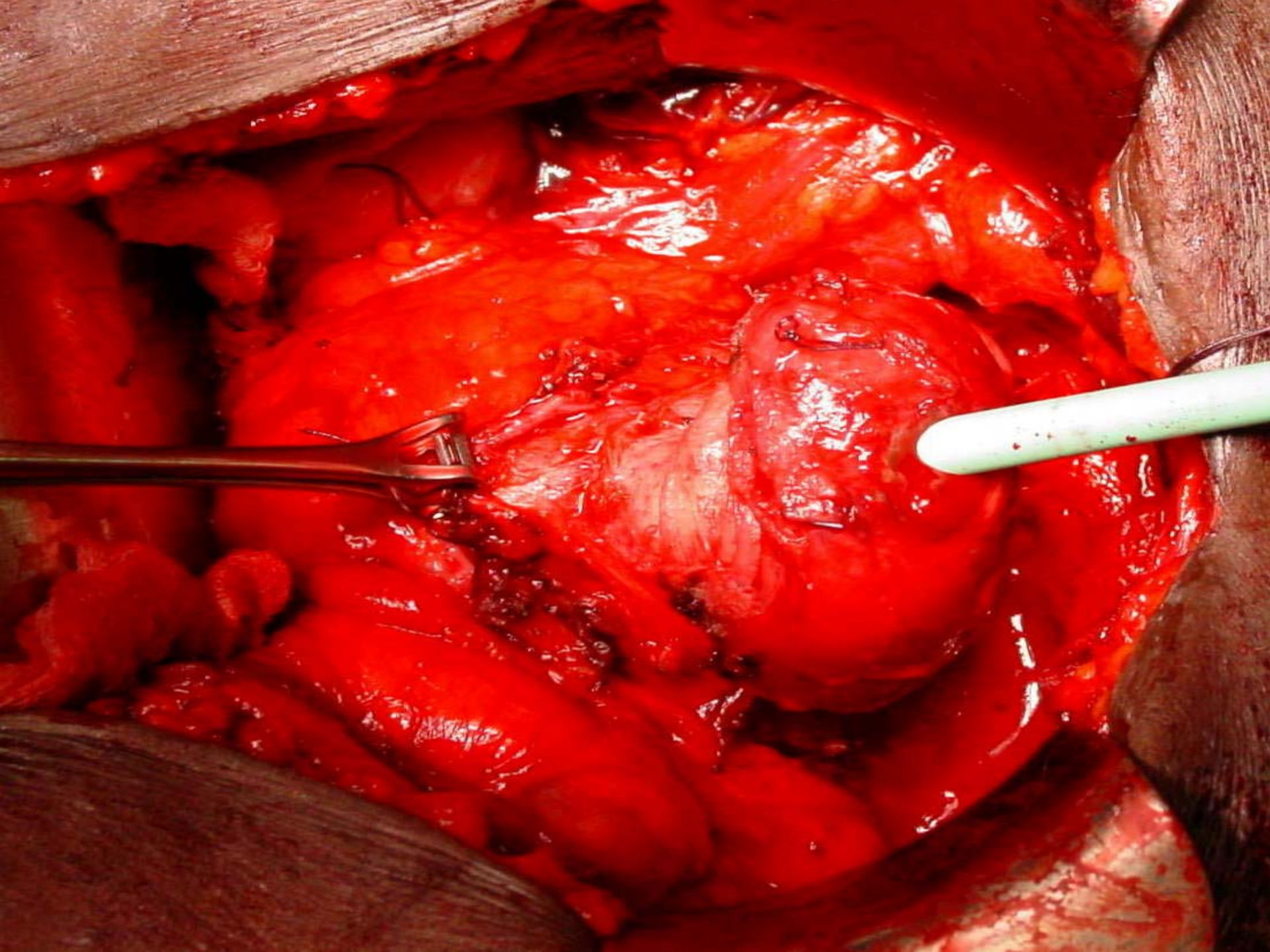
IUS DOPO PROSTATECTOMIA RADICALE RETROPUBICA

- **Non adeguata preparazione-preservazione dell'apice prostatico e del collo vescicale**
- **Walsh e Klein hanno dimostrato un miglioramento della continenza incorporando tessuto del complesso venoso dorsale e dell'uretra posteriore nell'anastomosi v-u (Walsh, 1990- Klein 1992)**



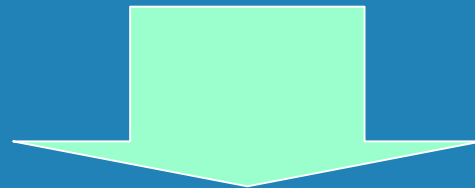
Studi di Urodinamica indicano che paz continenti dopo RRP hanno *lunghezza uretrale funzionale* maggiore rispetto ai pz incontinenti





INCONTINENZA URINARIA MASCHILE DA URGENZA

Contrazioni incontrollate del muscolo detrusore che non sono opportunamente contrastate dai sistemi sfinteriali preposti

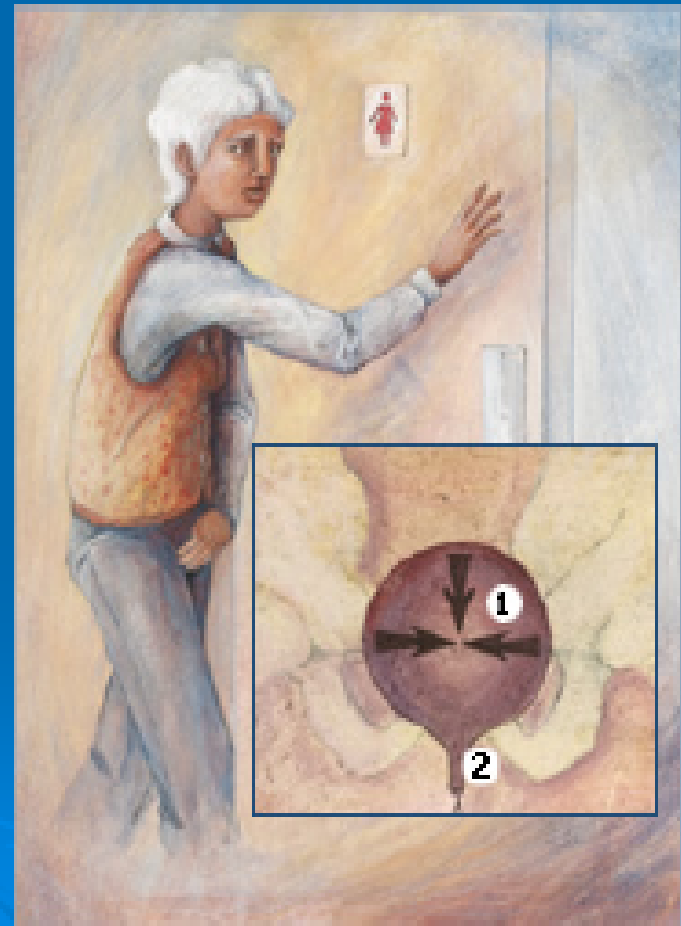


bisogno improcrastinabile di mingere con fughe di urina prima di raggiungere la toilette.

Urge Incontinence

- Urinary Leakage with a sudden, strong urge to go.

This may be a large amount of leakage!!





Incontinenza mista o “stress-urge incontinence”

**In questa forma può prevalere l'una o
l'altra delle due patologie**

INCONTINENZA URINARIA MASCHILE DA RIGURGITO LISCURIA PARADOSSA

Espressione di *ritenzione cronica di urine* dove la ridotta attività' del detrusore, associata al notevole residuo pm, può causare frequenza, urgenza minzionale e fuga involontaria di urine, diurna e notturna



Overflow incontinence

Intravesical pressure exceeds the maximum urethral pressure, but is associated with bladder over-distension due to detrusor underactivity

