

# CENTER FOR RECONSTRUCTIVE URETHRAL SURGERY



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LXV

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2014

04 al 08 de Noviembre  
GUADALAJARA, JALISCO

Business  
Congress  
Mexico  
www.bccmexico.com

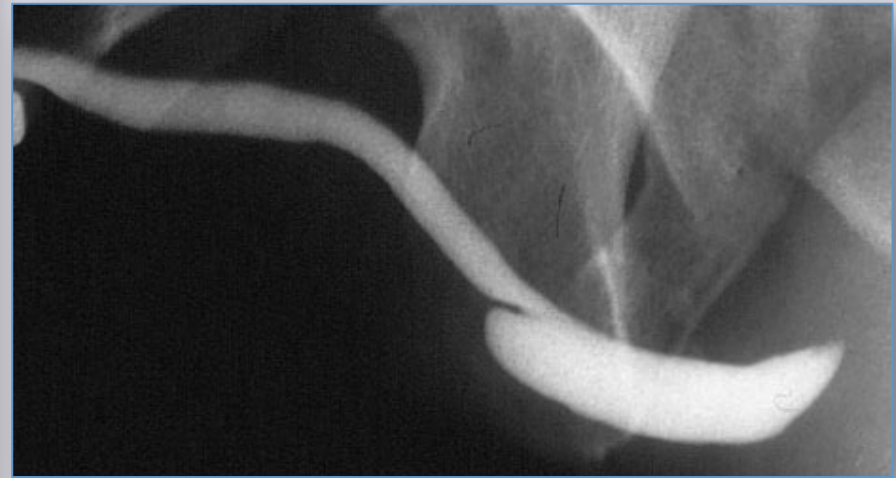
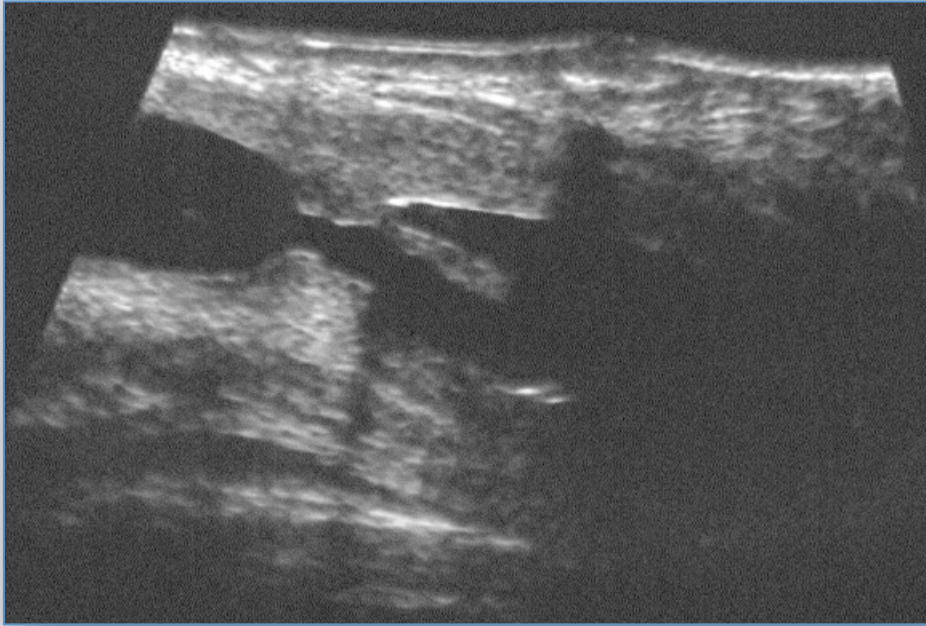
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**What urethral stricture is and how we can make a diagnosis and arrange a surgical therapeutic strategy. An overview from the external urinary meatus to the bladder neck.**

# What urethral stricture is: ETIOLOGY

## CONGENITAL



Cobb's collar – J Urol 1968; 99: 629-631

# What urethral stricture is: ETIOLOGY

## IDIOPATHIC



# What urethral stricture is: ETIOLOGY

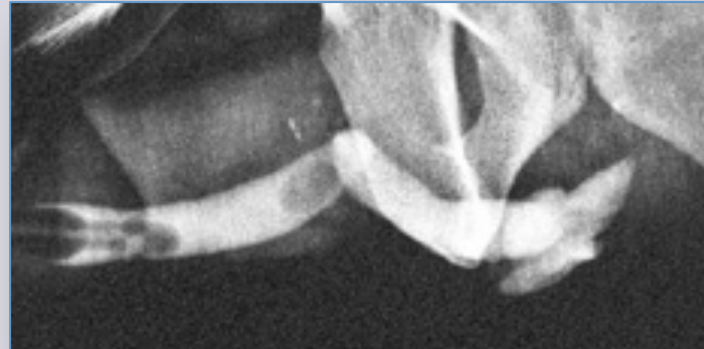
## TRAUMATIC



**Previous history of perineal trauma**

# What urethral stricture is: ETIOLOGY

## TRAUMATIC



# What urethral stricture is: ETIOLOGY

## INSTRUMENTATION



**TURP**

**TURB**

**TUIP**

**HOLEP**

**Urethroscopy**

**Cystoscopy**





# What urethral stricture is: ETIOLOGY

## CATHETER and ISCHEMIA



**Blood pressure < 60 mmHg**

**Patients in resuscitation room**

**Patients bleeding after surgery**

**Patients who underwent  
cardiovascular surgery**

# What urethral stricture is: ETIOLOGY

## INFECTION



## Neisseria Gonorrhoeae

**65.5% of cases in Nigeria – 82% of cases in Sudan**

# What urethral stricture is: ETIOLOGY

## FAILED HYPOSPADIAS REPAIR

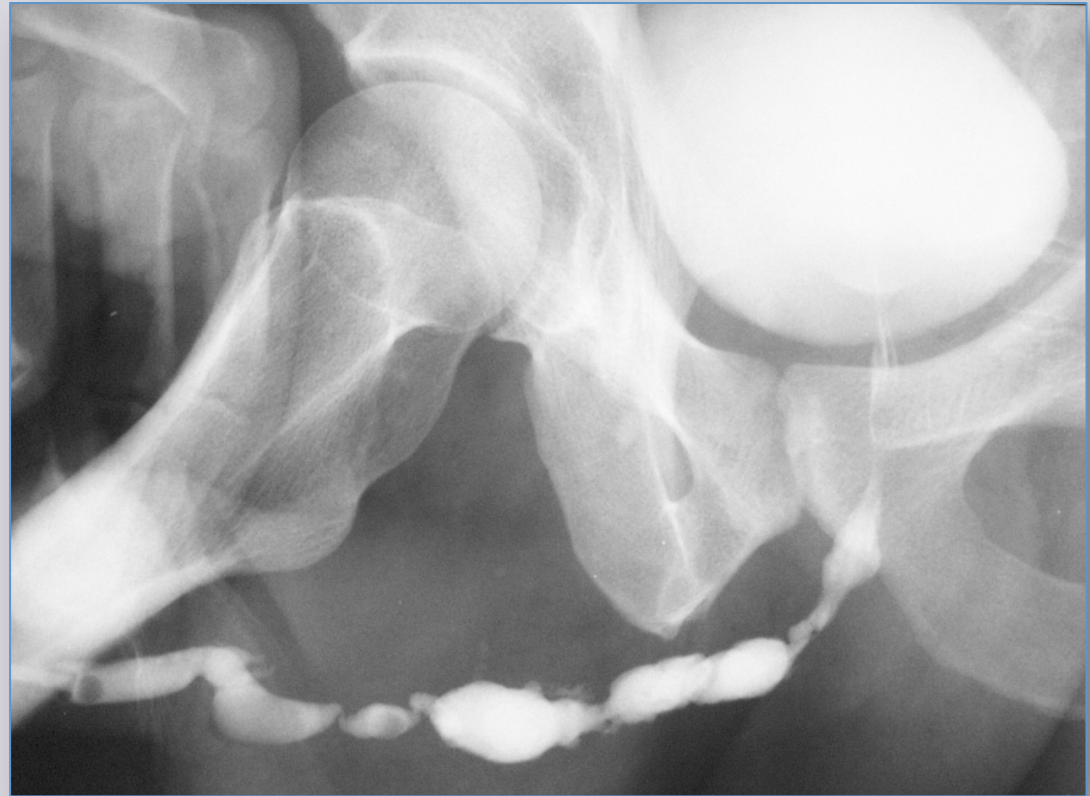


“ Surgery for failed hypospadias repair is a growing industry “

**AR. Mundy**

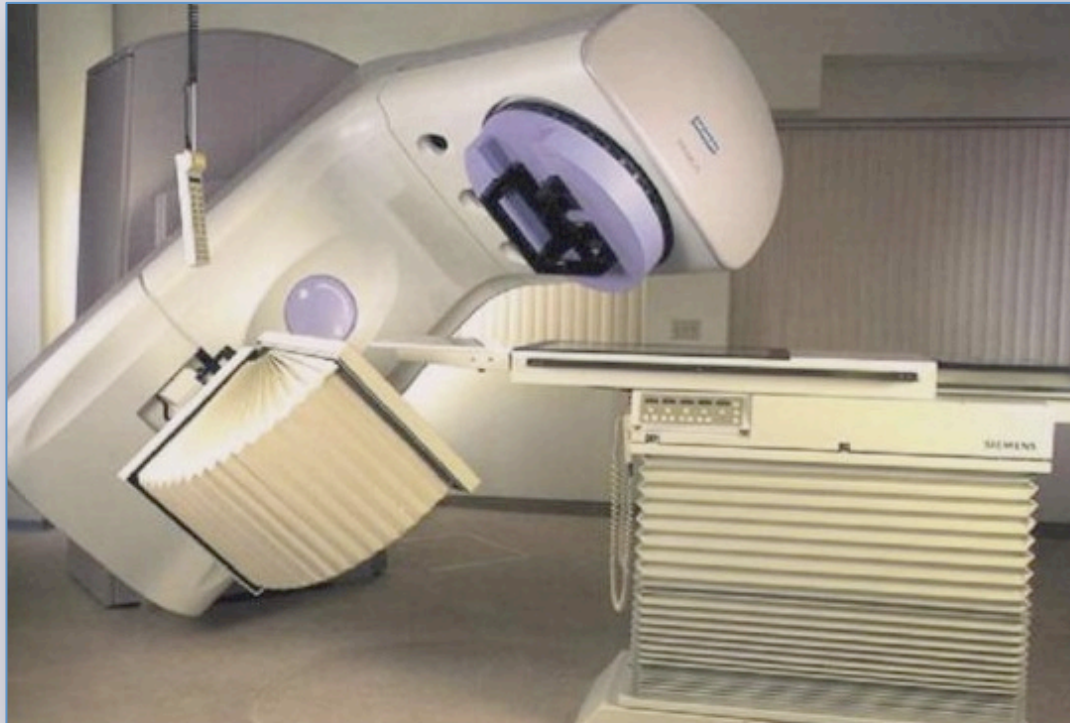
# What urethral stricture is: ETIOLOGY

## LICHEN SCLEROSUS



# What urethral stricture is: ETIOLOGY

## RADIOTHERAPY



**High incidence is reported in studies from USA**

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# What urethral stricture is: ETIOLOGY

## RADICAL PROSTATECTOMY



**The incidence is greatly reduced after the use of robot**

# What urethral stricture is: NOMENCLATURE

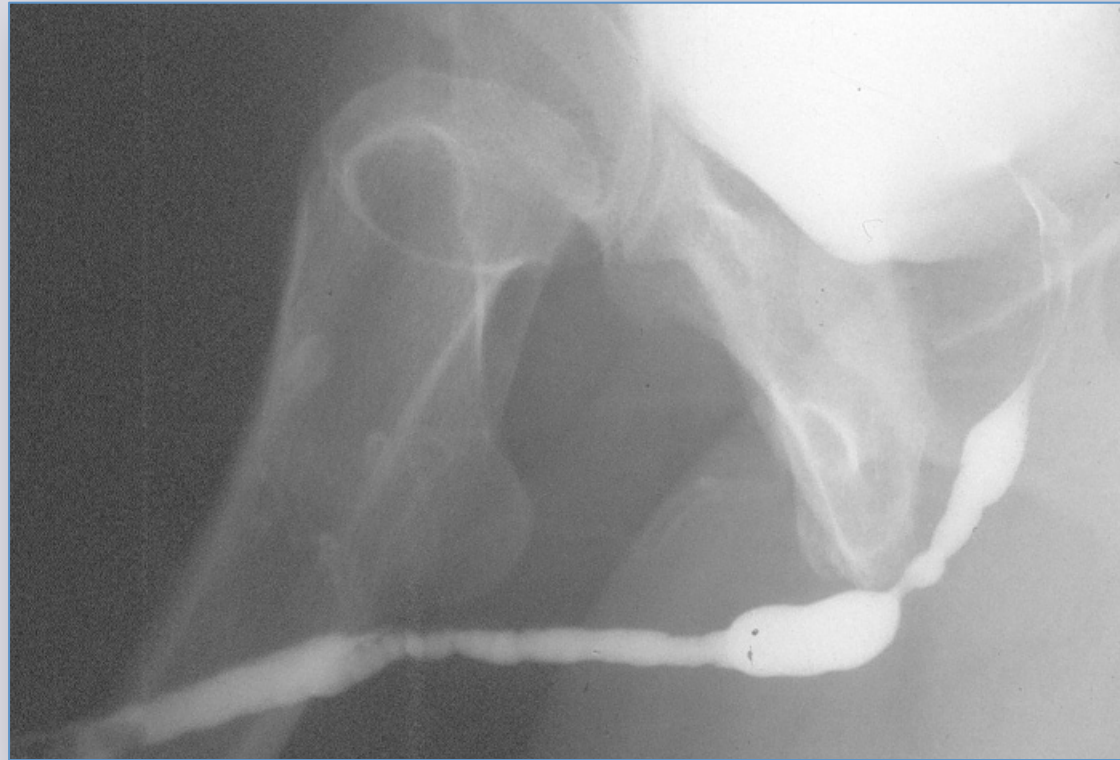
## URETHRAL STRICTURE



**Single – short < 2cm - no previous treatment -  
no associated local adverse conditions**

# What urethral stricture is: NOMENCLATURE

## URETHRAL STRICTURE DISEASE

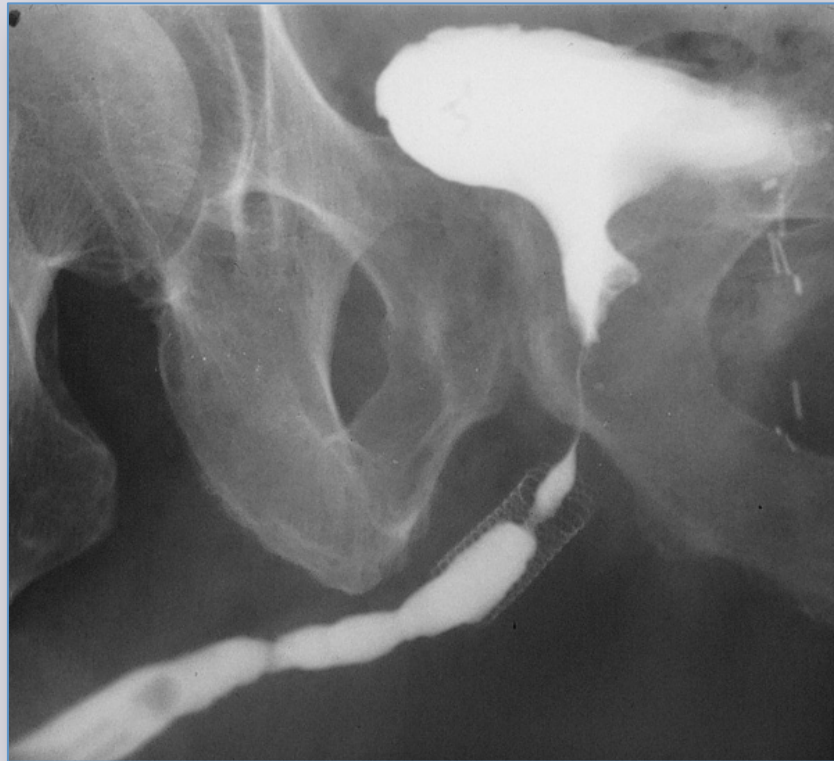


**Double – long  $> 2\text{cm}$  – previous failed treatment**



# What urethral stricture is: NOMENCLATURE

## COMPLEX URETHRAL STRICTURE DISEASE



Post



TURP

TUIP

HOLEP

Stent

Abscess

Fistula

False passage

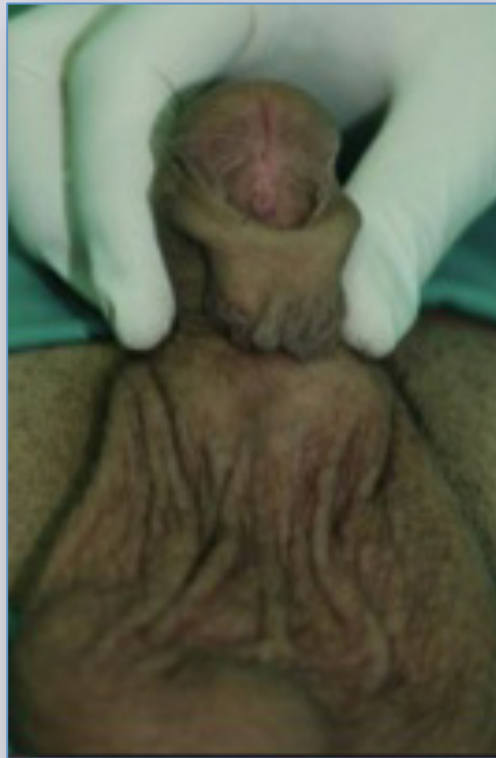
Cancer

open  
bladder  
neck

**Stricture associated with local adverse conditions**

# What urethral stricture is: NOMENCLATURE

## FAILED HYPOSPADIAS REPAIR



**Urethral stricture disease associated with complex congenital disorder of the genitalia**

# What urethral stricture is: NOMENCLATURE

## LICHEN SCLEROSUS



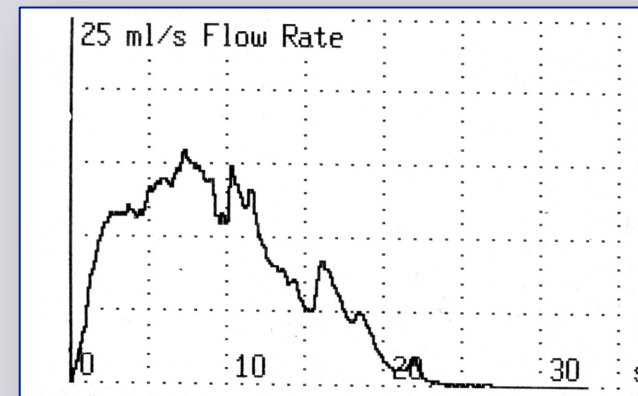
**Urethral stricture disease associated with complex immunological disorder of the genitalia**