INCONTINENZA URINARIA MASCHILE DI TIPO FUNZIONALE

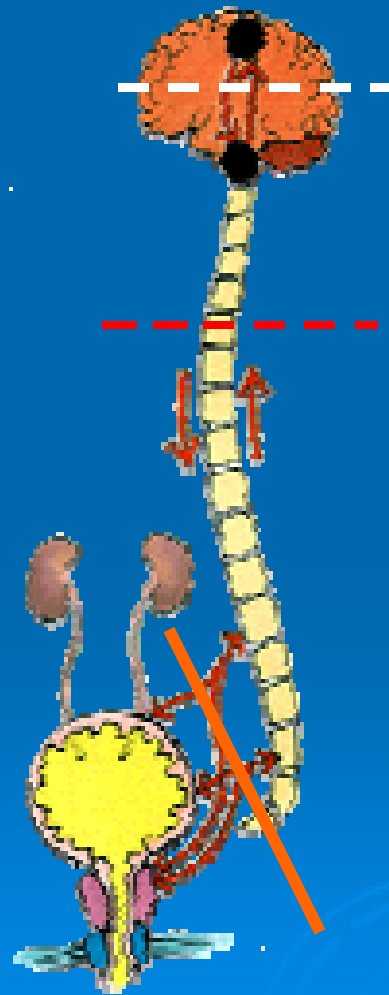
**Disabilita'
fisica o mentale**



**Difficolta' a raggiungere la toilette
nel momento della necessita'**



The Neurogenic Bladder



Multiple Sclerosis

Stroke

Parkinson's Disease

Spinal Cord Injury

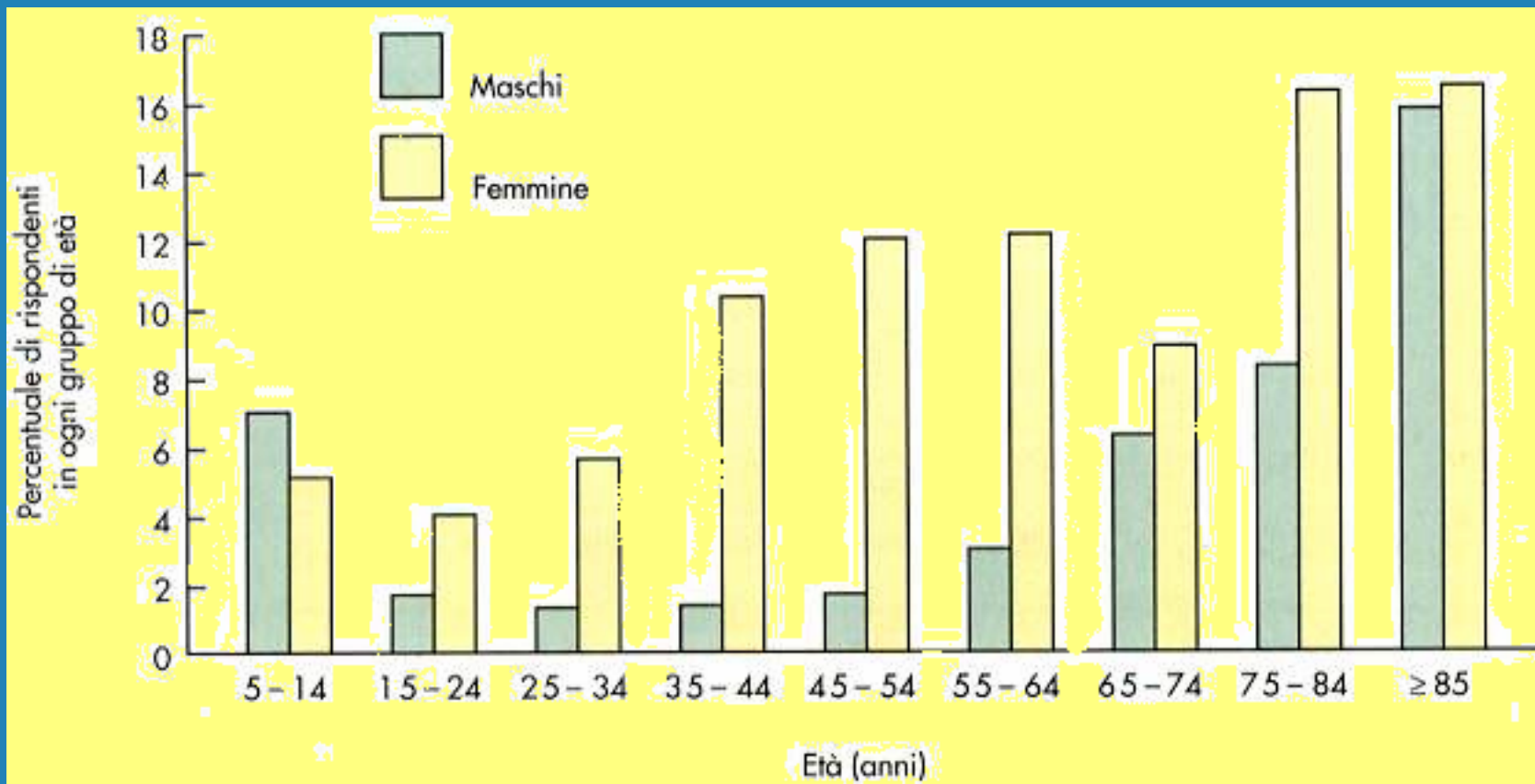
Colon-rectal Surgery

INCONTINENZA URINARIA MASCHILE

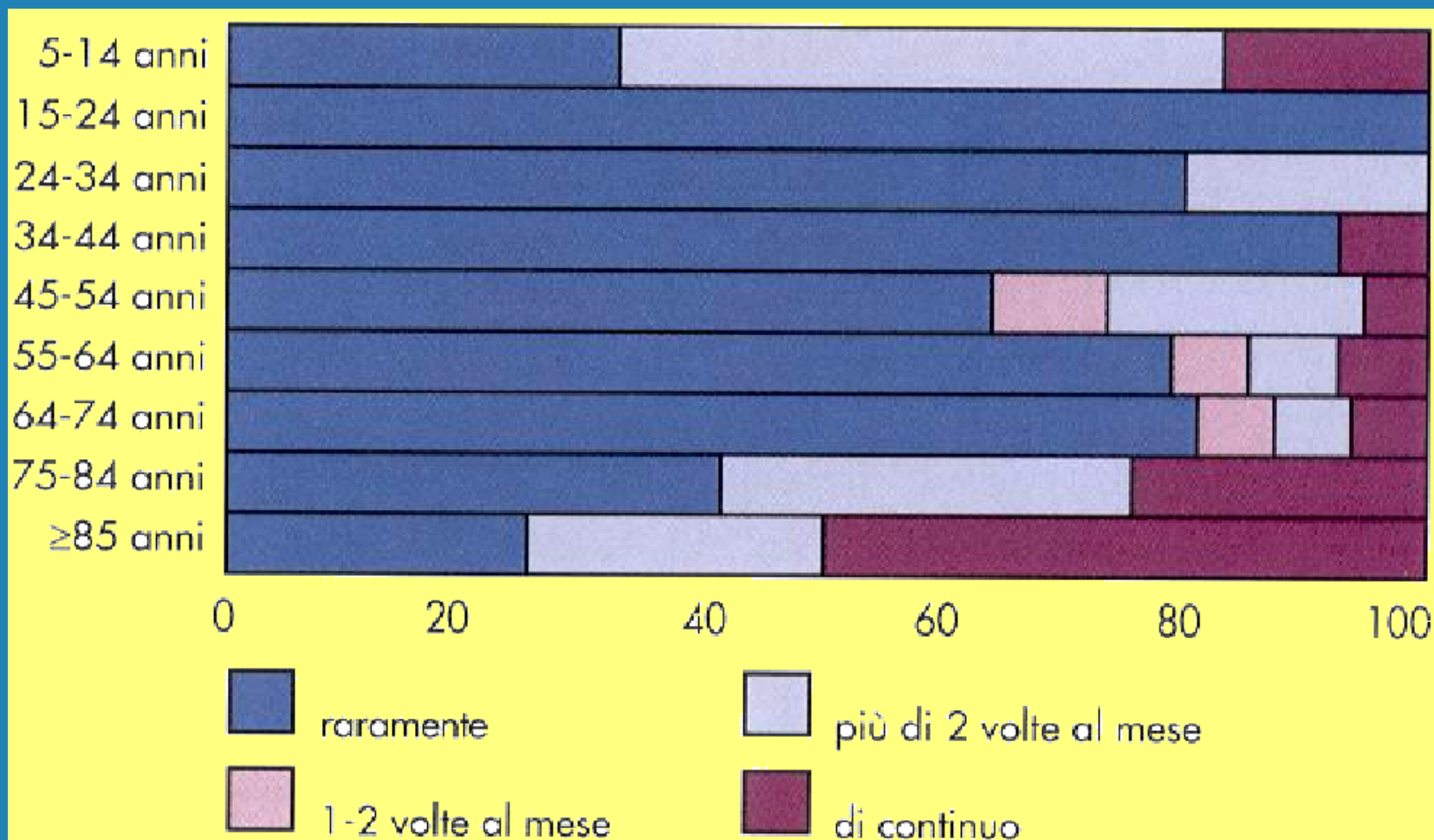
Impatto sulla qualità di vita:

- isolamento**
- riduzione interazioni sociali**
- necessità di protezioni speciali (es. per il letto)**
- modificazioni abitudini di vita (necessità di mappare le toilettes)**
- limitazione o cessazione attività fisiche**
- rinuncia all'attività sessuale**
- depressione**
- disistima personale**

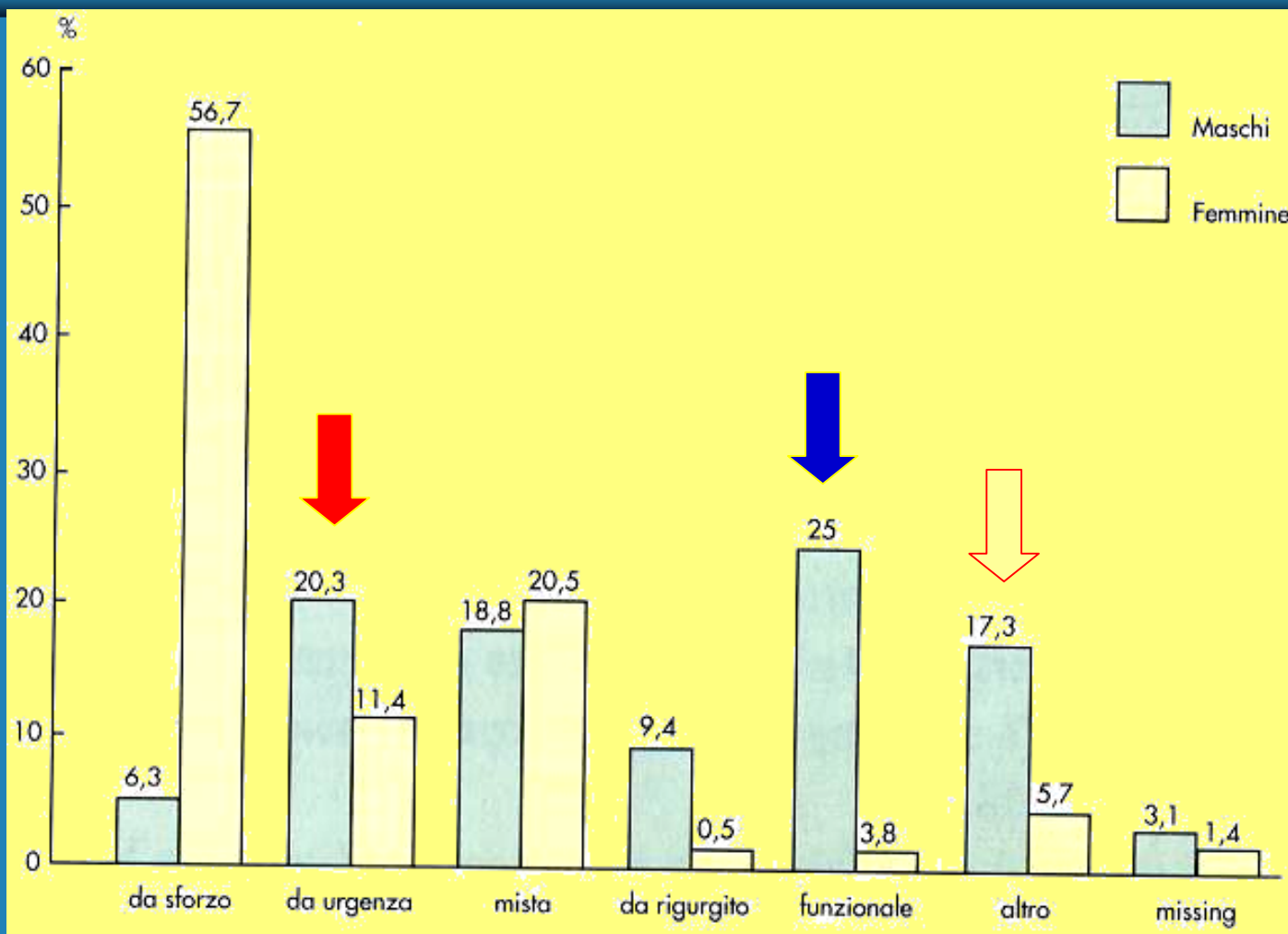
Prevalenza dell' Incontinenza Urinaria regolare (2 o più episodi di incontinenza per mese) nel Sesso femminile e maschile (popolazione generale)



Gravità dell'incontinenza urinaria maschile per età



Classificazione IU per Tipologia in entrambi i sessi



INCONTINENZA URINARIA MASCHILE

Test Diagnostici 1° livello

- **Anamnesi**
- **Esame obiettivo**
- **Esplorazione rettale**
- **Esame delle urine, routine ematochimica**
- **PSA**
- **Diario minzionale**

From the 5th International Consultation on BPH - Paris, June 2000

Anamnesi

- **Natura e durata dei sintomi genito-urinari riferiti (caratteristiche del tipo di IU, uso di pad, frequenza degli episodi di IU)**
- **Precedenti interventi chirurgici**
- **Notizie cliniche generali, vita sessuale, somministrazione questionario ICIQ- Urinary Incontinence**
- **Farmaci**
- **Rischio relativo correlato ad eventuali interventi chirurgici e/o terapia medica**

ICIQ-Urinary Incontinence

b

- A) To assess the impact of symptoms of incontinence on **quality of life**
- B) To assess **outcomes of treatment**
- c) **Frequency of urinary incontinence**
Amount of leakage
Overall impact of urinary incontinence
Self-diagnostic item Language versions available

ICIQ-Urinary Incontinence

- c) Validity, reliability and responsiveness established with rigour in one data set Scoring system**
- D) 0-21 overall score with greater values indicating increased severity**
- E) Self-diagnostic item unscored Suggested modules to use in conjunction**

Esame obiettivo

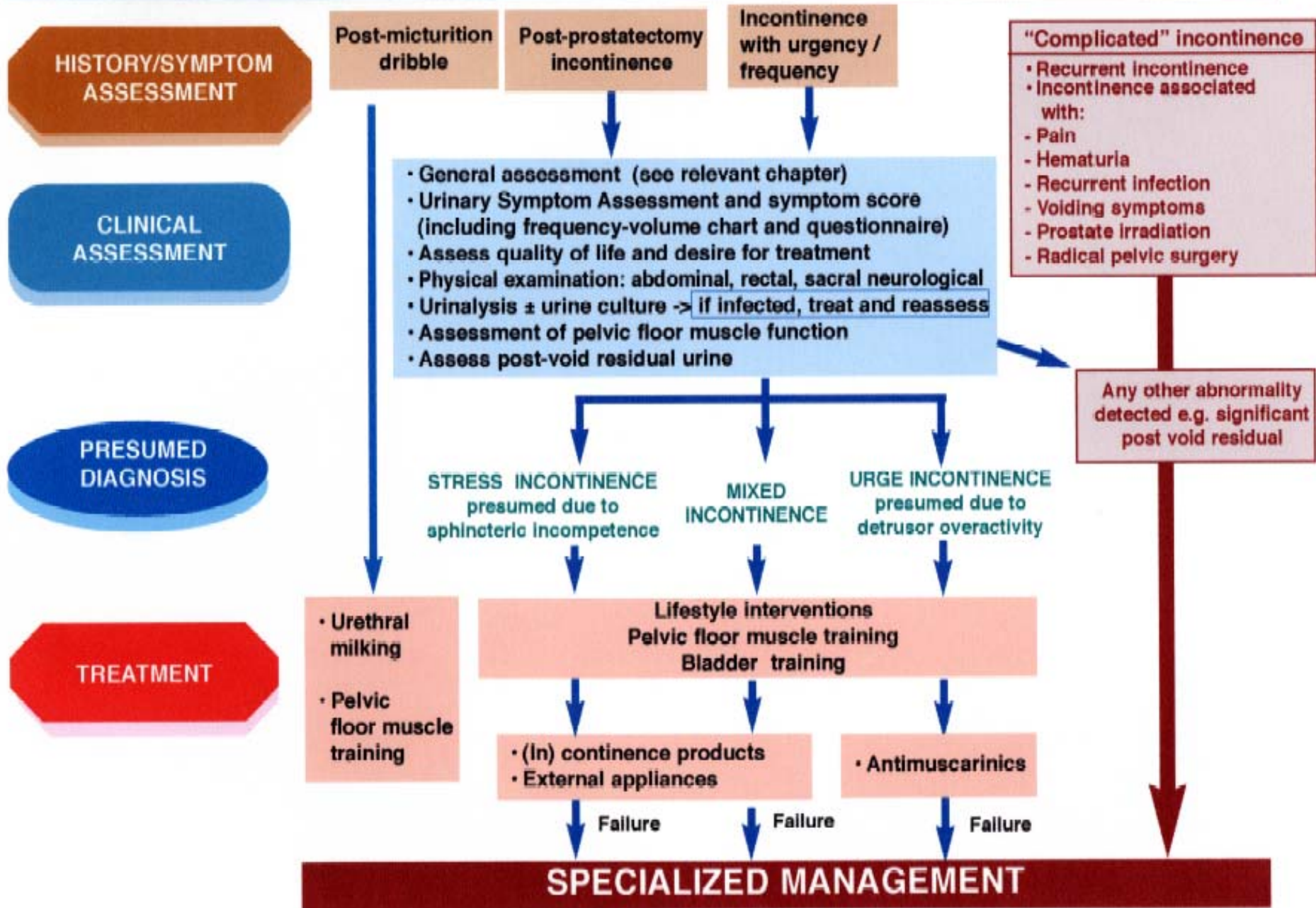
- **Esame dell'area sovrapubica e dei genitali (esclusione di meato stenotico)**
- **Valutazione della funzione motoria e sensitiva dell'apparato genito-urinario (esclusione di causa neurologica)**

ESPLORAZIONE TRANSRETTALE DELLA ghiandola PROSTATICA

- **Dimensioni, consistenza, forma ed eventuali area sospette per neoplasia della ghiandola prostatica**
- **Tono dello sfintere anale**
- **Eventuali patologie rettali**

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Initial Management of Urinary Incontinence in Men



INCONTINENZA URINARIA MASCHILE

Test diagnostici 2° livello

● Uroflussometria

**● Residuo
postminzionale**

● Ecografia App.Urinario

**● Rx Urografia ed ev.
studio delle bvu**

● Esame urodinamico

**● Endoscopia delle
basse vie urinarie**

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Diario minzionale

Utile quando nicturia, urgenza-frequenza ed una severa sintomatologia ostruttiva, associati ad incontinenza, sono sintomi importanti

<i>Ora</i>	<i>Vol. urine</i>	<i>Urgenza</i>	<i>Incontinenza</i>	<i>Liquidi assunti</i>

**From the 5th International Consultation on BPH -
Paris, June 2000**

RUOLO DELL' ESAME URODINAMICO NELLA DIAGNOSI DI IU MASCHILE



- ▶ **UROFLUSSOMETRIA:** valutazione della capacità vescicale, del volume emesso, del RPM, del Qmax-Qave in ml/sec.
- ▶ **CISTOMANOMETRIA:** valutazione della attività, sensibilità, capacità e compliance del detrusore
- ▶ **STUDIO P/F:** valutazione del grado di ostruzione delle basse vie urinarie, del residuo urinario e della capacità contrattile detrusoriale
- ▶ **VALSALVA LEAK POINT PRESSURE:** indica il livello di Pressione addominale a cui il paziente, posto in ortostasi e durante rapidi aumenti di pressione, perde urina.