# What urethral stricture is: **DIAGNOSIS**

- 1 Symptoms (obstruction – infection – irritation)  
Signs (skin lesions – prior surgery – abscess)

- 2 Uroflowmetry  
Ultrasonography (kidney – bladder – urethra)

- 3 Urethrography  
Urethroscopy  
MRI



# Radiological study of urethral stricture

**Urethrography**

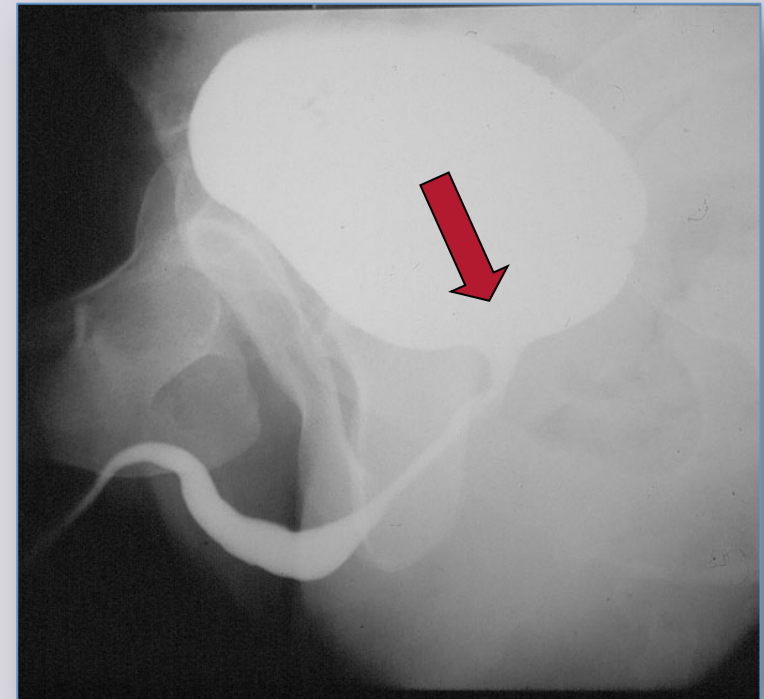
- **Retrograde**
- **Voiding**
- **Combined**

**Ultrasonography**

**Urethroscopy**

**MRI**

# Retrograde and voiding urethrography



# Object of the radiological study of urethral stricture

- Site

- Number

- Length

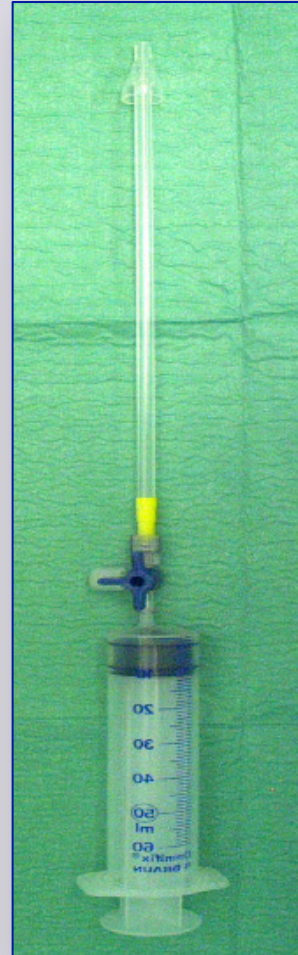
- Spongiofibrosis

- Associated conditions

# Retrograde urethrography



**appropriate patient position**



**appropriate instruments**



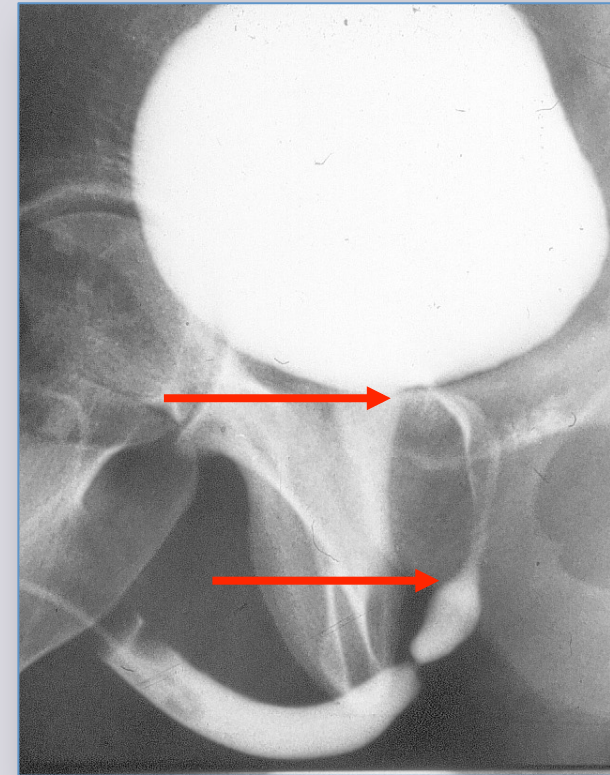


# Retrograde urethrography

## blind point

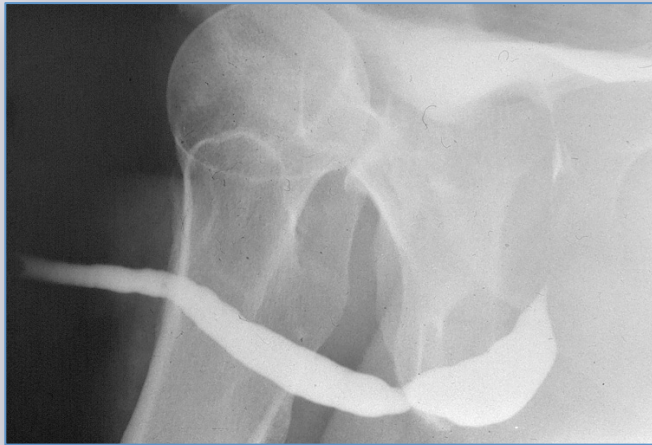


**Meatus and navicularis tract**

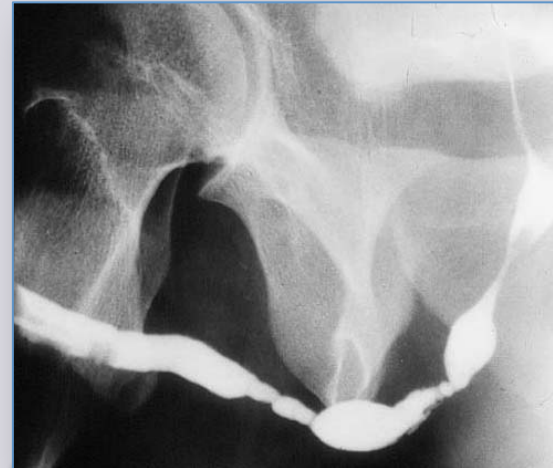


**Proximal tract**

# Retrograde urethrography



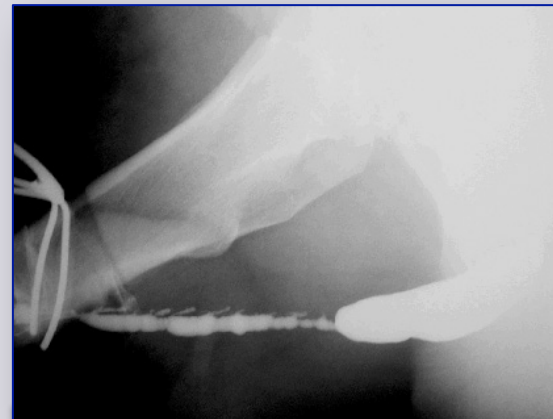
**site**



**number**



**length**



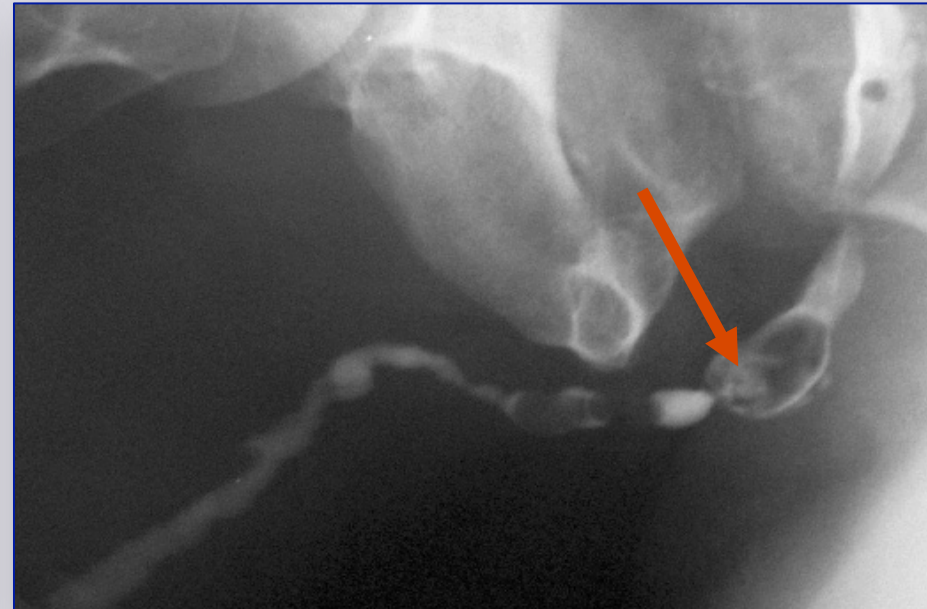
**spongiofibrosis**

# Retrograde urethrography

## Associated conditions



**diverticulum**



**stone**

# Voiding urethrography

appropriate patient position

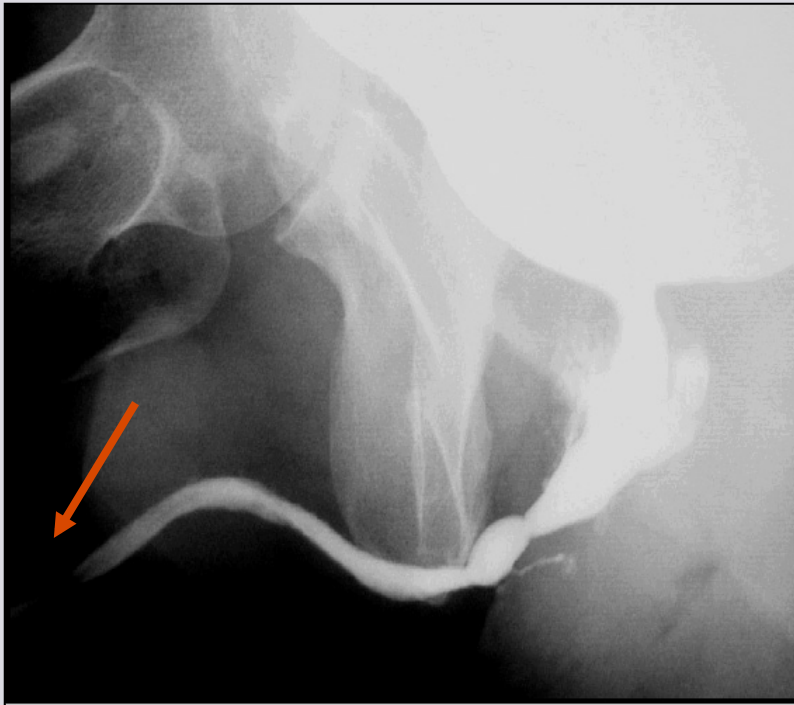


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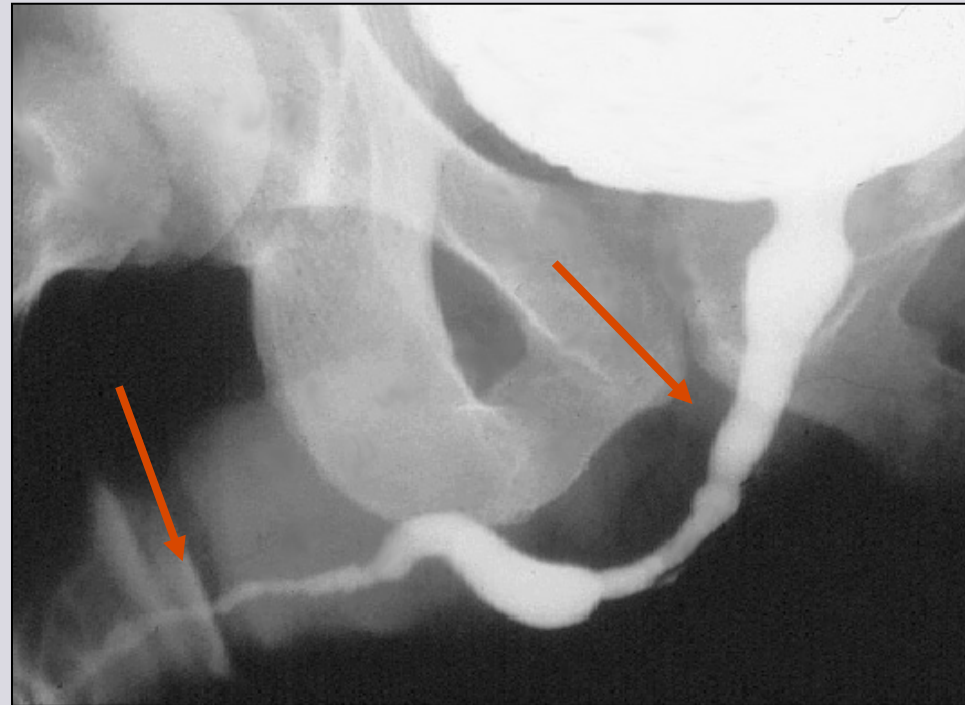
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[www.urethralcenter.it](http://www.urethralcenter.it)