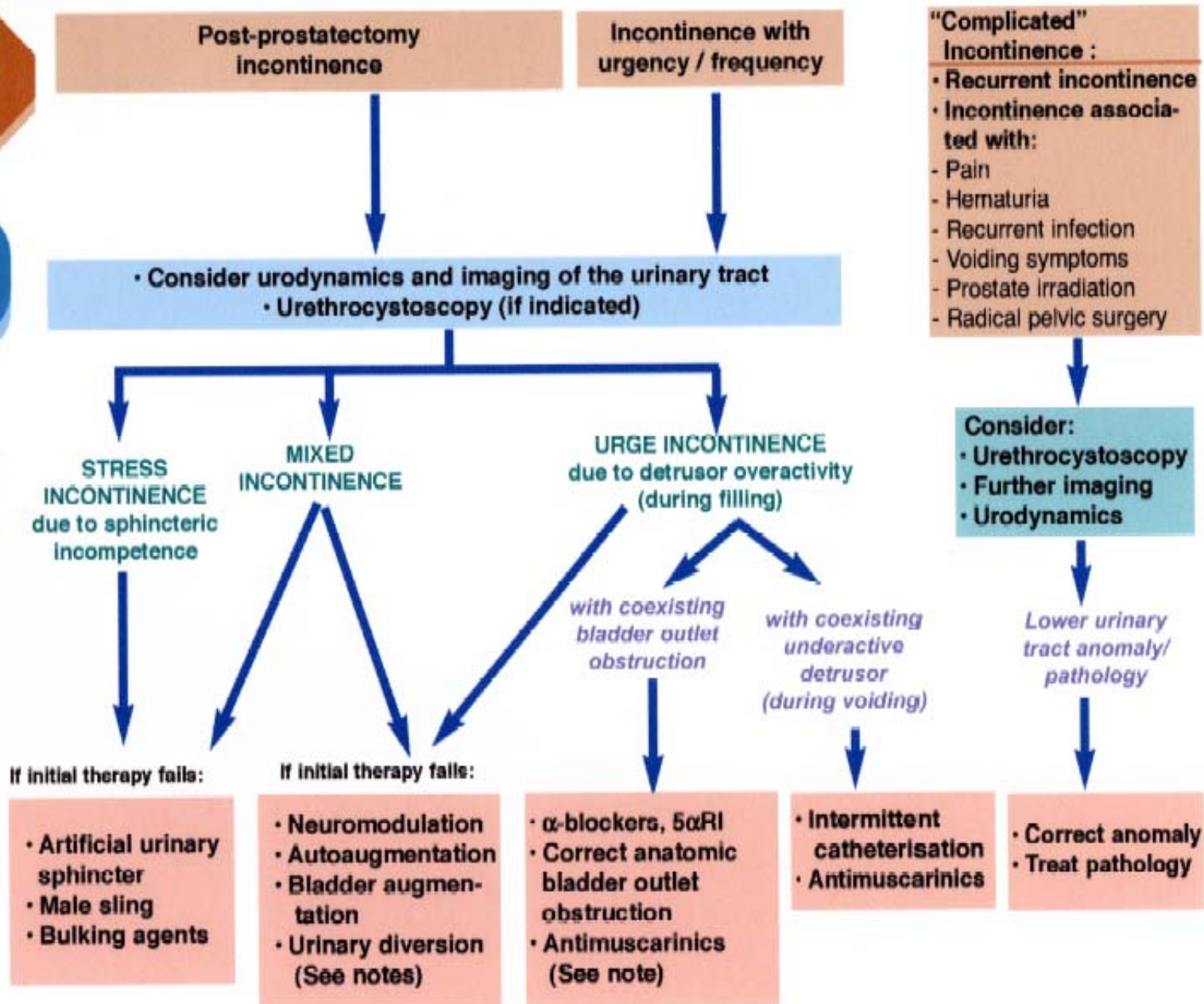
Specialized Management of Urinary Incontinence in Men

HISTORY/SYMPTOM ASSESSMENT

CLINICAL ASSESSMENT

DIAGNOSIS

TREATMENT



Treatment Options for Urinary Incontinence in Male

● CONSERVATIVE TREATMENT

Lifestyle interventions (e.g. weight loss, stop smoking, micturion rehabilitation)

Pelvic floor muscle training (kegels)+/- biofeedback +/- SEF (stimolazione elettrica funzionale)

● MEDICATIONS

Anticolinergici, Antimuscarinici, Duloxetine, Dapoxetina

● SURGERY

Fistulas excision

Injectable bulking agents (DEFLUX)

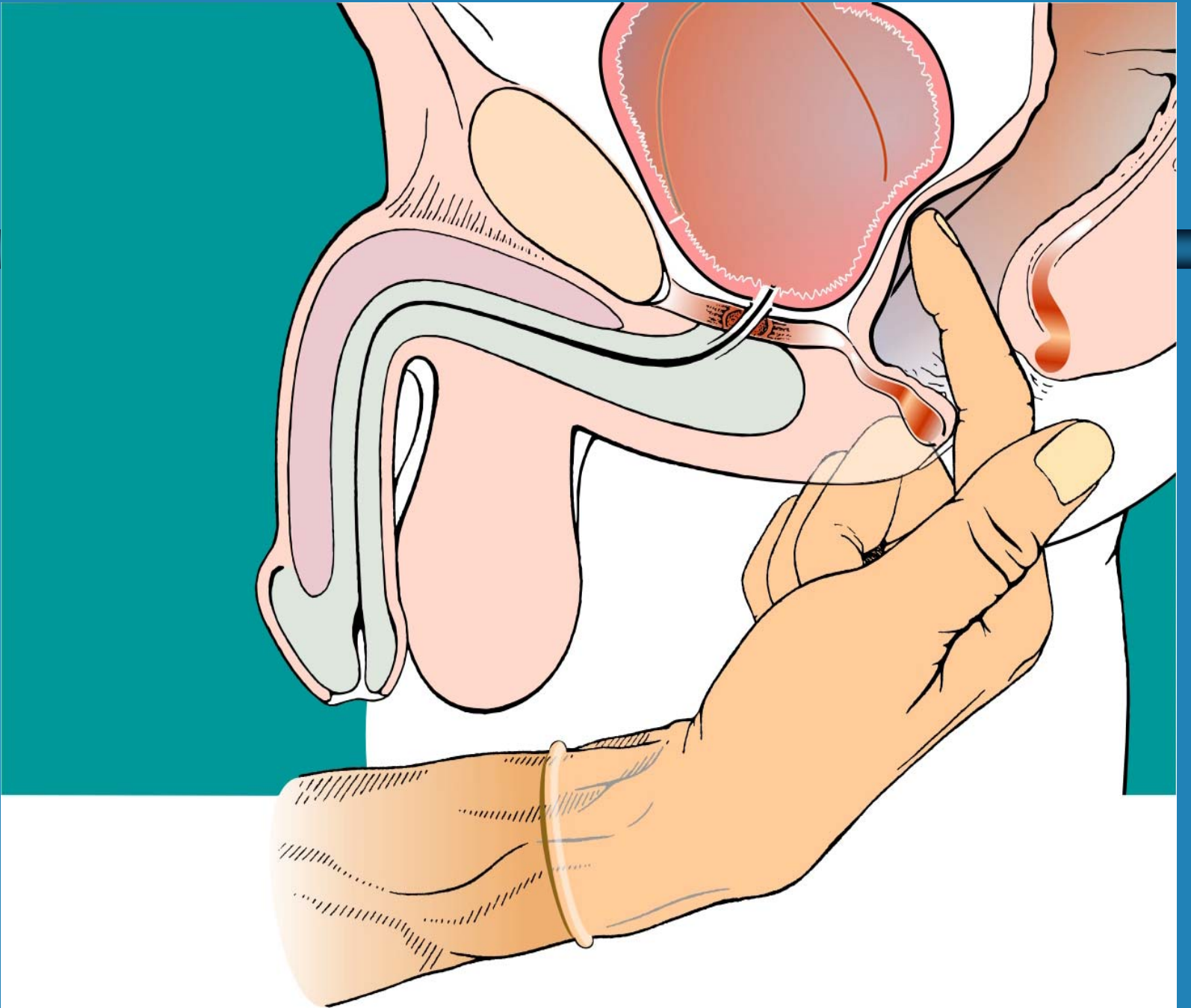
Urethral sling procedures

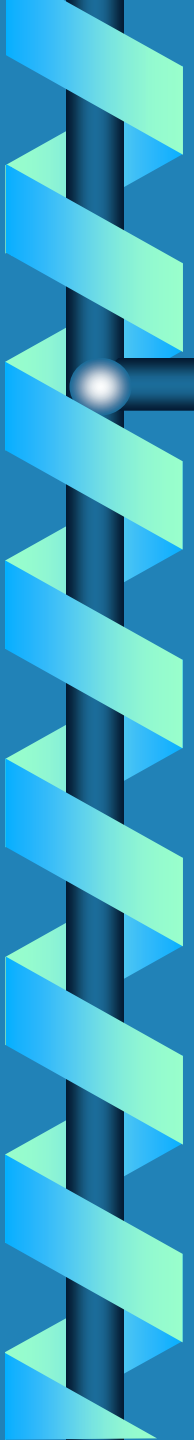
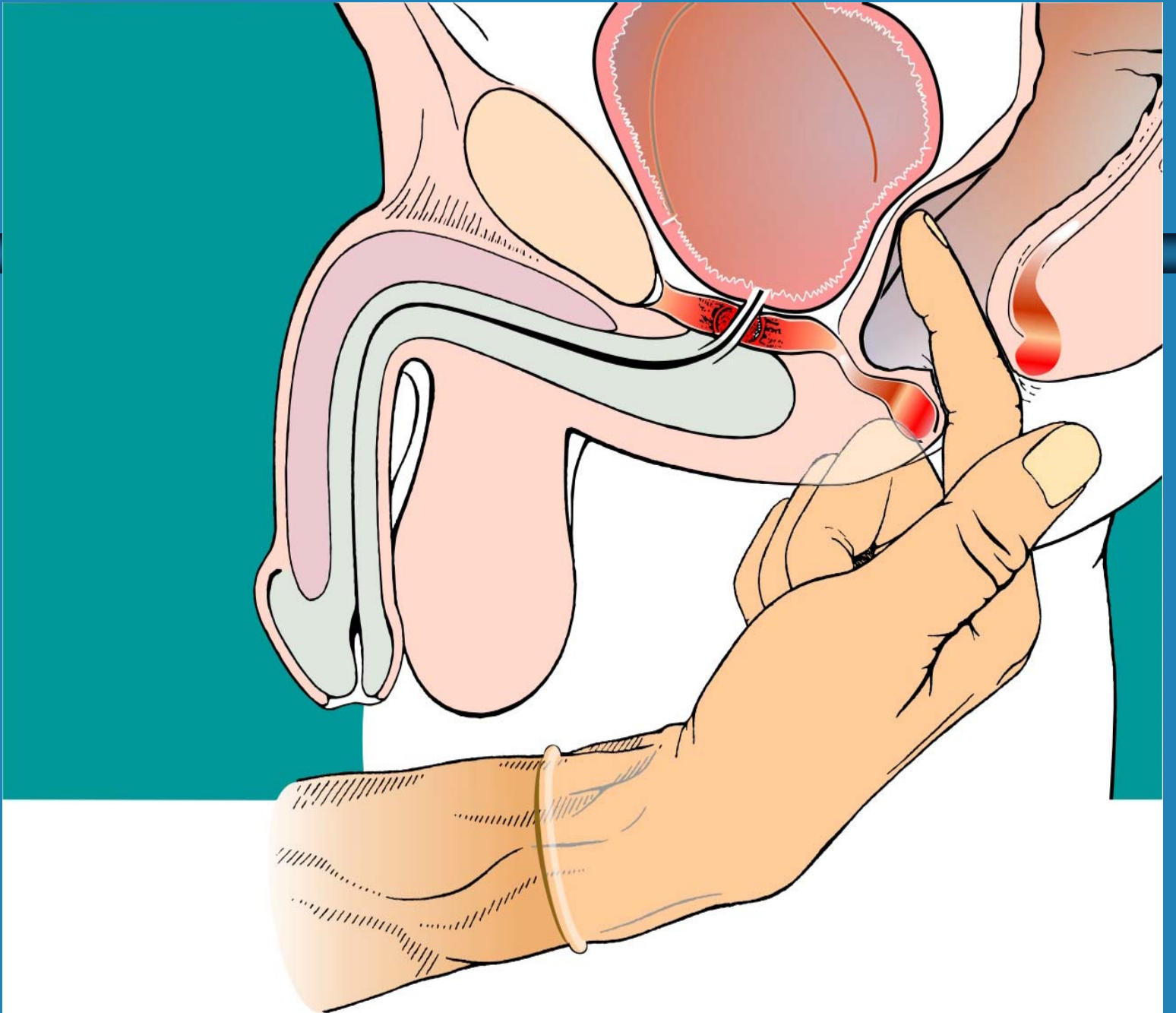
Artificial sphincter

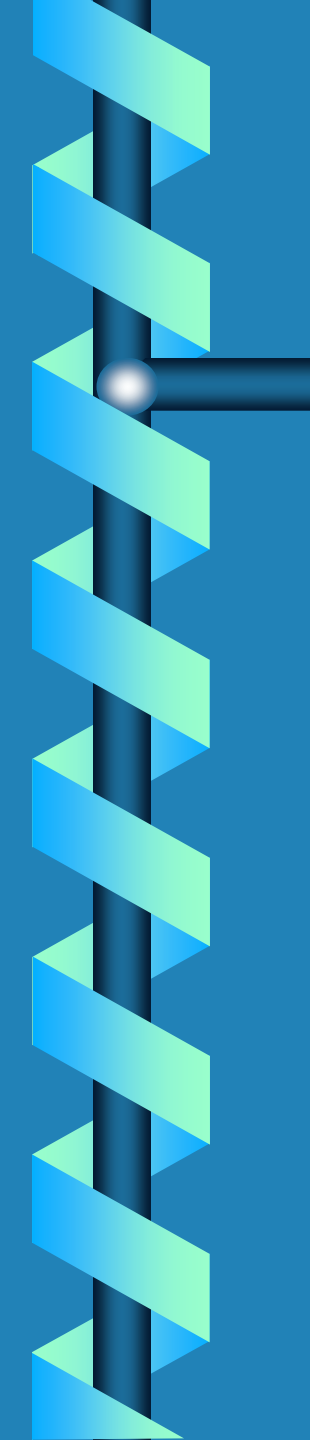
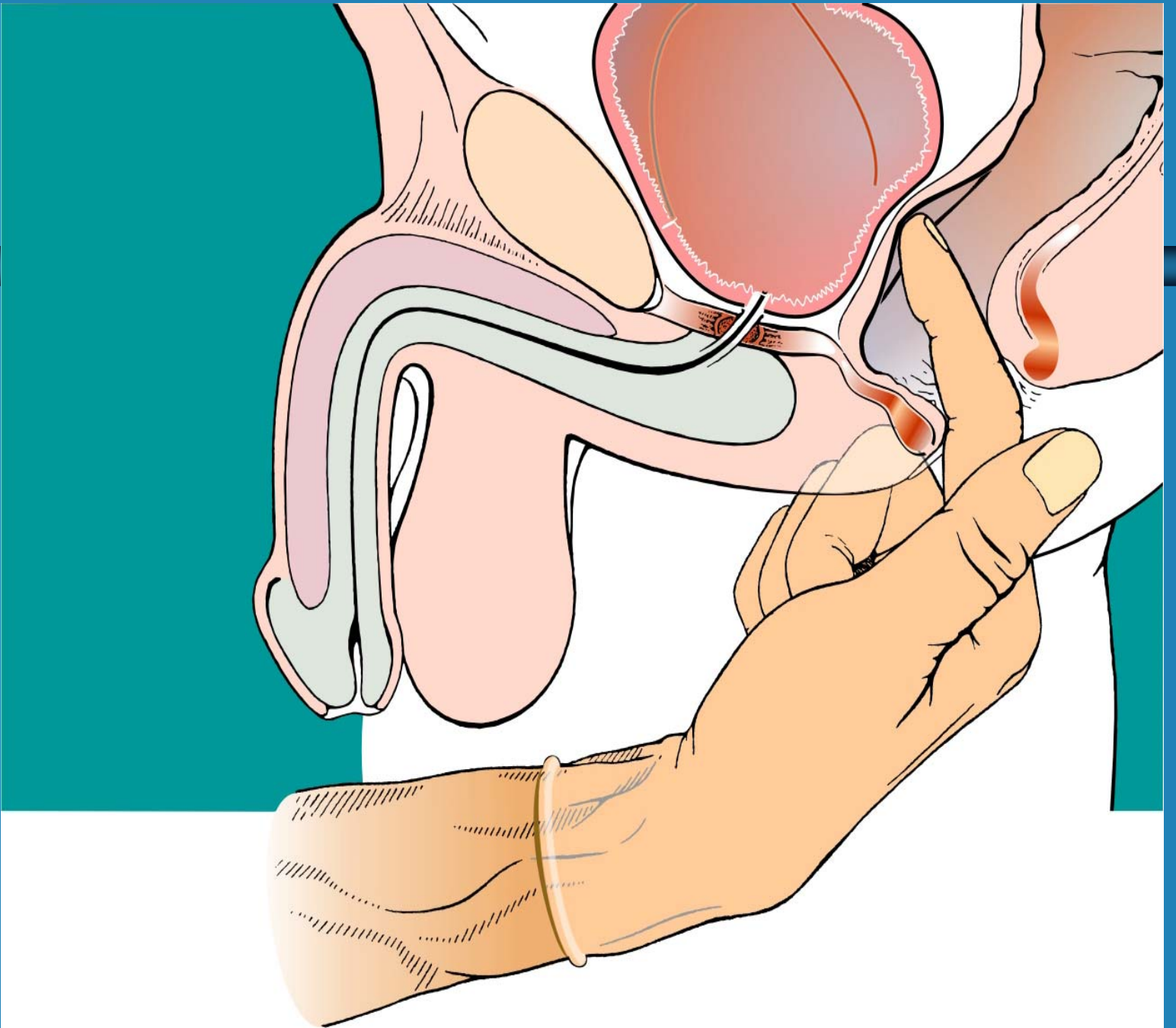
Pro-act perineal balloons

Home Pelvic Muscle Exercises (PME): Kegels

- Contract the Muscle used to stop urine flow
- Exercise the muscle (10 seconds contraction followed by 10 seconds relaxation) 30-80 times per day
- Benefits may be seen in 8-12 weeks







Home Pelvic Muscle Exercises (PME): Kegels

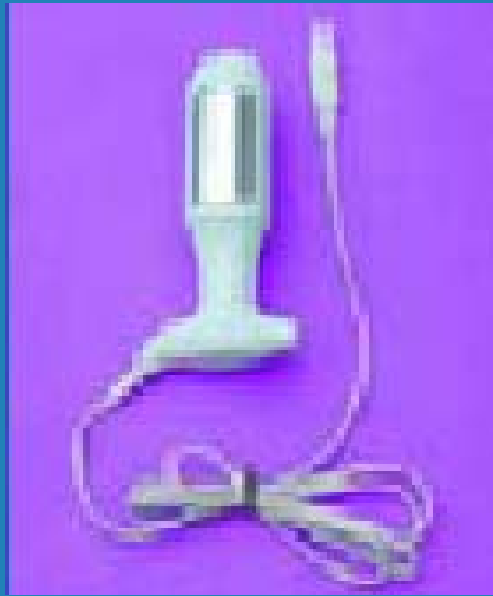
- Often performed incorrectly!
- Success Rates Variable
- Better for mild incontinence
- Up to 45% cured/improved at 12 months

Biofeedback



- For patients who have difficulty performing a Kegel
- Helps identify the correct muscles using "Feedback."