# Voiding urethrography

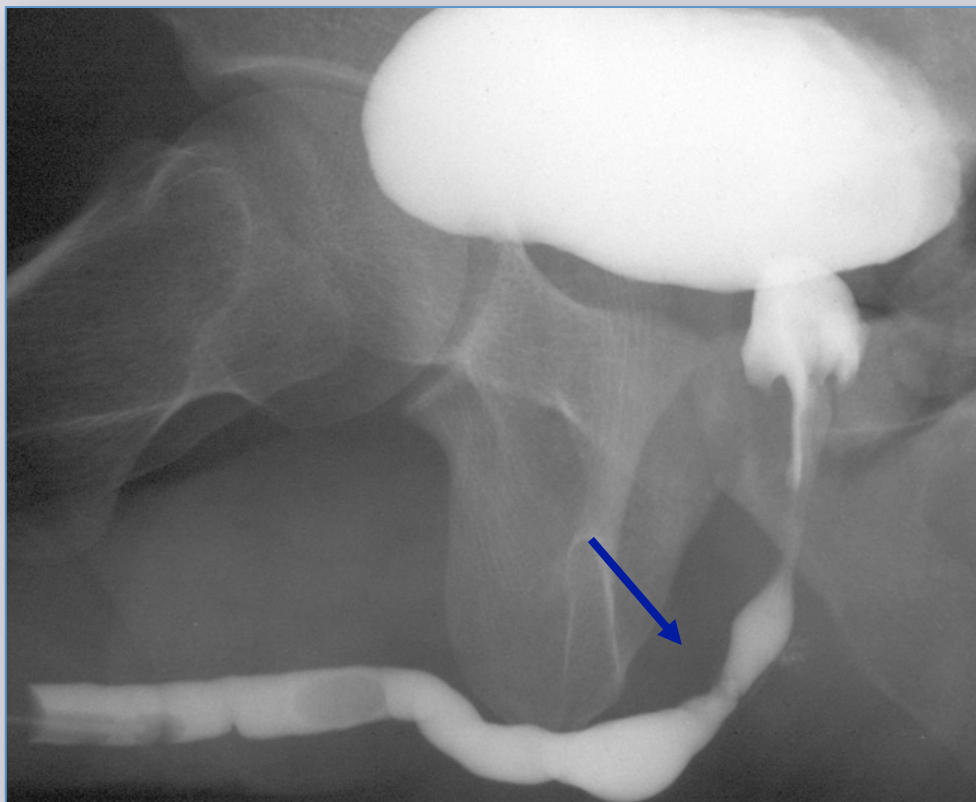
## blind point



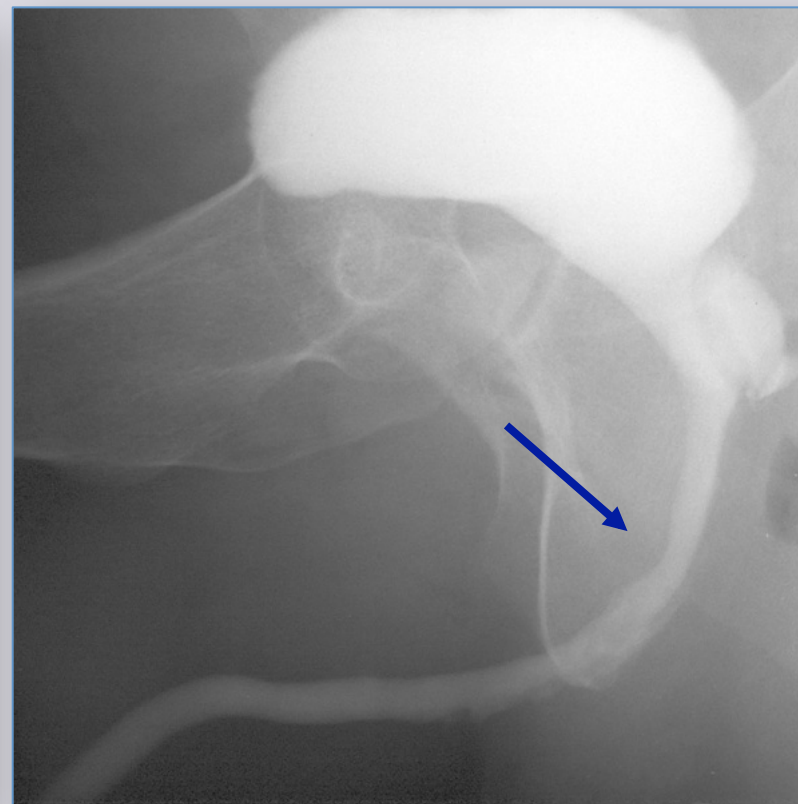
**Meatus and navicularis tract**



**Distal penile tract  
Sphincter area**



**Retrograde**



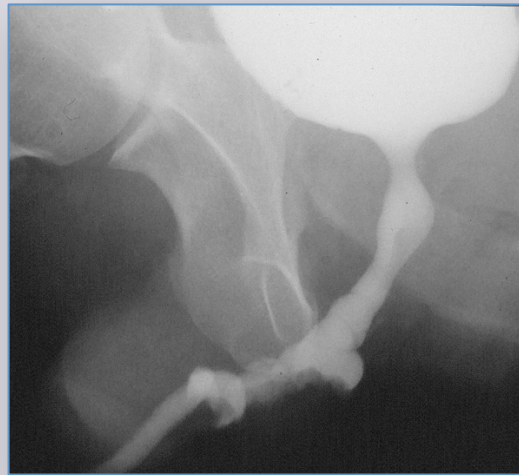
**Voiding**

# Voiding urethrography in patients who underwent bulbar urethroplasty:

## evaluation of the outcome



**good**



**satisfactory**



**poor**

# Combined cystourethrography





## Combined cystourethrography in patient with traumatic posterior urethral stricture



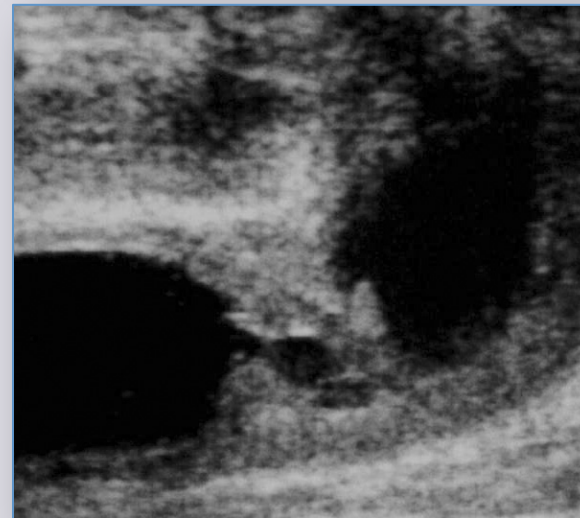
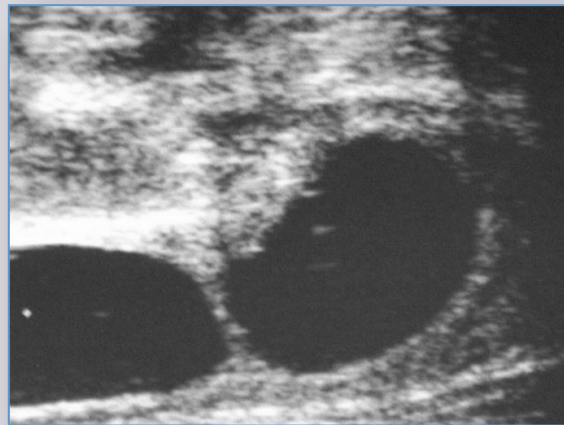
# Urethral sonography



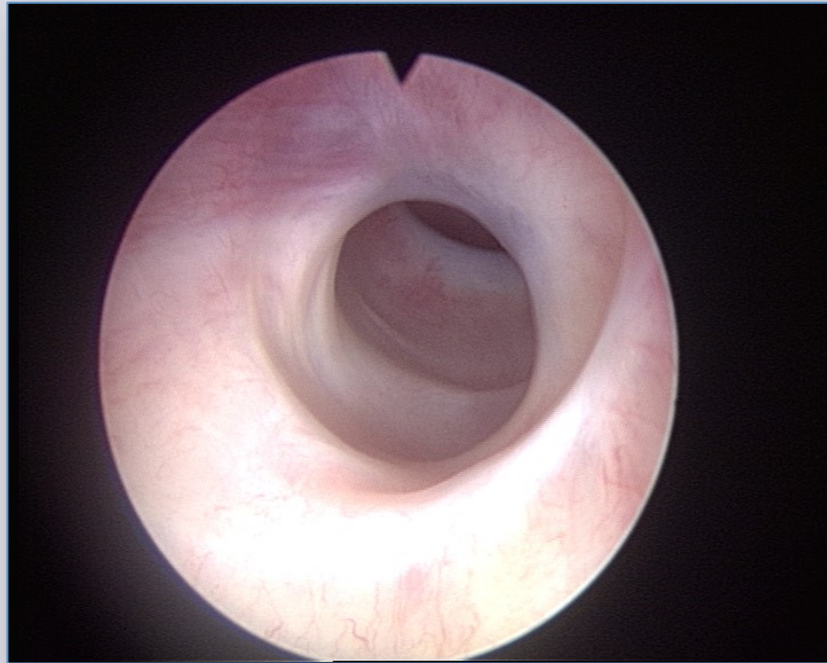
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# Stricture length and spongiofibrosis



# Urethroscopy

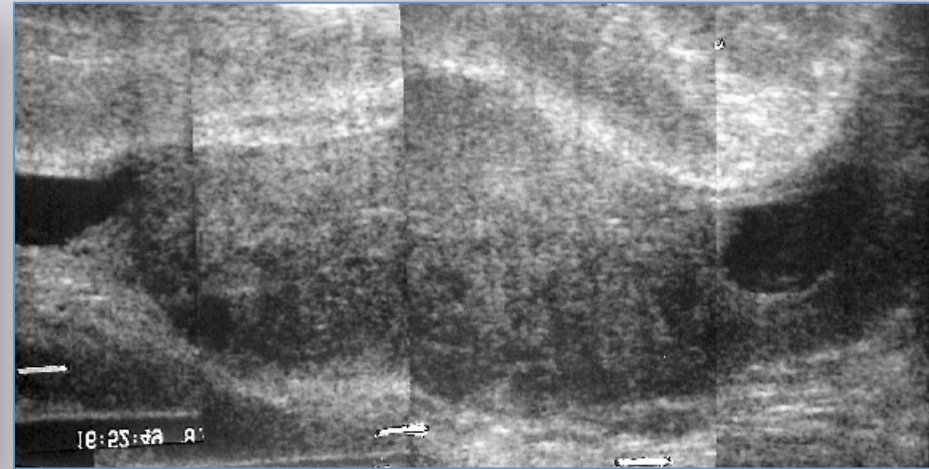
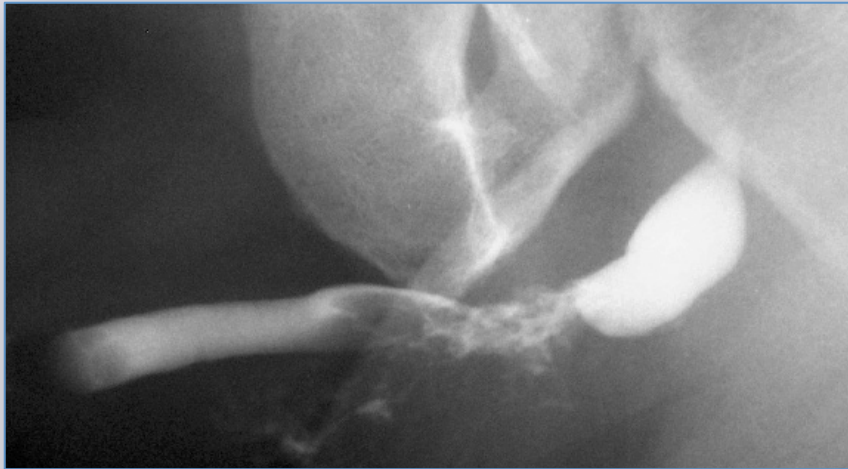


**Non-obliterated**



**obliterated**

# MRI



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**What urethral stricture is:  
a surgical therapeutic strategy**

**MEATAL STENOSIS**

**Meatotomy**

**or**

**Meatoplasty ?**

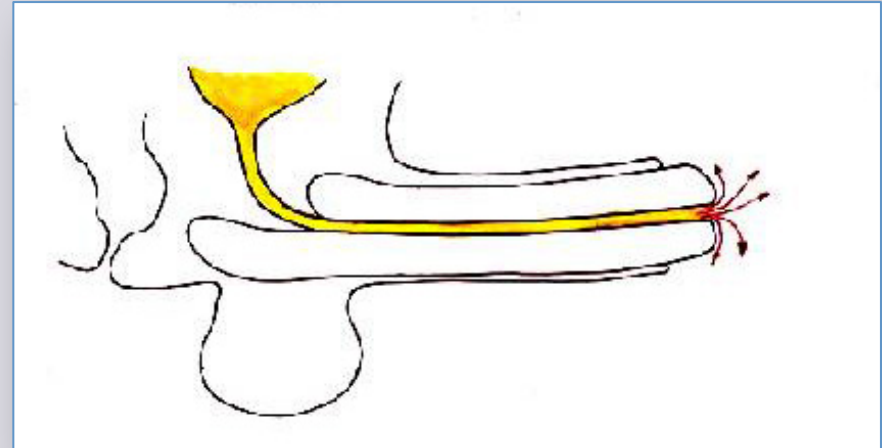
## Patients selected for meatotomy

- **Old patient**
- **Patient with important co-morbidity**
- **Patient psychologically stable**
- **Patient who underwent numerous previous failed surgical attempts**
- **Patient with a small glans**

## Complications after meatotomy



**84% satisfied or very satisfied**



**Fluttering stream (58.4%)**

**Irregular stream (33.3%)**

**Deviation of stream (8.3%)**

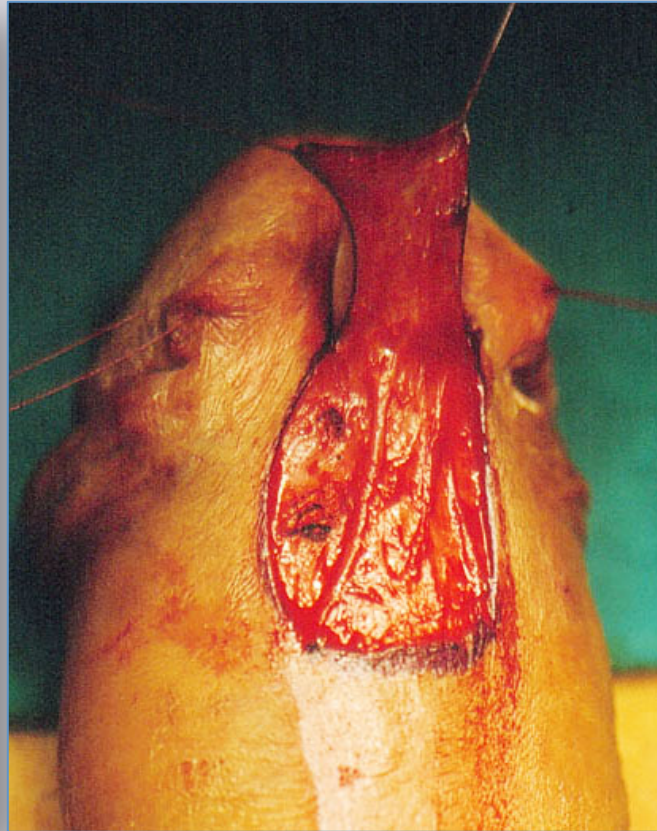
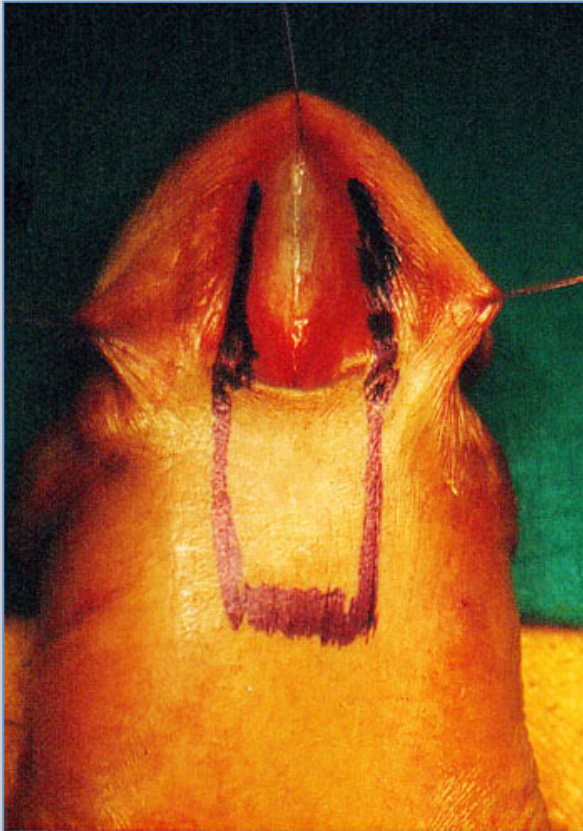
**BJU Int 2012; 109: 616-619**



## Patients selected for meatoplasty

- **Young patient**
- **Patient requiring an aesthetic outcome**
- **Patient with big glans**

# Blandy-Tresidder meatoplasty

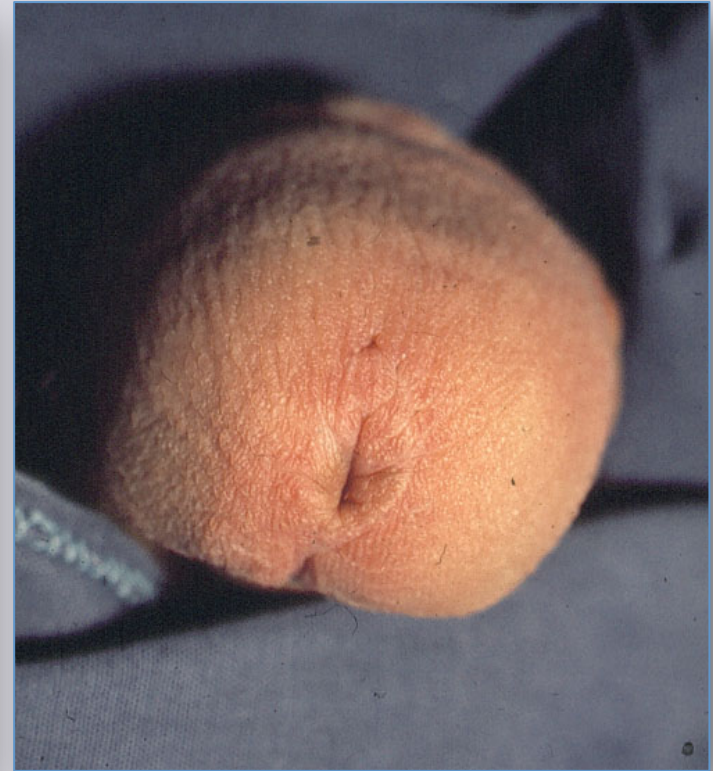
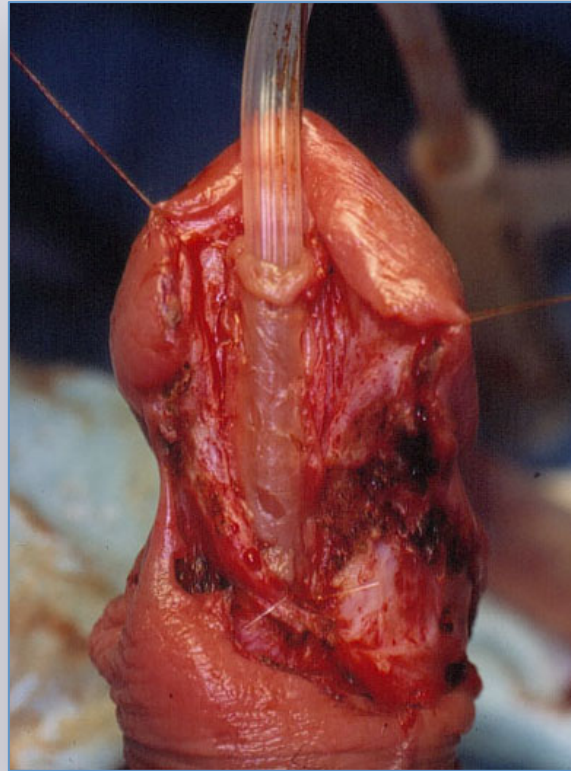
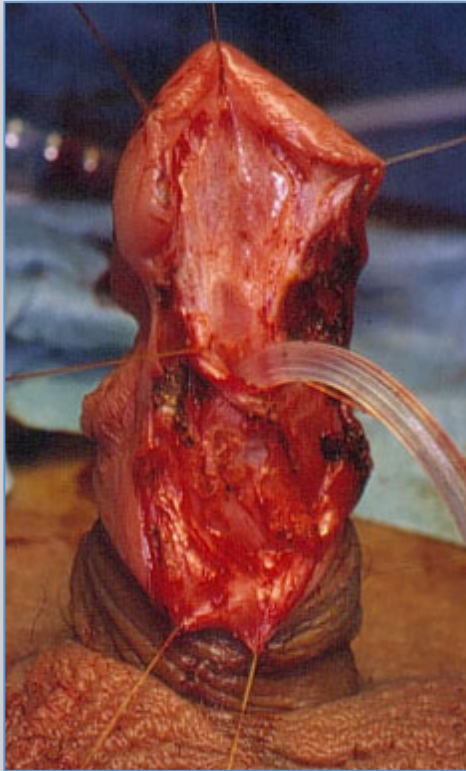