E-stim



Electrical stimulation of pelvic floor muscle via anal-intraurethral probe

Surgical correction of Male Stress Urinary Incontinence

- **Surgery which increase urethral pressure:**

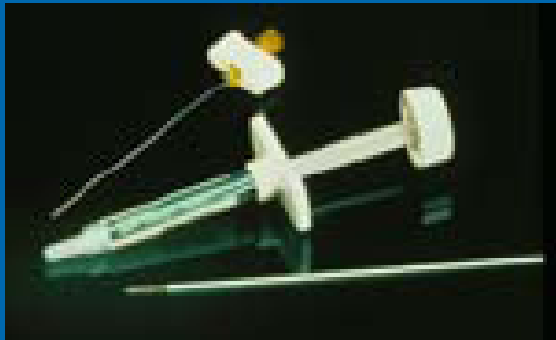
Urethral bulking agents, AUS, Pro-act

- **Surgery which restore urethral support:**

Urethral Sling

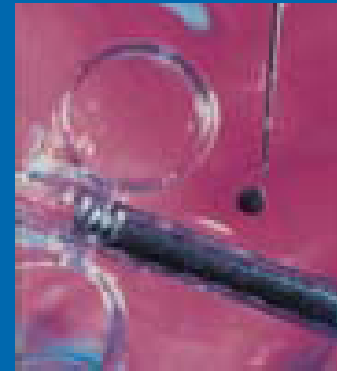
Injectable Bulking Agents

Bovine Collagen



Purified cross-linked dermal collagen
Biodegradable

Durasphere®



carbon-coated zirconium oxide beads

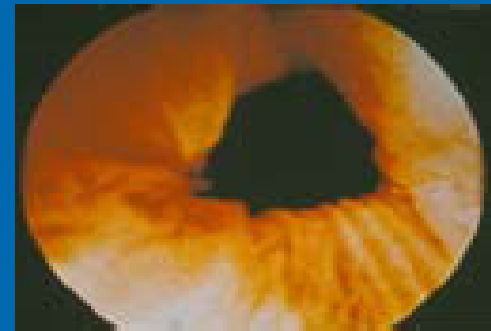
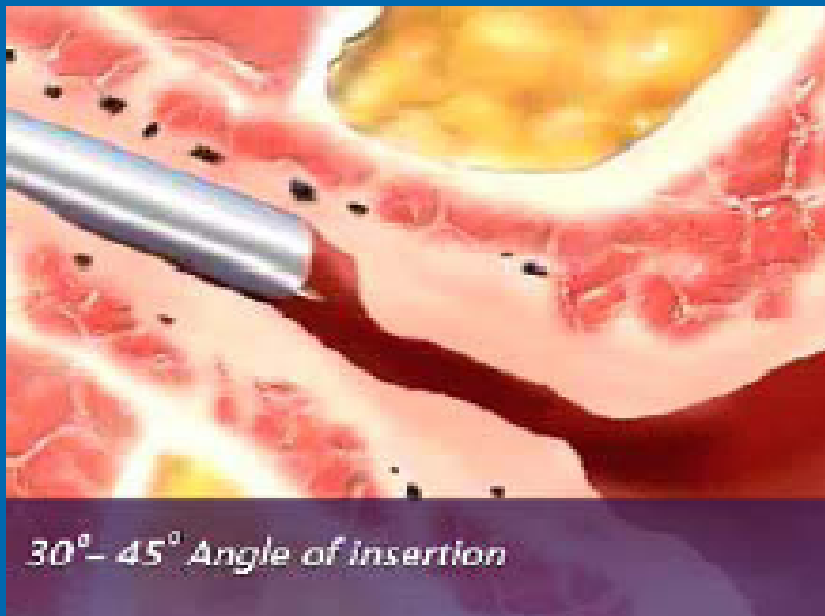


Tegress®

ethylene vinyl alcohol co-
polymer dissolved in dimethyl
sulfoxide (DMSO)

Deflux

Transurethral Injection




“Initial experience of transurethral bulking agent (deflux injection) in patients presenting with incontinence after Radical Prostatectomy or in advanced Ca prostate involving posterior urethra/sphincter and unresponsive to conservative measures”

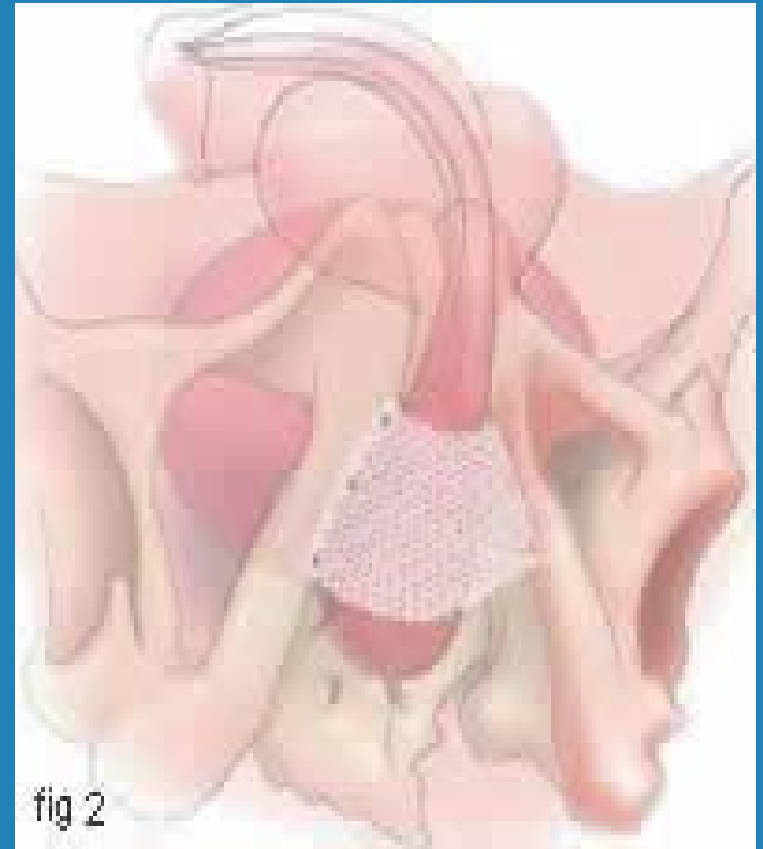
Sood, R.; Kathuria,

Urology Volume: 70, Issue: 3, Supplement, September, 2007, pp. 229

Injectable Bulking Agents

- **Safe** – few side effects
- **Effective** (60-80% Dry at 2 years f/u) 
- **Easy on Patient**
 - Outpatient or office-based procedure
 - local anesthesia

SLING SOTTO-URETRALE





***Transobturator Sling Suspension for
Male Urinary Incontinence Including
Post-Radical Prostatectomy***

Peter Rehder*, Christian Gozzi
European Urology
52, 2007 (860-867)