Br J Urol 1967; 39:633-234

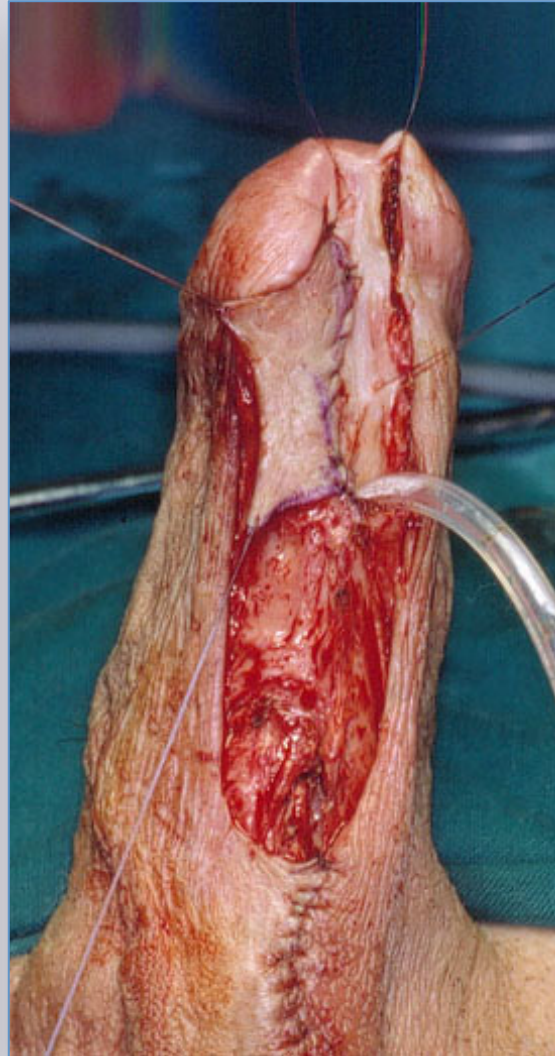
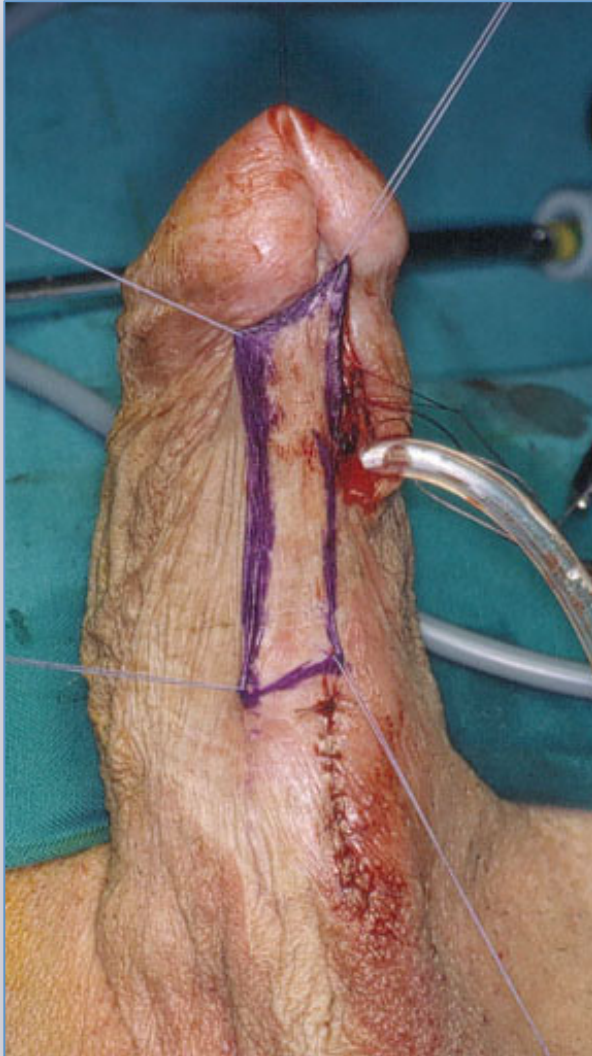
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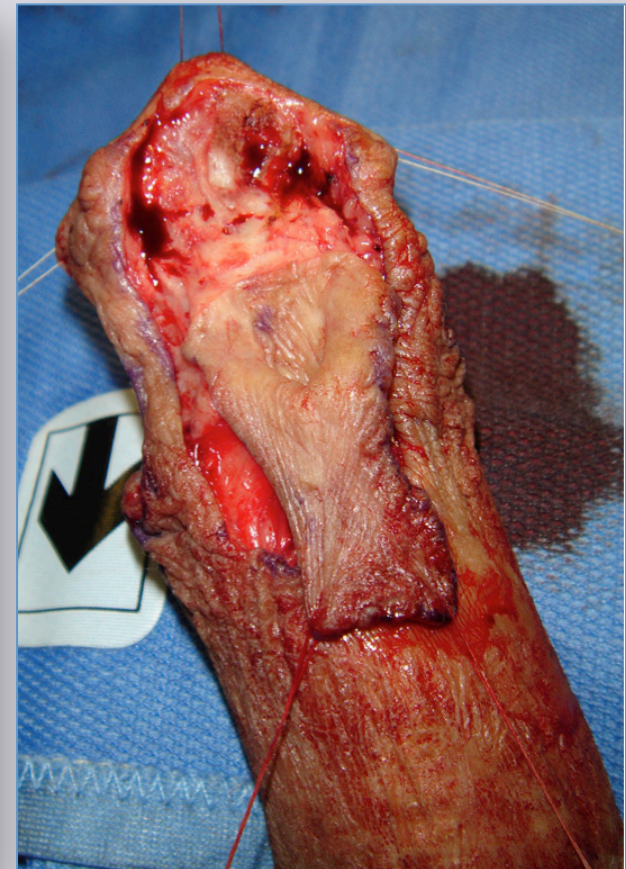
# Skin graft meatoplasty



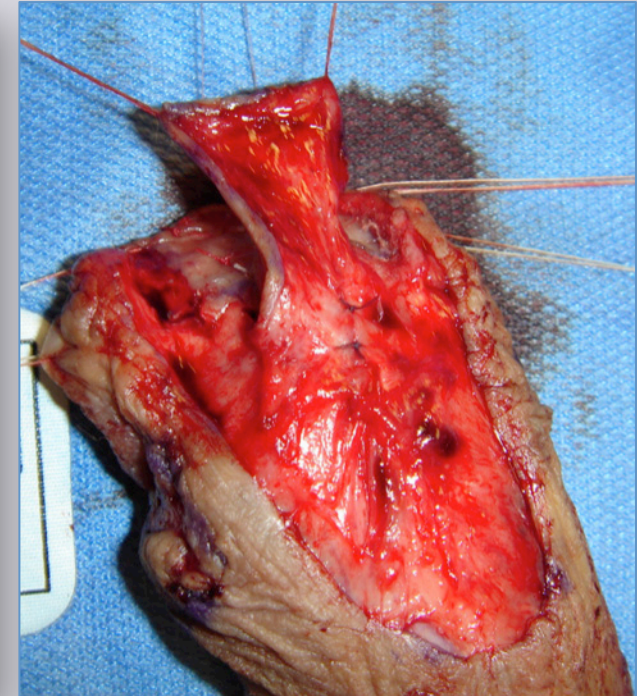
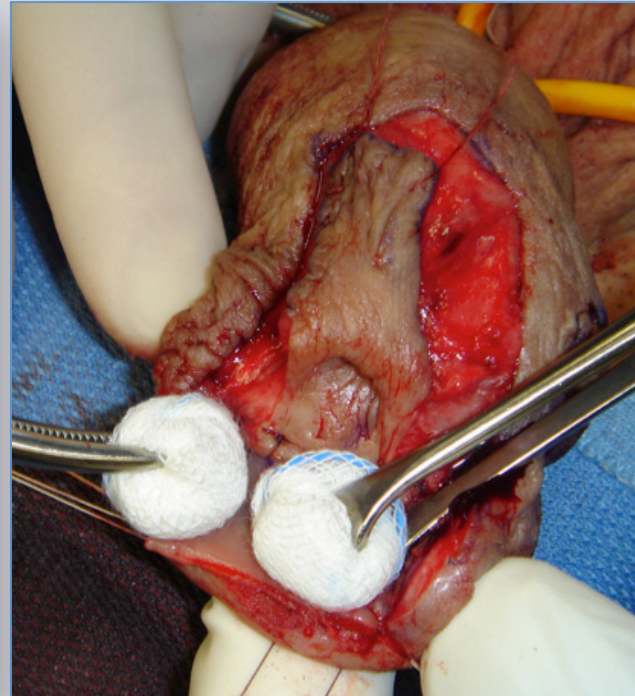
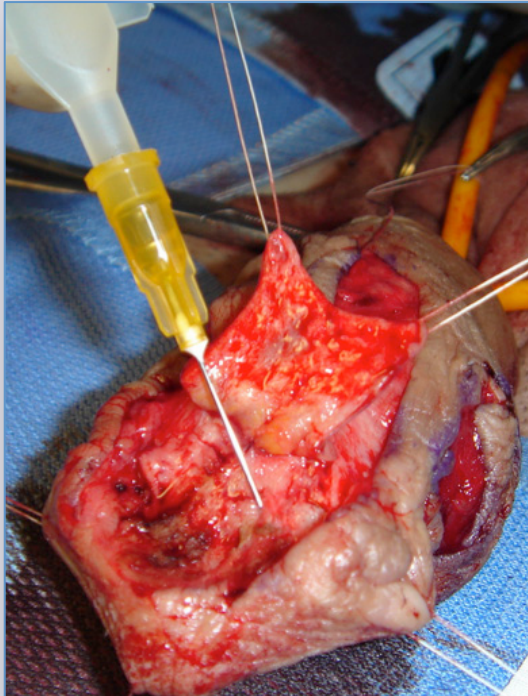
# Skin flap meatoplasty



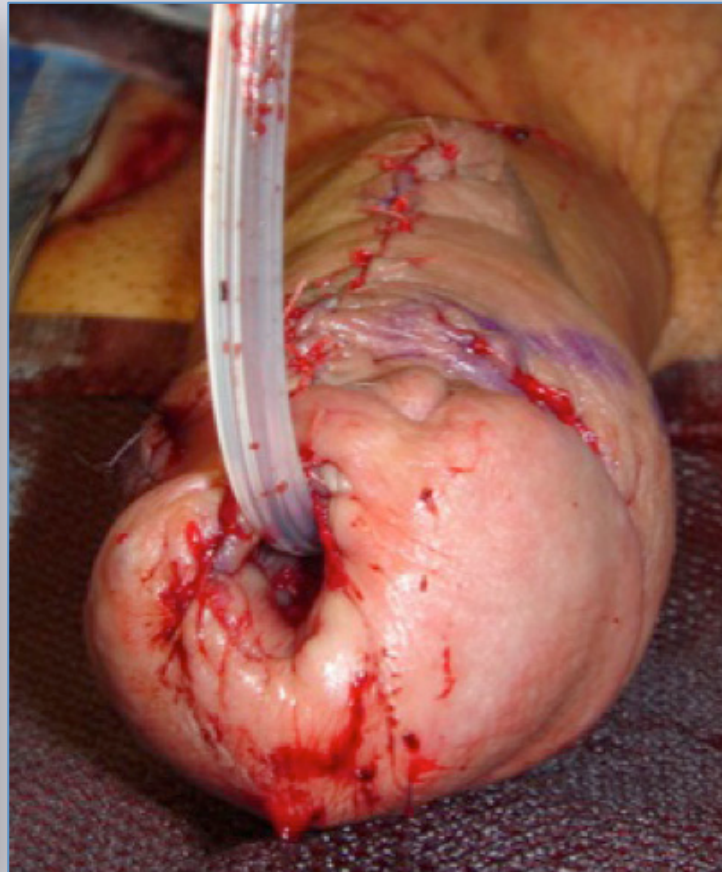
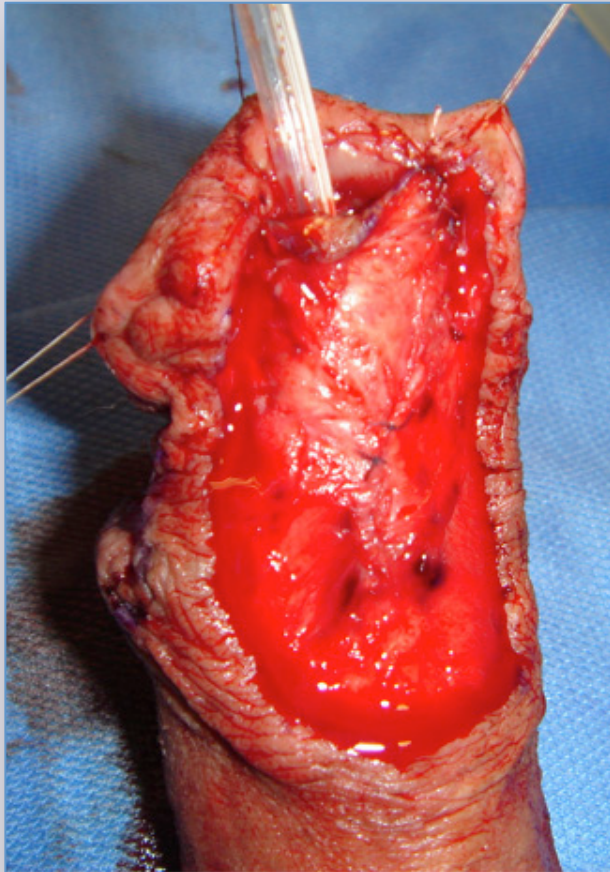
# Combined flap and graft urethroplasty with new glue (Glubran 2)



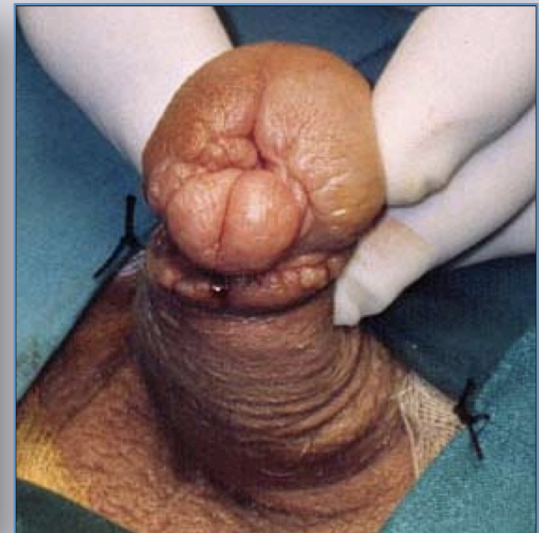
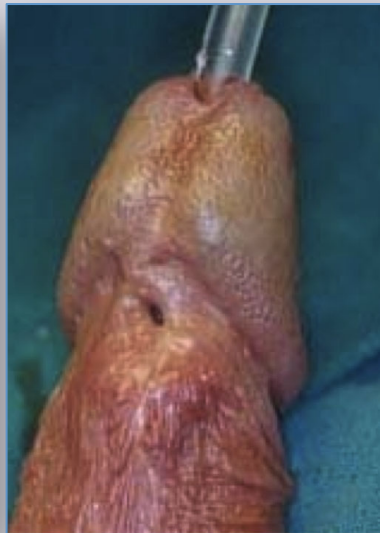
# Combined flap and graft urethroplasty with new glue (Glubran 2)



## Combined flap and graft urethroplasty with new glue (Glubran 2)



# Complications of meatoplasty





**Our results in 46 patients updated to  
December 2013**

**38 meatotomy: 84.2%**  
**(mean followup 73 months)**

**8 meatoplasty 75%**  
**(mean followup 101 monts)**

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## Conclusion



**It is more difficult to repair 1 cm meatal stenosis than 5 cm bulbar stricture**

**What urethral stricture is:**

**a surgical therapeutic strategy**

## **PENILE URETHRAL STRICTURE**

**One-stage**

**or**

**Two-stage repair ?**

# Penile urethral stricture

## Etiology

**Other**

**Failed hypospadias**

**Lichen sclerosus**

**One-stage**

**Two-stage repair**

# Penile urethral stricture

## Radiological features



**One-stage**



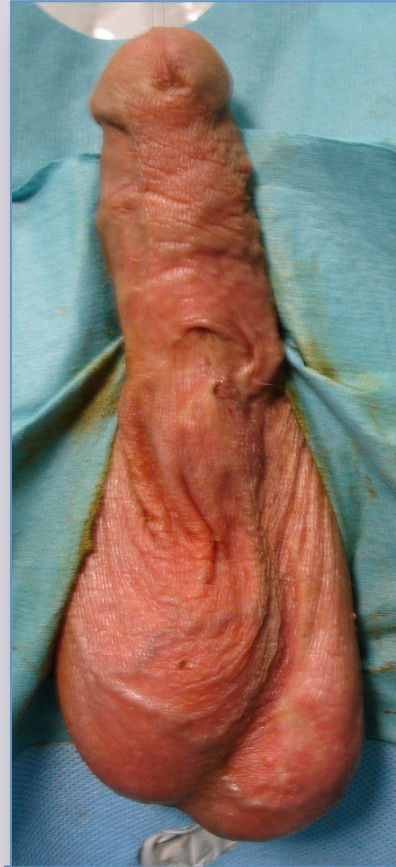
**Two-stage**

# Penile urethral stricture

## Clinical features



**One-stage**



**Two-stage**

## **Ideal patients for one-stage repair**

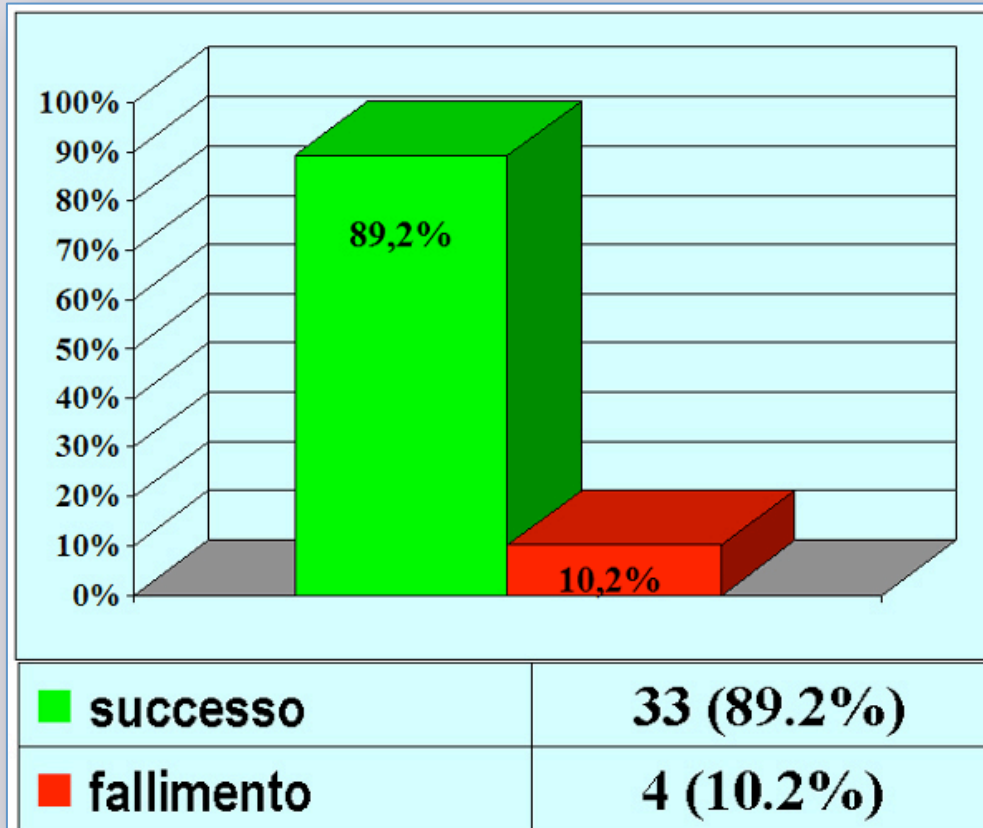
- **Young patient**
- **Stricture not involving the meatus**
- **No obliterative stricture**
- **Patient with a big glans**
- **Selected patients with Lichen sclerosus stricture or failed hypospadias repair**
- **When the risk of postoperative complications or failure is < 20% according to our experience**

# How to do one-stage penile urethroplasty using oral mucosa

## VIDEO 1



## Our results in 37 patients updated to December 2013



**89.2%**  
**(mean followup 81  
months)**

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[WWW.URETHRALCENTER.IT](http://WWW.URETHRALCENTER.IT)

## Two-stage penile urethroplasty

When use the oral mucosa at the first stage ?

**No**



**Failed hypospadias  
Other etiology**



**Yes**



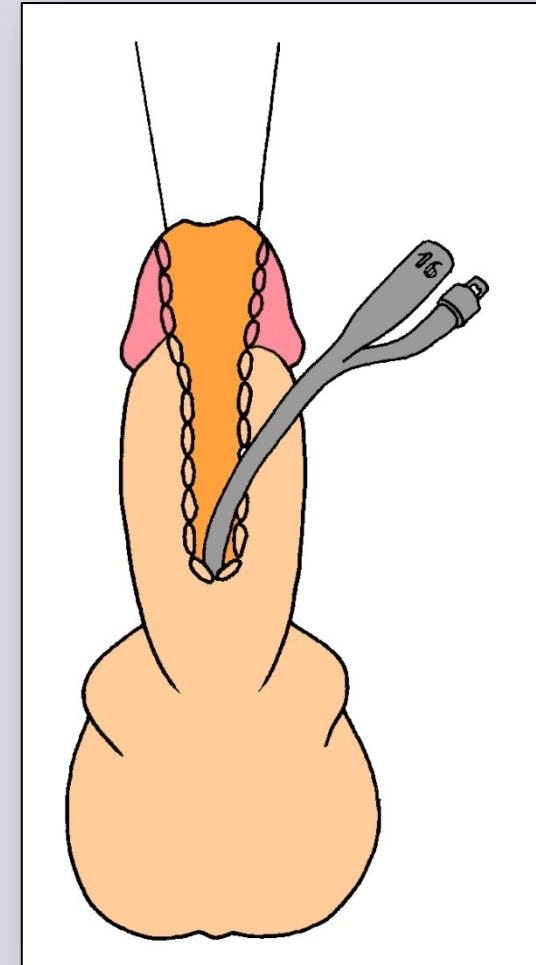
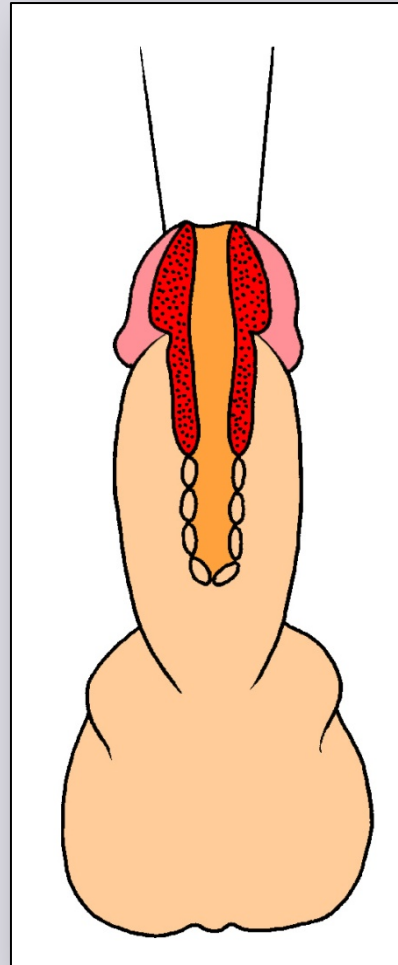
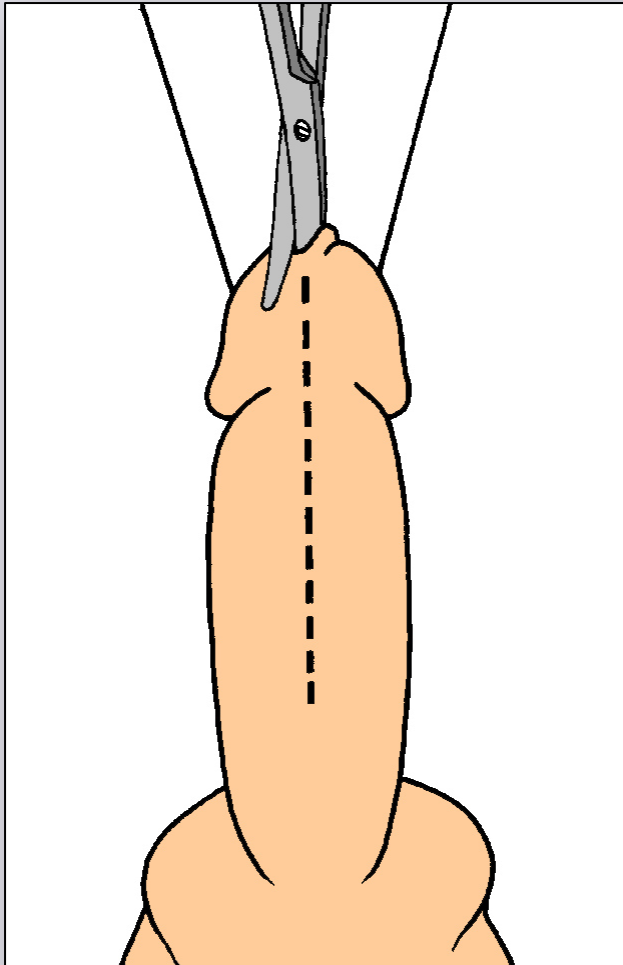
**Lichen sclerosus**

## Second stage



**How to do two-stage penile  
urethroplasty using oral mucosa  
only at the second stage**

## First stage – Johanson's urethroplasty

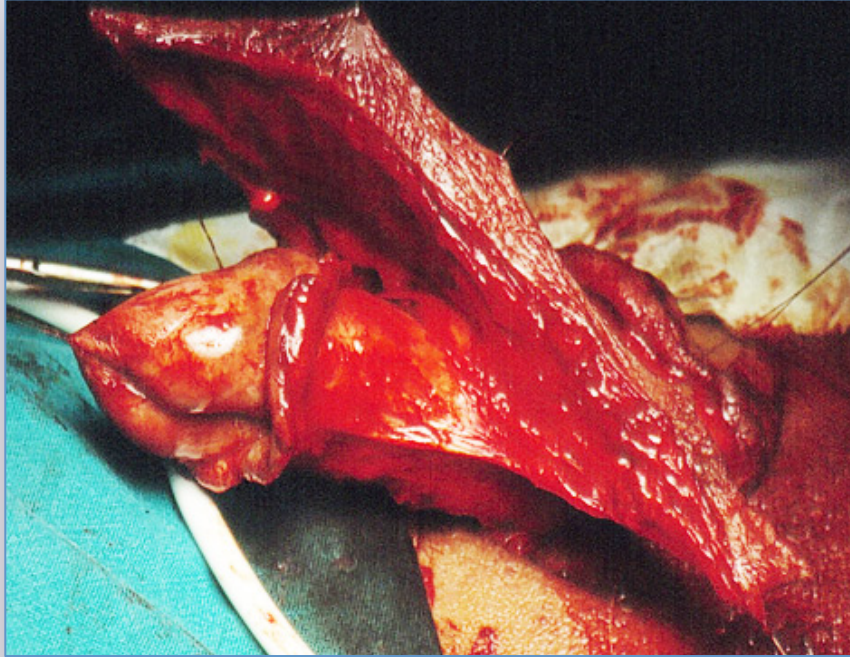


# First stage – Johanson's urethroplasty



## Second stage – Oral graft inlay urethroplasty





## Conclusion



**It is difficult to standardize the surgical therapeutic strategy in patients with penile urethral stricture and many factors should be take into consideration before to plan the surgery**



# Conclusion

**Stricture etiology**  
**Radiological features**  
**Features of the penis and genitalia**



**Surgeon background and experience/preference**

**Patient age and expectations**  
**Patient co-morbidity**  
**Patient psychological status**

**What urethral stricture is:**

**a surgical therapeutic strategy**

## **BULBAR URETHRAL STRICTURE**

**Anastomotic**

**or**

**Graft repair ?**

# Bulbar urethral stricture

## Etiology

**Trauma**

**Other**

**Anastomotic**

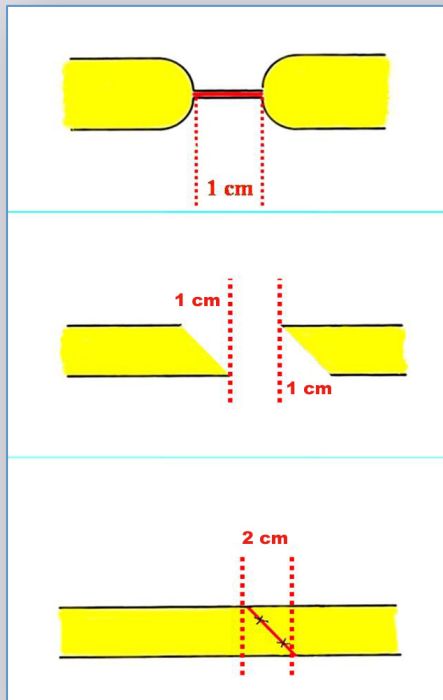
**Graft repair**

# Bulbar urethral stricture

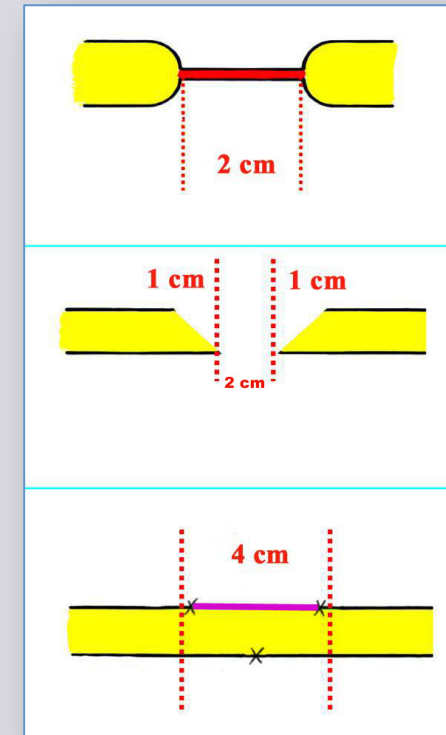
Whic type of anastomotic repair ?