The Male Perineal Sling Assessment and Prediction of Outcome

**Fischer, Melissa C.;
Huckabay, Chad; Nitti,
Victor W.**

The Journal of Urology

**Volume: 177, Issue: 4, April,
2007, pp. 1414-1418**

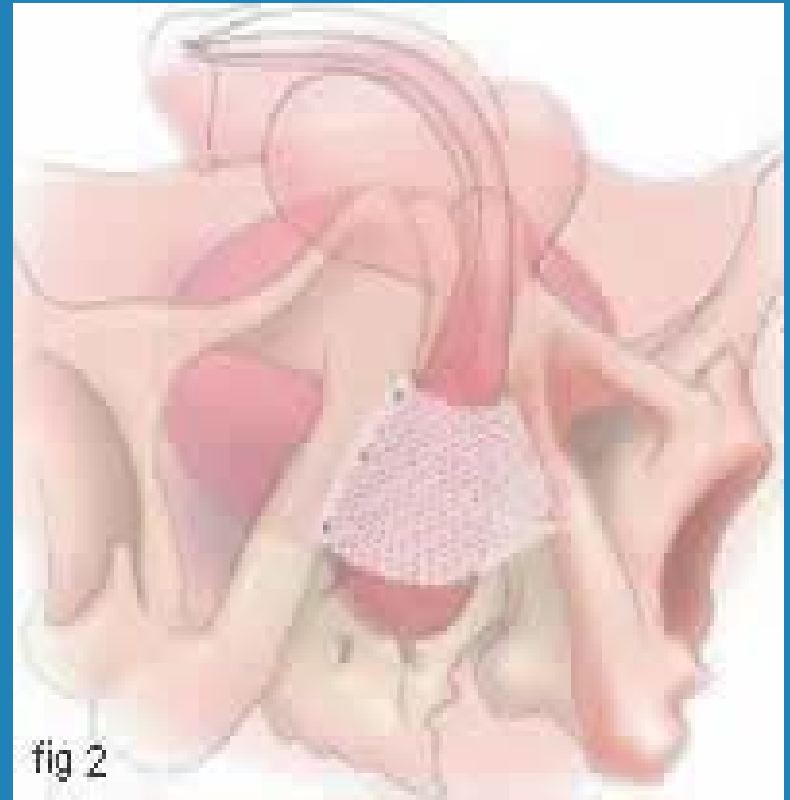
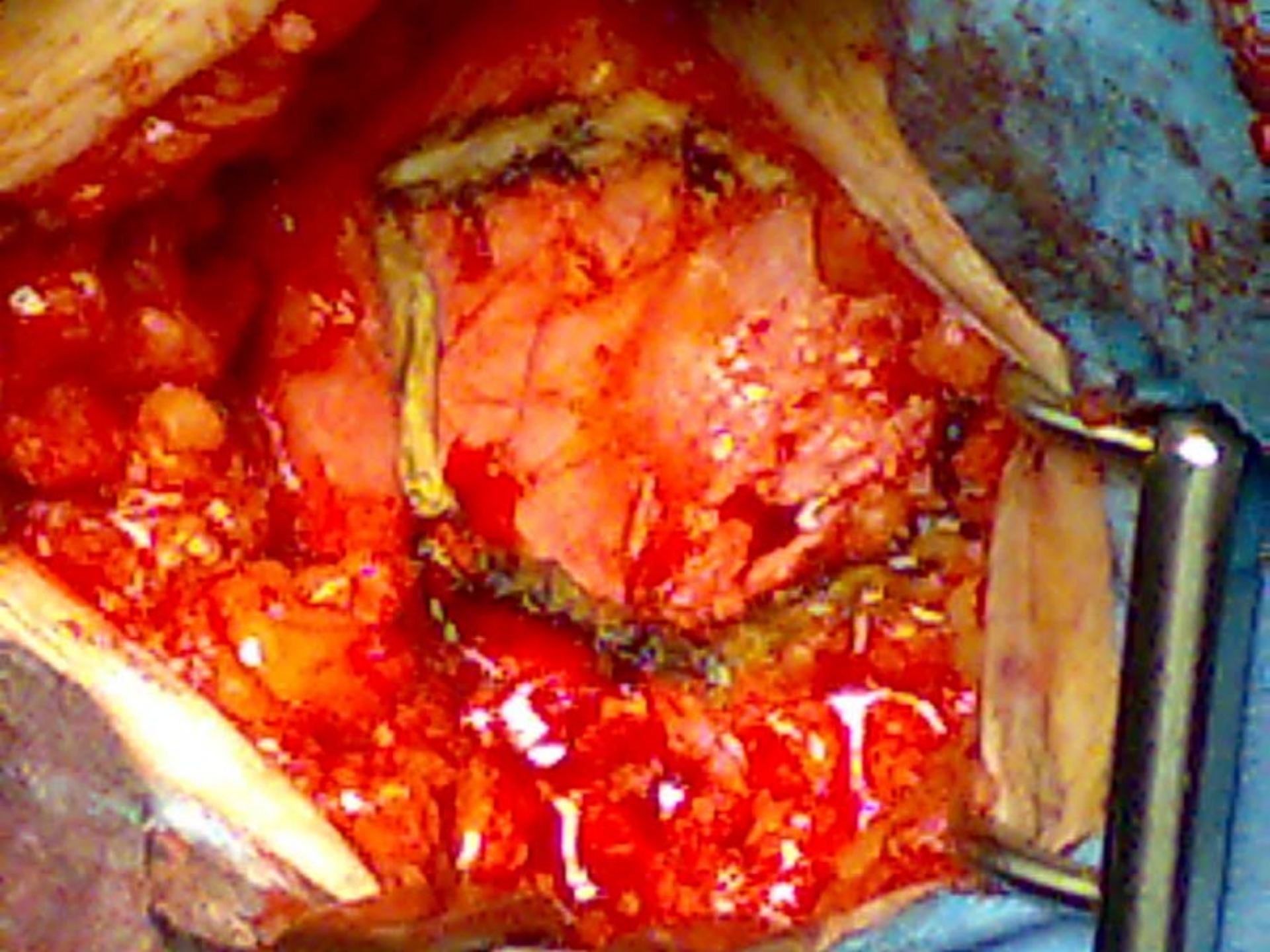


fig 2











“ Adjustable Suburethral Sling (Male Remeex System®) in the Treatment of Male Stress Urinary Incontinence: A Multicentric European Study “

**Sousa-Escandón, Alejandro;
Cabrera, Javier; Mantovani,
Franco; Moretti, Marco;
Ioanidis, Evangelos; et. al.
European Urology Volume: 52,
Issue: 5, November, 2007, pp.
1473-1480**



Objective:

To evaluate the effectiveness of a readjustable sling for the treatment of male stress urinary incontinence (SUI).

Materials and methods:

51 male patients with SUI sec to radical prostatectomy , TUR and open prostatectomy . Duration of incontinence ranged from 1 to 10 yr with an average of 3.5 yr.



Results: 5 pts were regulated early post-op period, 44 pts required a second regulation between 1-4 mo after surgery, 17 other required more than one delayed regulation

Average f-u was 32 mo. Cure rate 65% (33pts), improvement 20% (10), unchanged 15% (8).

one case removing mesh owing to erosion and 2 cases for infections.

Conclusions: The MRS1 shows to achieve of good midterm results in almost 85% of patients without significant postoperative complications.

SFINTERE URETRALE (AUS)



fig 1



**“13 Years of Experience With Artificial Urinary
Sphincter Implantation at Baylor College of
Medicine”**

**H. Henry Lai, Elias I. Hsu, Bin S. Teh, E. Brian Butler and
Timothy B. Boone*,†**

***The Journal of Urology Volume: 177, Issue: 3, March,
2007, pp. 1021-1025***

Purpose: We reviewed *13 years of experience with artificial urinary sphincter implantation*

Materials and Methods: Between 1992 and 2005, **270 patients** underwent artificial urinary sphincter implantation, followup data were available on 218 of them. *Mean followup was 36.5 months (maximum 151.4).*

Of the 218 patients *60 underwent prostatectomy and pelvic radiation*, *116 underwent prostatectomy without radiotherapy*, **11** had neurogenic bladder and **31** underwent secondary artificial urinary sphincter implantation

Results: The complication rate did not differ among the 4 treatment groups.

infection in 5.5% of cases, erosion in 6.0%, urethral atrophy in 9.6%, mechanical failure in 6.0% and surgical removal or revision in 27.1%.

Median time to complications was

3.7 months for infection, 19.8 months for erosion, 29.6 months for atrophy, 68.1 months for failure and 14.4 months for surgery.

At 5 years 75% of patients were free from revision or removal.

The rate of bladder neck contracture was high in artificial urinary sphincter candidates, especially in irradiated patients (36% and 57%, respectively).

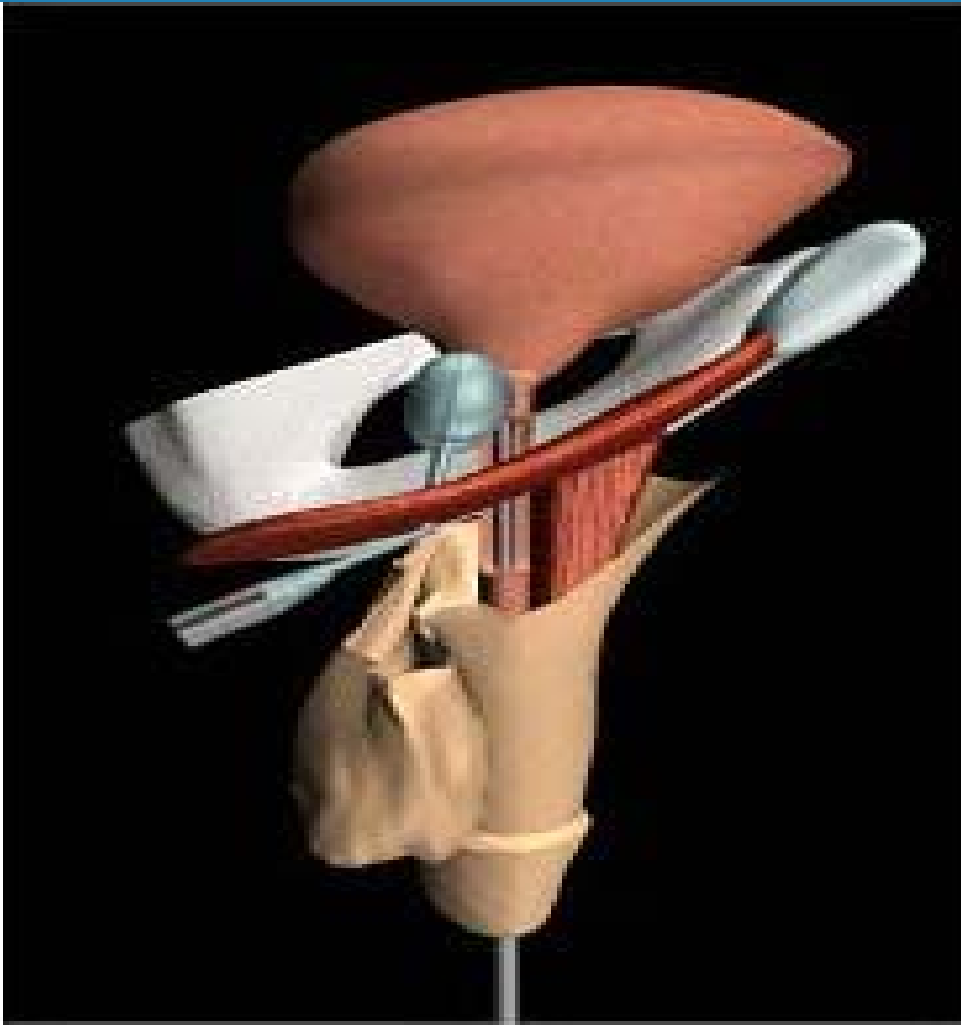
Two-stage UroLume® stent and artificial urinary sphincter placement offered long-term contracture and continence control in 8 of 11 patients with recurrent anastomotic contractures.

Conclusions: An artificial urinary sphincter is durable treatment for sphincter deficiency even in patients with a history of complications, neurogenic bladder, pelvic radiation, bladder neck contracture, Valsalva voiding, or failed injectables or slings.