**Stricture length**

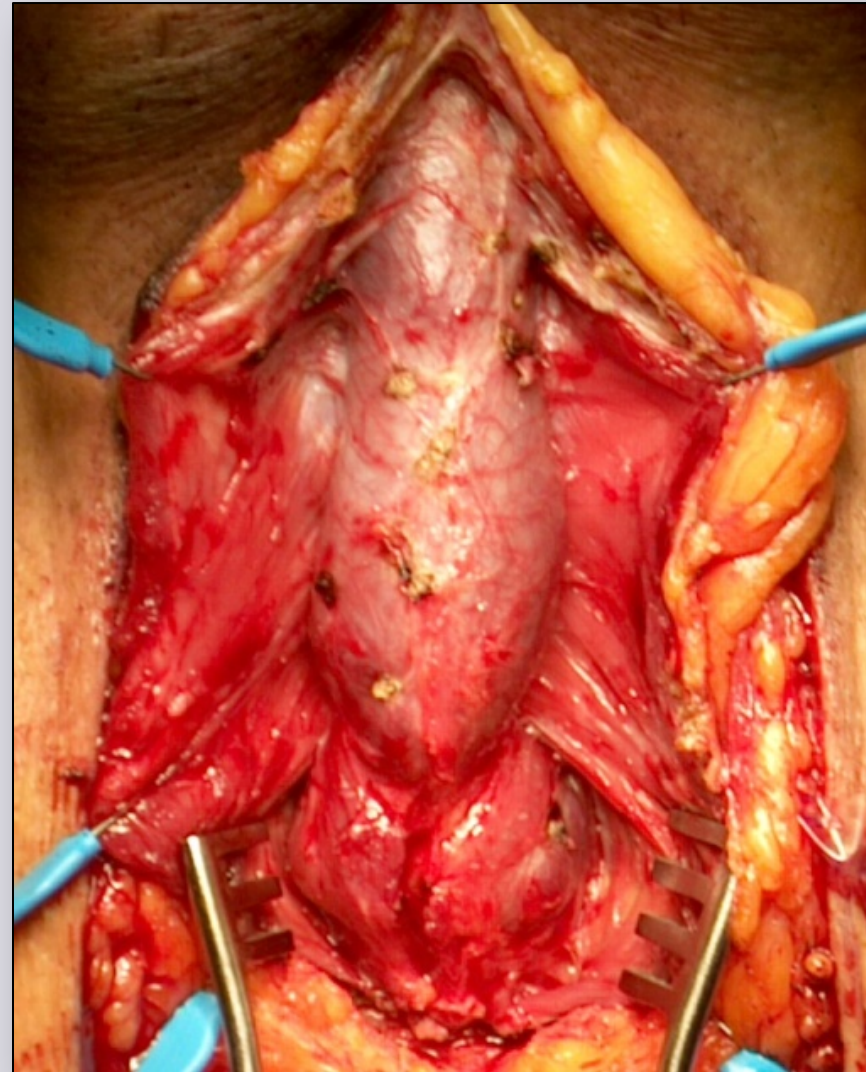
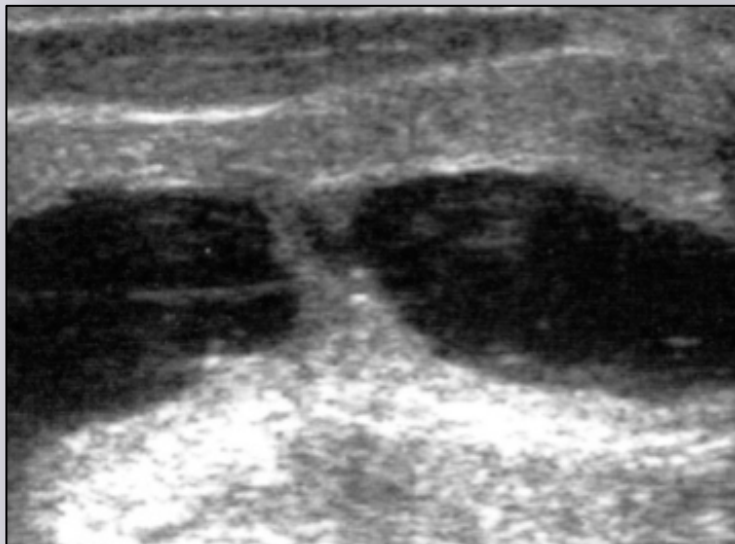


**End-to-end**



**Augmented anastomotic repair**

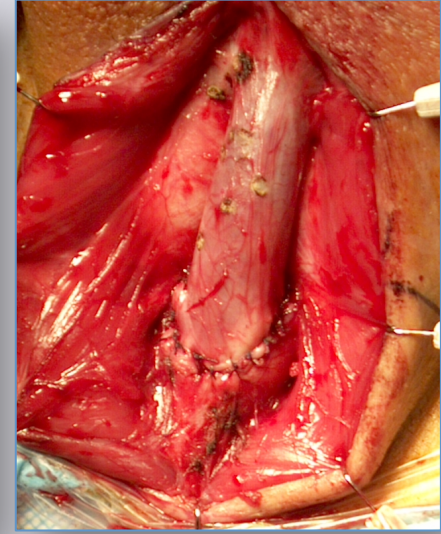
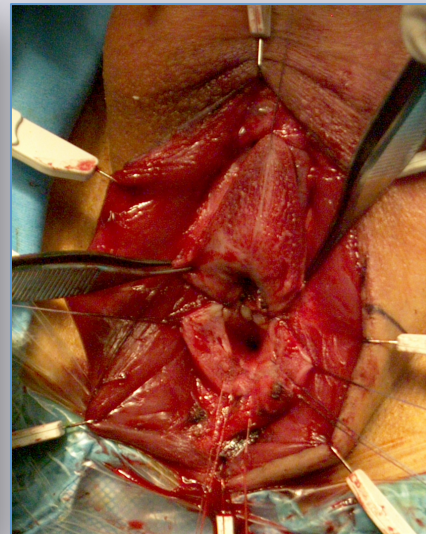
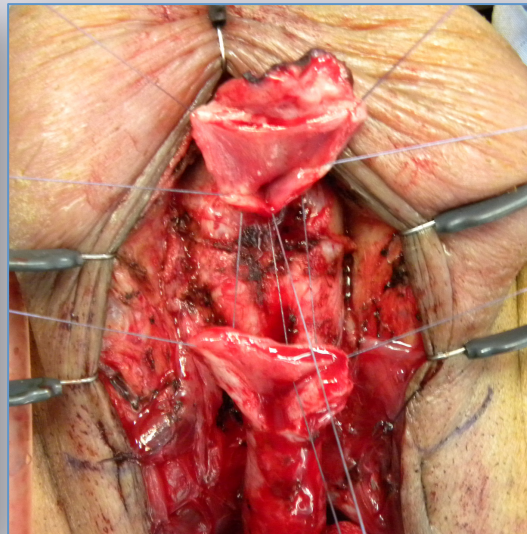
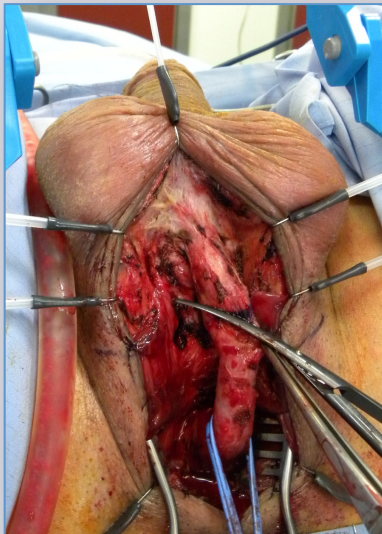
# End-to-end anastomosis



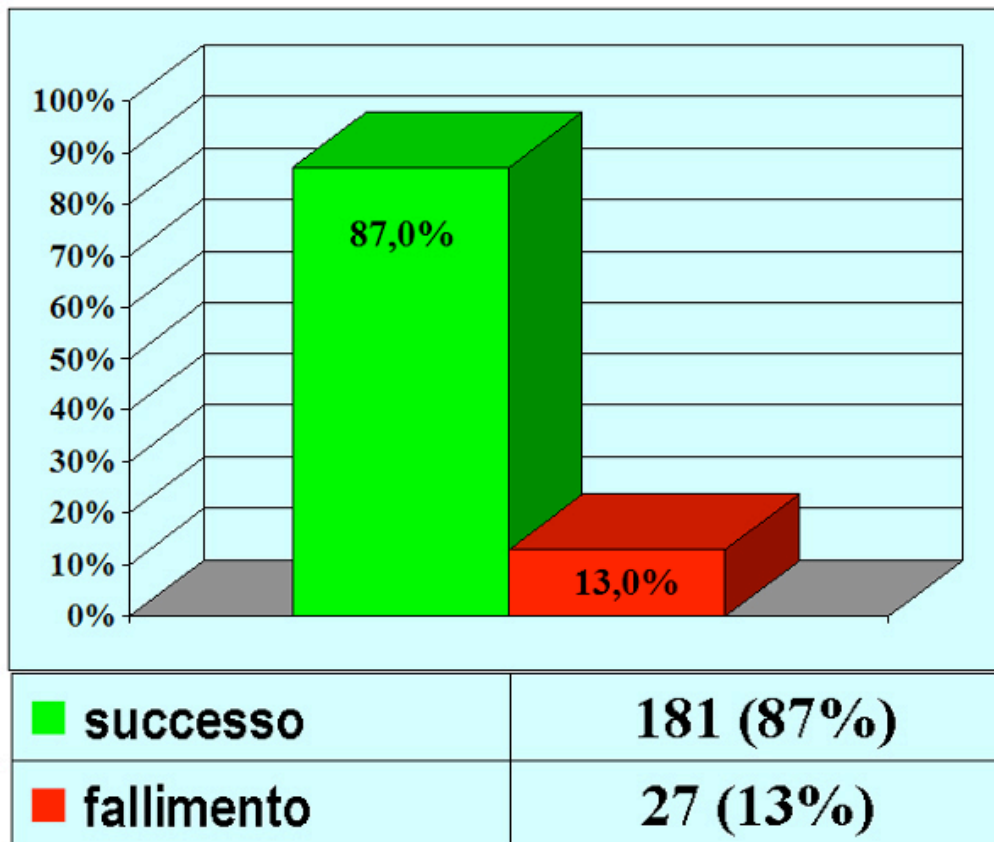
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[www.urethralcenter.it](http://www.urethralcenter.it)

# End-to-end anastomosis



# Our results in 208 patients updated to December 2013



**87%**  
(mean followup  
129 months)

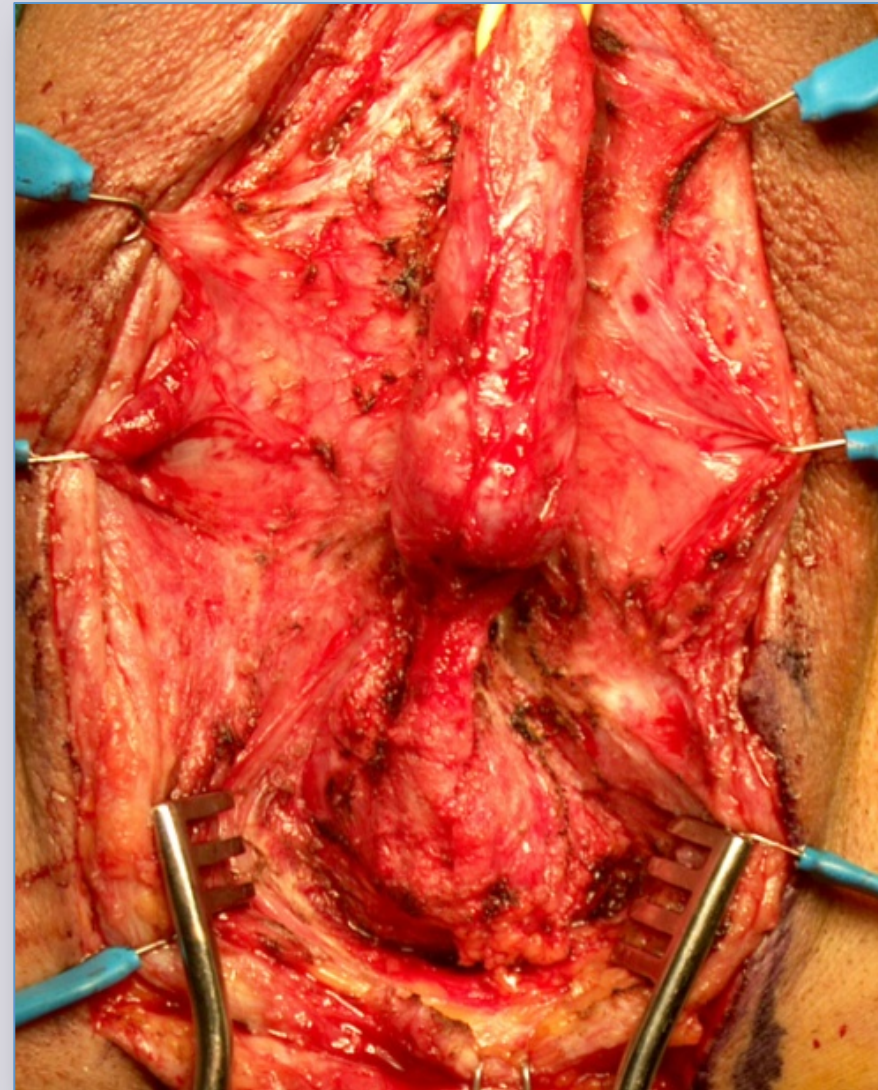
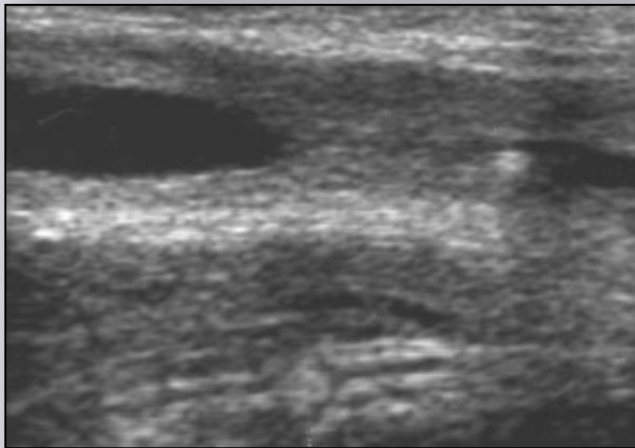
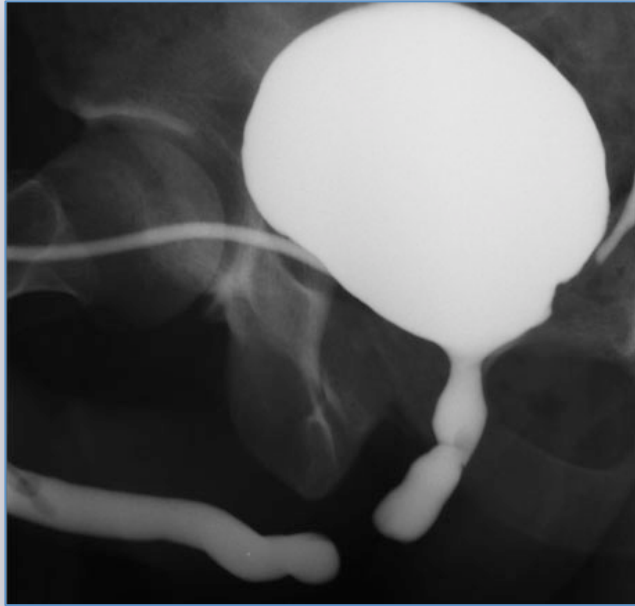
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# Augmented anastomotic repair

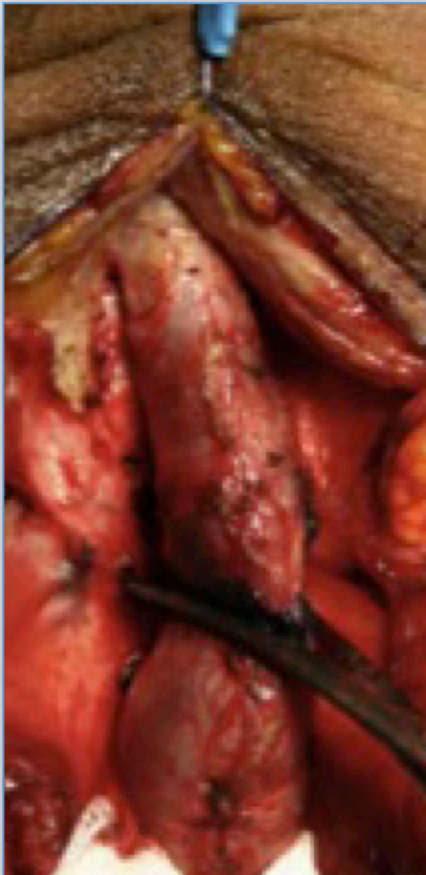


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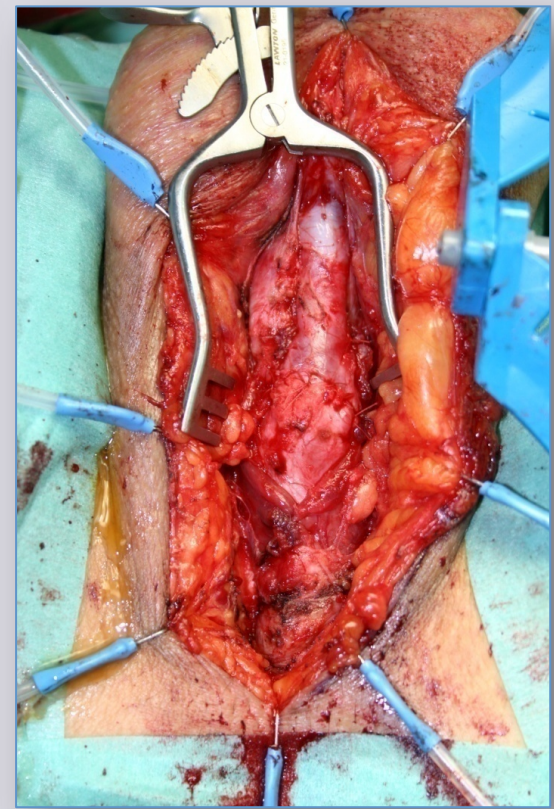
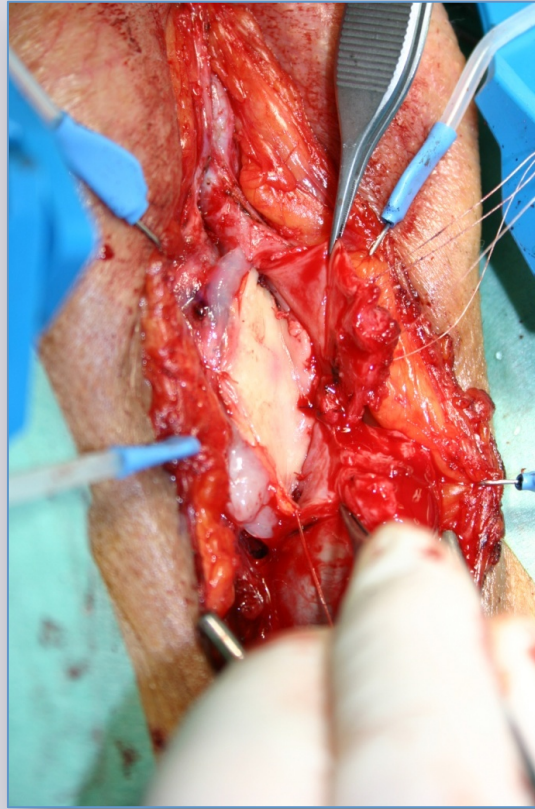
Websites: [www.uretra.it](http://www.uretra.it)  
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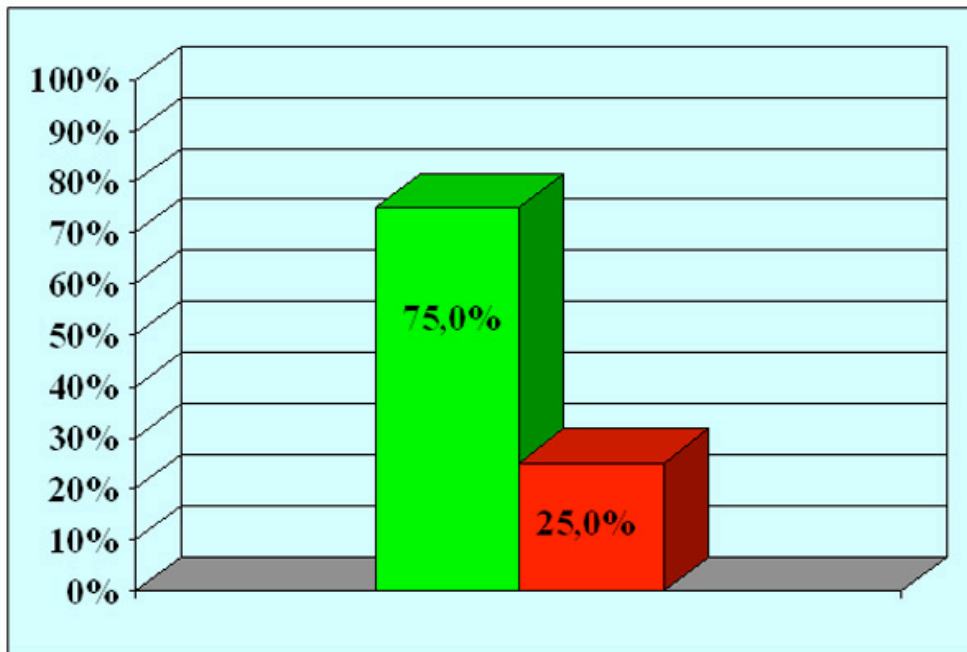
# Augmented anastomotic repair



# Augmented anastomotic repair



# Our results in 24 patients updated to December 2013



■ successo	18 (75%)
■ fallimento	6 (25%)

**75%**  
(mean followup  
113 months)

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# Conclusion



**Using these 2 techniques you are able to repair  
all the traumatic bulbar urethral strictures  
ranging from 1 to 6 cm**

# Bulbar urethral stricture

Whic type of graft repair ?



Stricture site

Distal

Proximal



Dorsal

Ventral

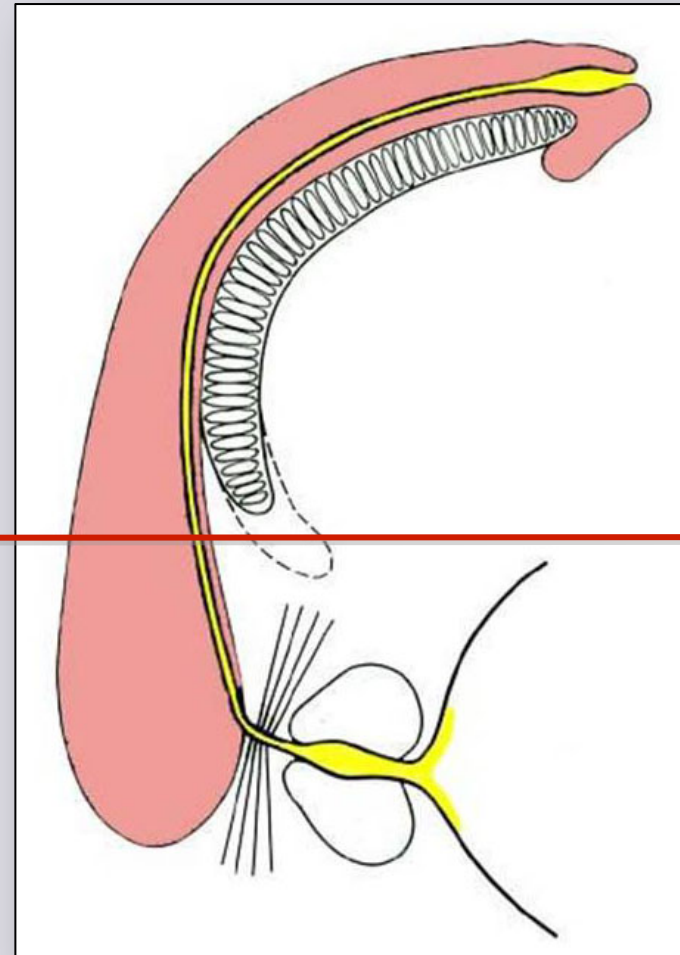
# Ventral or dorsal graft?



**Distal**  
**Dorsal onlay**



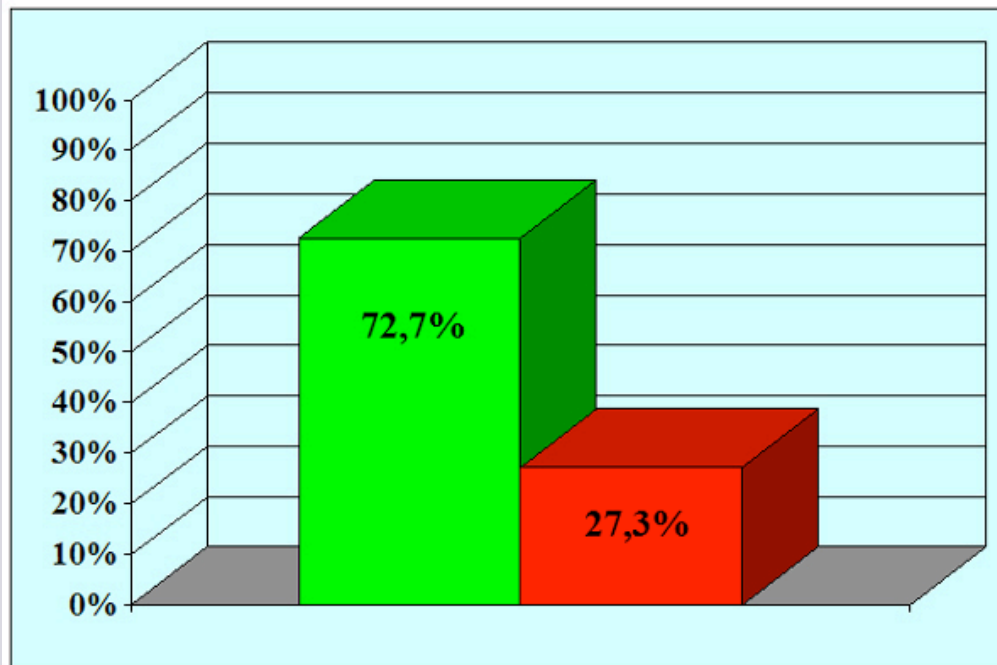
**Proximal**  
**Ventral onlay**



# How to do bulbar dorsal onlay graft urethroplasty

## VIDEO 2

## Our results in 44 patients updated to December 2013



■ successo	32 (72.7%)
■ fallimento	12 (27.3%)

**72.7%**  
(mean followup  
68 months)

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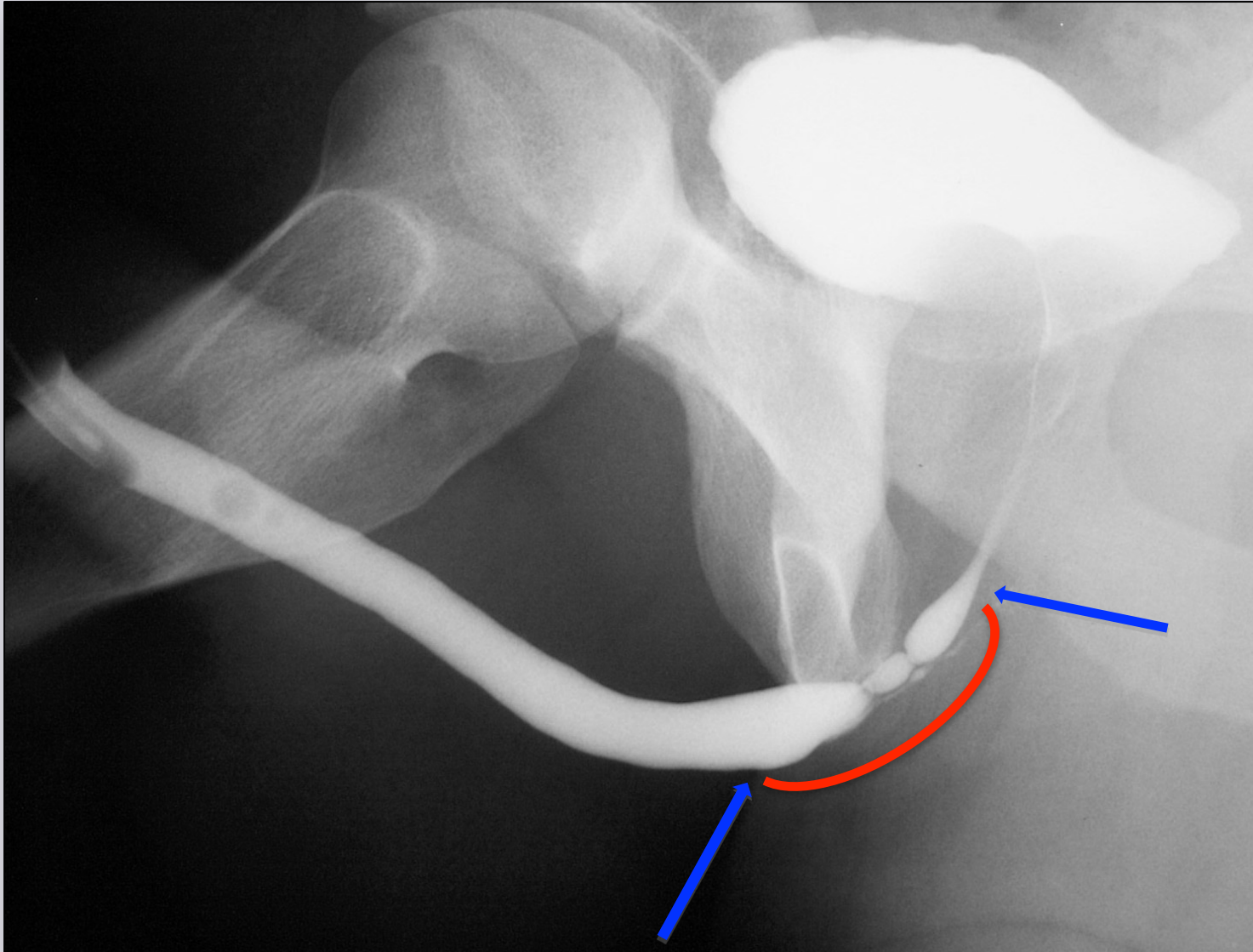
[WWW.URETHRALCENTER.IT](http://WWW.URETHRALCENTER.IT)