Pro-Act-System



Abb.: Pro-ACT-System



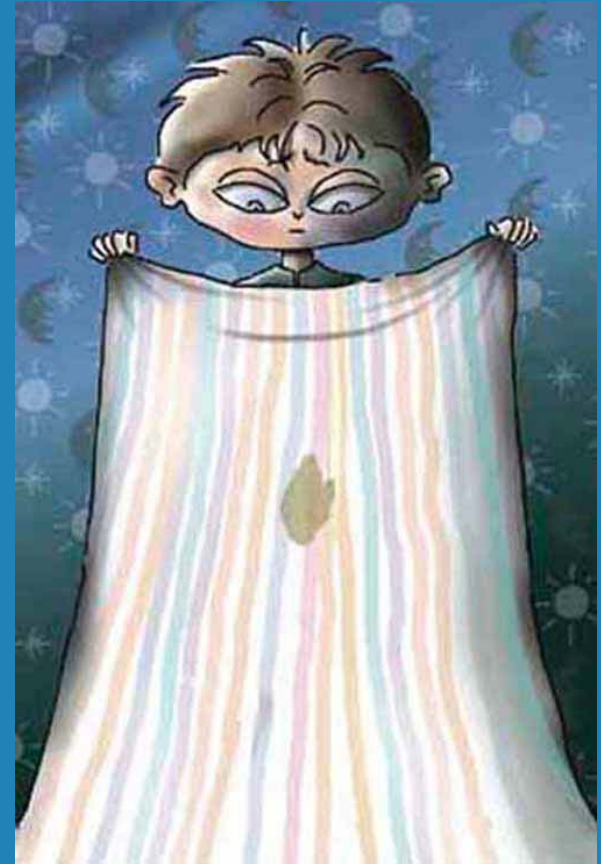
**EAU 2007 ABSTIV101 - Transrectal Ultrasound-Guided
Implantation of the ProACT System in Patients with
Post-Radical Prostatectomy Stress Urinary
Incontinence**

Thursday, 22 March 2007

***Gregori, A., Goumas, I.K., Galli, S., Knez, R., Scieri, F.,
Stener, S., Deliperi, A., Zaramella, S., Favro, M.,
Ranzoni, S., Terrone, C., Gaboardi, F.
Presented on March, 23 2007***

ENURESIS

- ▶ Perdita involontaria di urina in eta' pediatrica
- ▶ Monosintomatica, **Polisintomatica**
- ▶ Notturna, **Diurna**, Diuturna
- ▶ Primaria (dura da piu' di 6 mesi con almeno 2-3 episodi/mese)
- ▶ **Secondaria**



Polyuria

1. Diabetes insipidus
2. Diabetes mellitus
3. Sickle cell disease (isothernuria)
4. Drugs
5. Alcohol, caffeine intake
6. Habit polydipsia
7. Redistribution of mild edema

Nocturnal ADH Deficit

Highly controversial

Bladder Irritability

1. Urinary tract infection
2. Food allergies
3. Constipation
4. Bladder calculi
5. Hypercalciuria

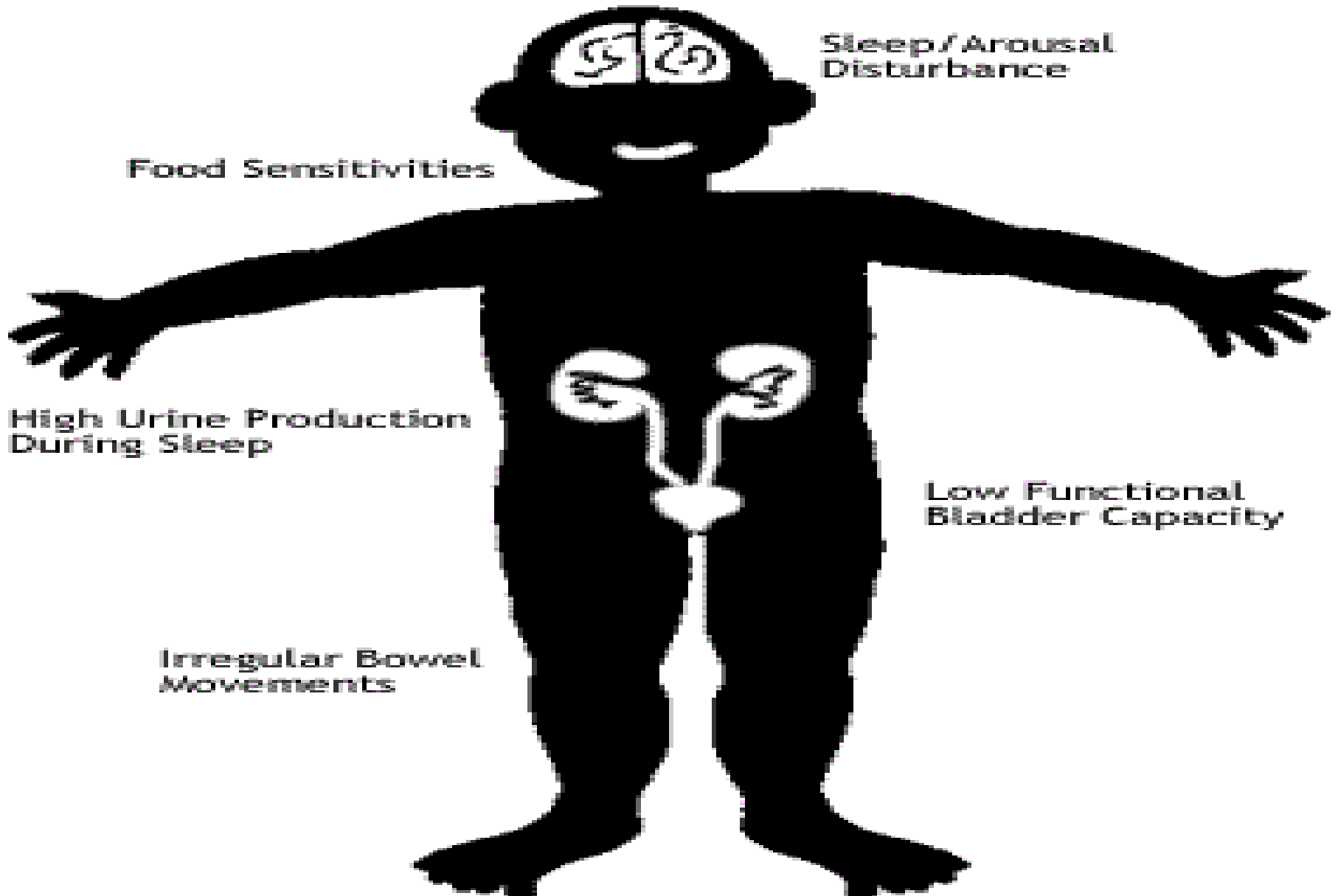
Incomplete Bladder Filling

1. Fecal impaction

Incomplete Bladder Emptying

1. Lower urinary tract obstruction
2. Neurogenic bladder
3. Dysfunctional voiding

Key Causes of Enuresis



CRITERI DIAGNOSTICI - A

- 1. ETA' > 7 aa**
- 2. STATO PSICO-FISICO (QI, PESO, STATO NUTRIZIONALE)**
- 3. SITUAZIONE FAMILIARE**
- 4. STIPSI, ENCOPRESI**
- 5. LIQUIDI ASSUNTI/DIE (SOPT PRIMA DI ANDARE A DORMIRE)**
- 6. EDUCAZIONE ALLA MINZIONE**

CRITERI DIAGNOSTICI - B

7. FOGLIO MINZIONALE PER 5 GG /MESE

**8. ESAMI EMATOCHIMICI, FUNZIONE RENALE,
ES. URINE**

9. ECOGRAFIA APP. URINARIO CON RPM

**10. UROFLUSSOMETRIA CON EV. EMG PELVI-
PERINEALE**

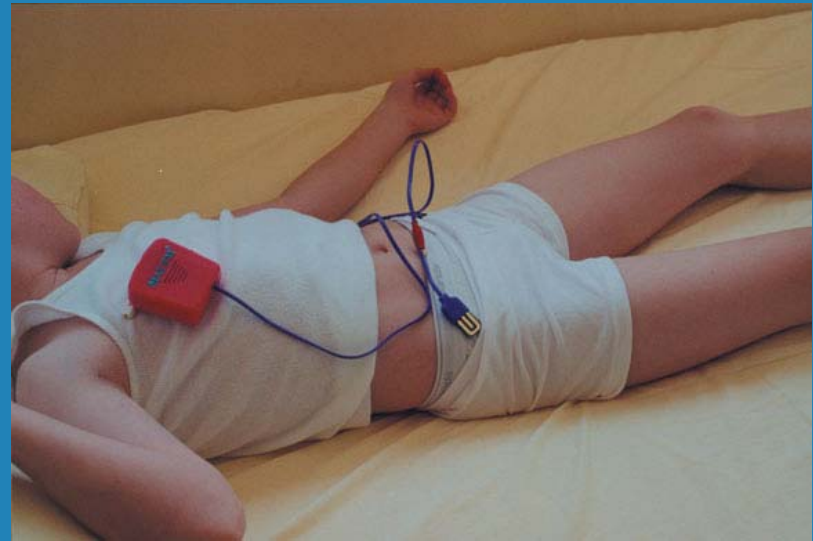
11. TEST URODINAMICO COMPLETO (RARAMENTE)

ENURESI: APPROCCIO TERAPEUTICO

- ▶ **MINZIONE ORARIA, RIDUZIONE FLUID-INTAKE PRIMA DI CORICARSI, MINZIONE NOTTURNA PROGRAMMATA**
- ▶ **AUMENTO DELLA CAPACITA' VESCICALE FUNZIONALE → IMIPRAMINA, OSSIBUTININA, TOLTERODINA**
- ▶ **RIDUZIONE DELLA POLIURIA NOTTURNA → DESMOPRESSINA**

ENURESIS: APPROCCIO TERAPEUTICO

- ▶ **ALLARME NOTTURNO**
- ▶ **INTEGRAZIONE CON BIOFEEDBACK E/O RIEDUCAZIONE ALLA MINZIONE IN CASO DI INCOORDINAZIONE DETRUSO-SFINTERICA**



Grazie per l'attenzione...