# **How to do bulbar ventral onlay graft urethroplasty**

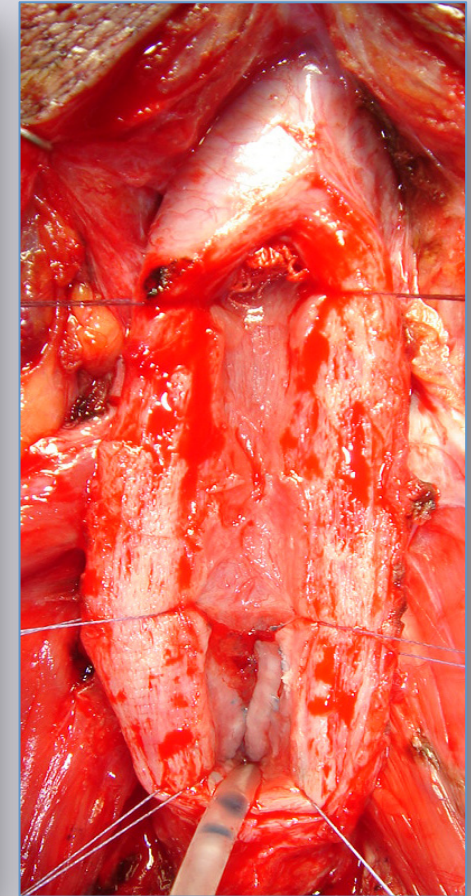
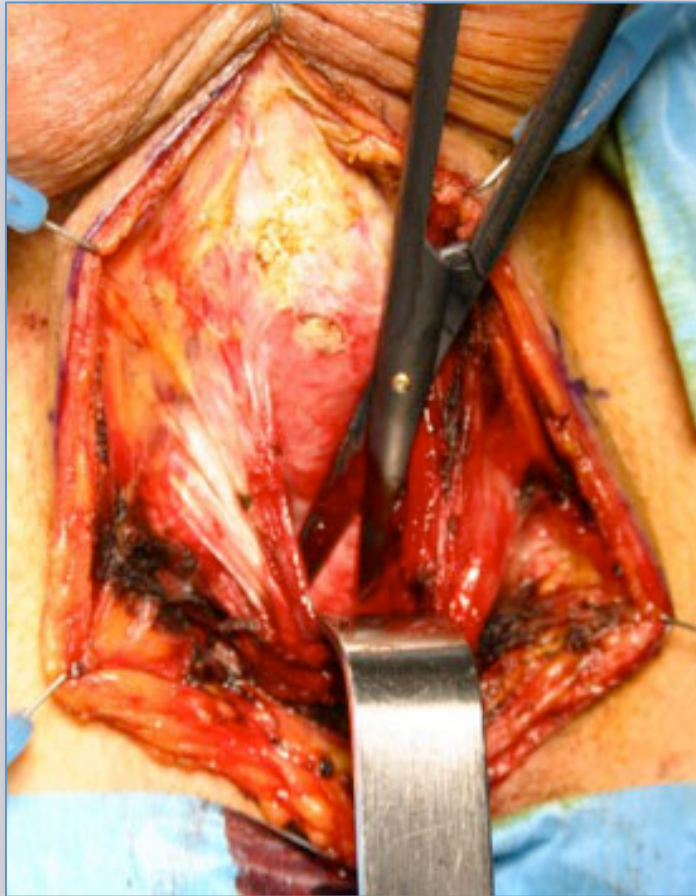
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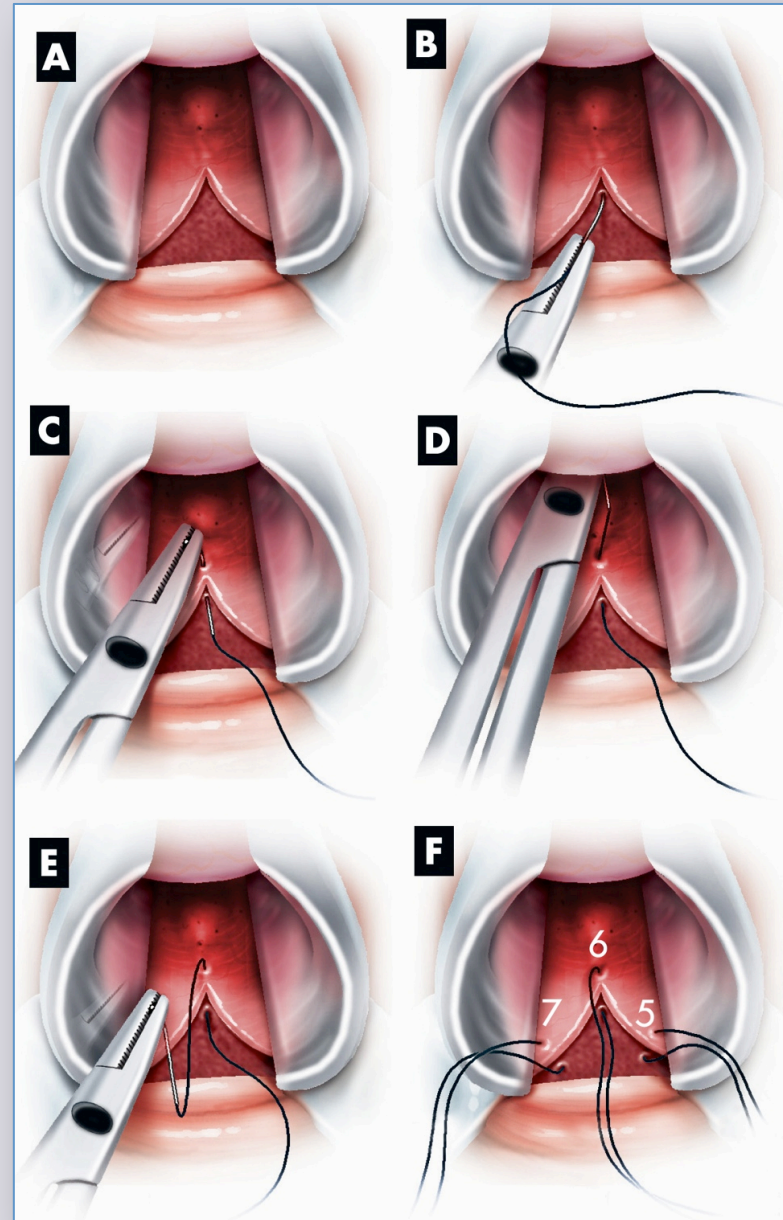
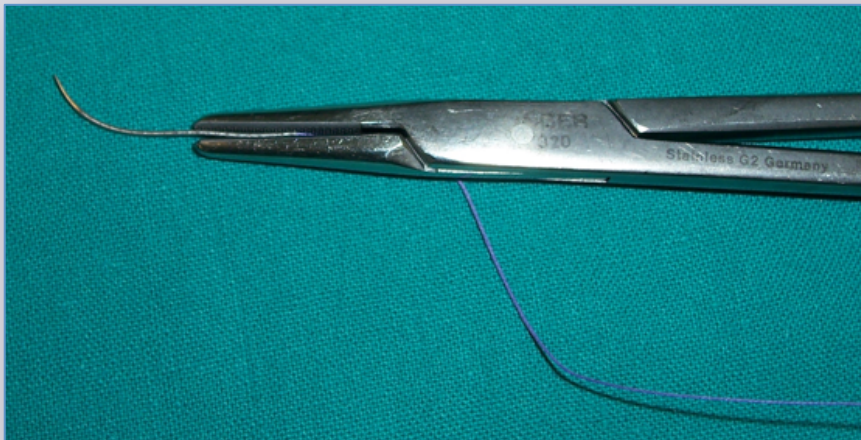
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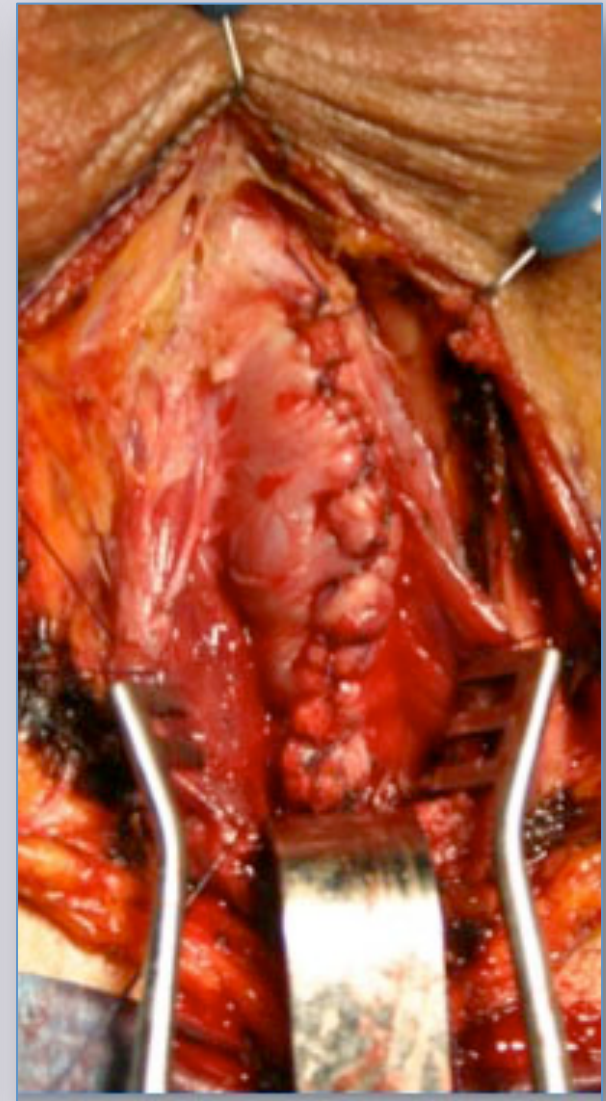
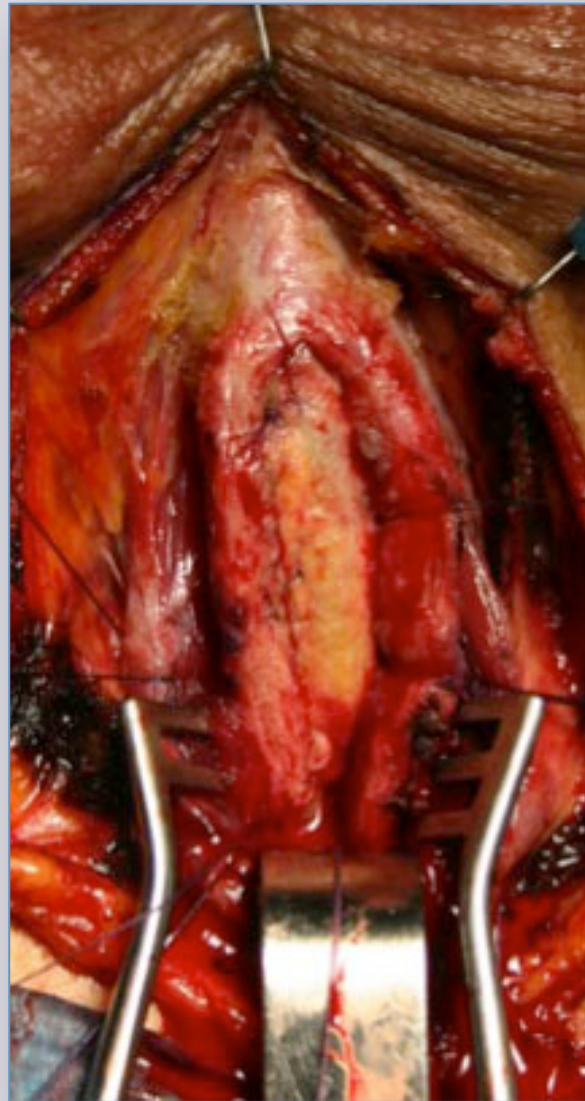
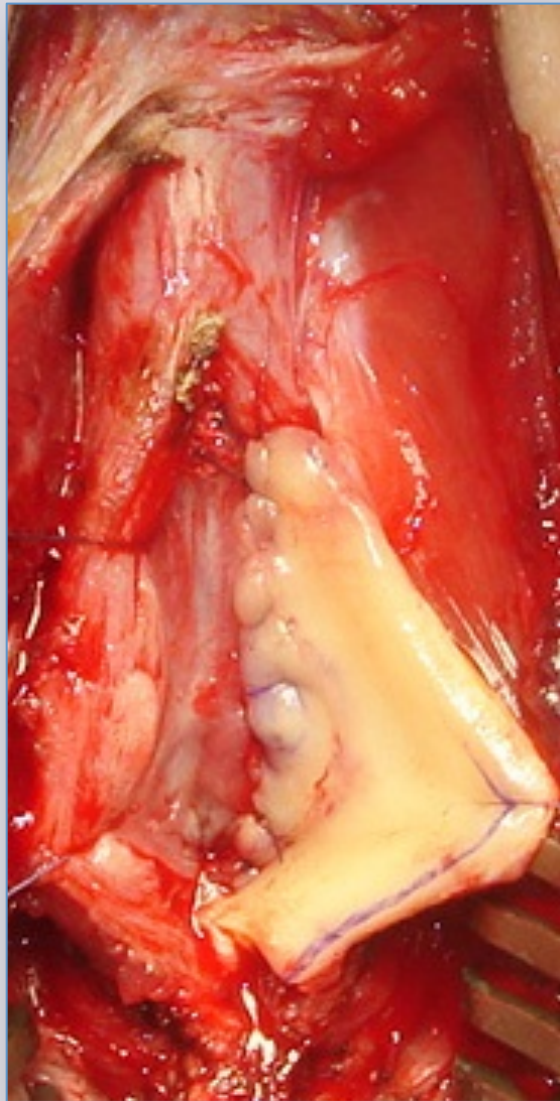
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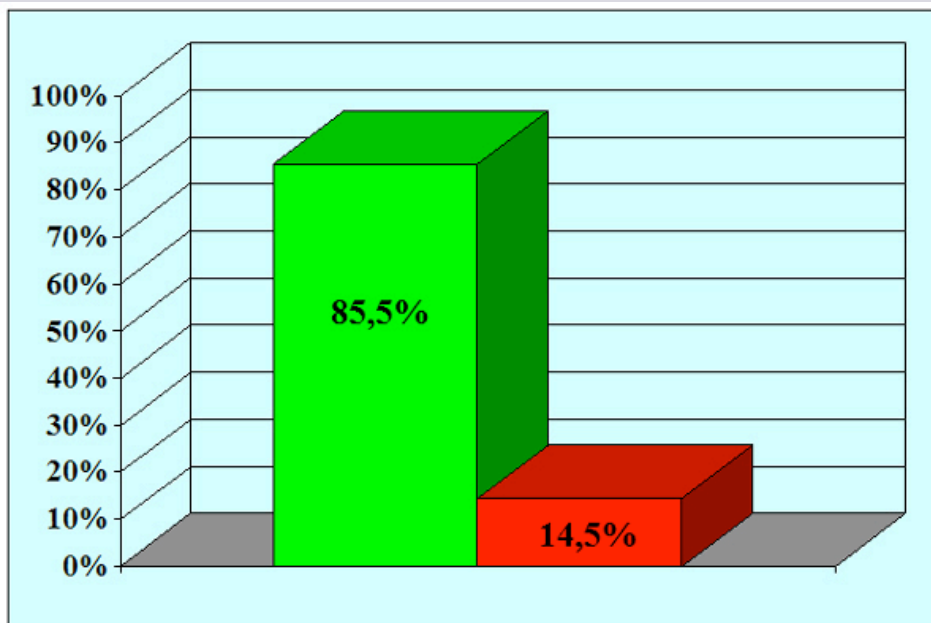
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# Our results in 338 patients updated to December 2013



■ successo	289 (85.5%)
■ fallimento	49 (14.5%)

**85.5%**  
(mean followup  
63 months)

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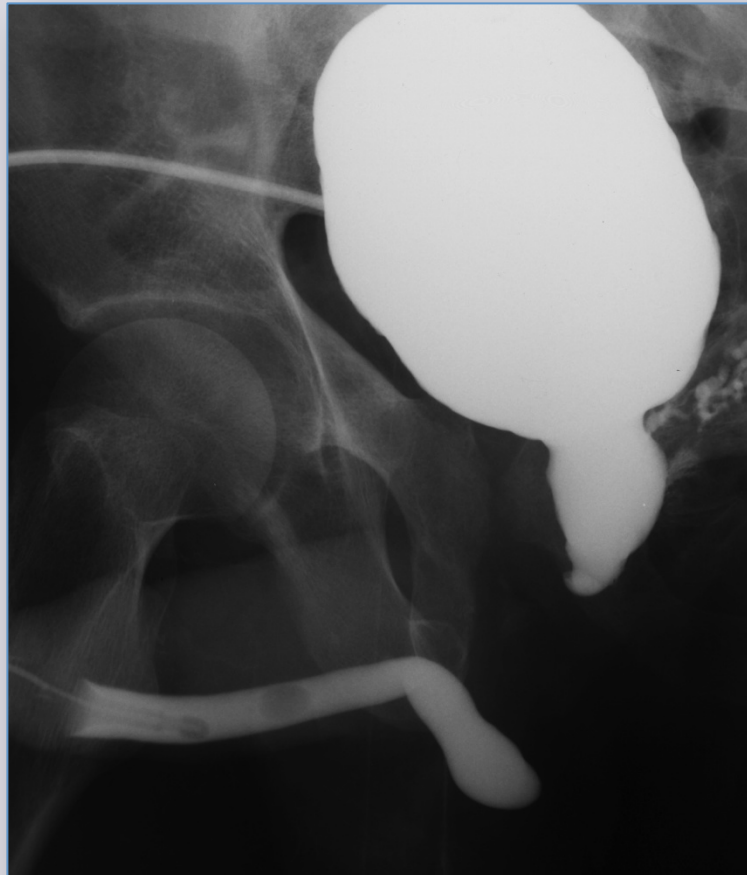
# Posterior urethroplasty

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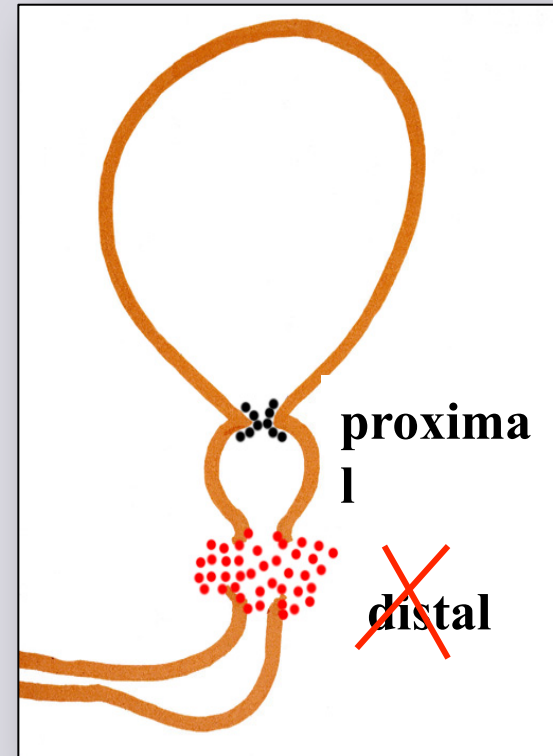


**Delayed treatment of patients with pelvic fracture urethral distraction defects**



**Posterior urethroplasty**

# Posterior urethroplasty



**How to repair posterior urethral stricture  
preserving urinary continence**



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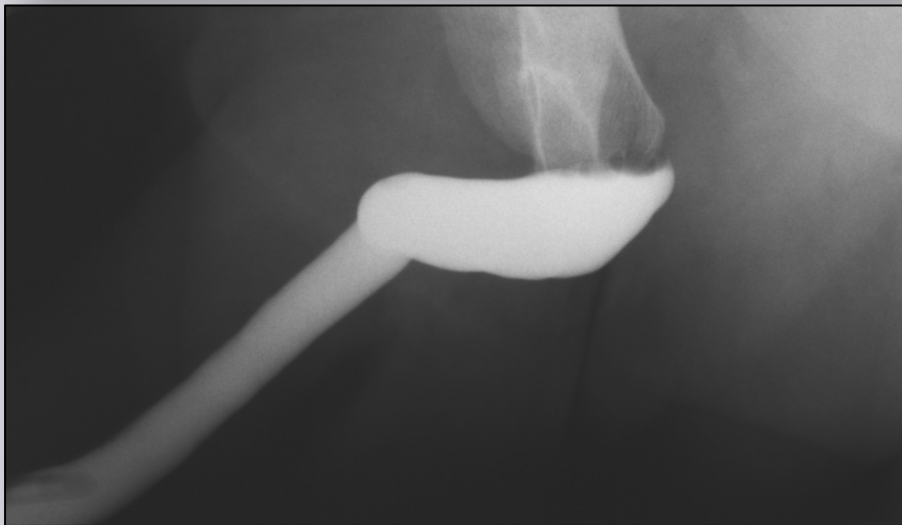
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[www.urethralcenter.it](http://www.urethralcenter.it)



e-mail: [info@urethralcenter.it](mailto:info@urethralcenter.it)

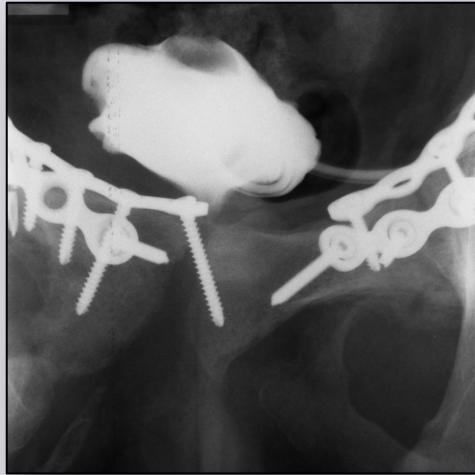
Websites: [www.uretra.it](http://www.uretra.it)  
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# Preoperative patient evaluation

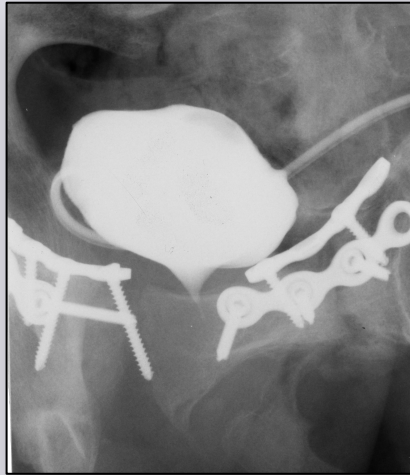


**Retrograde urethrography**

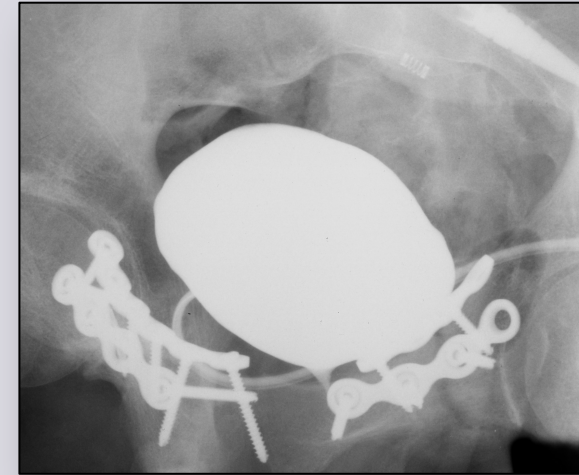
## Cystography – supine position



50 cc

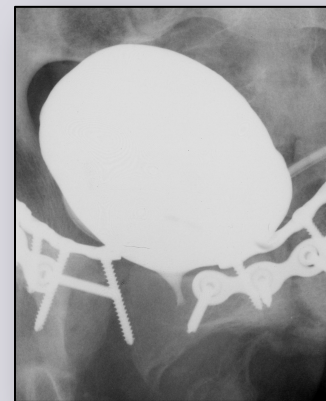
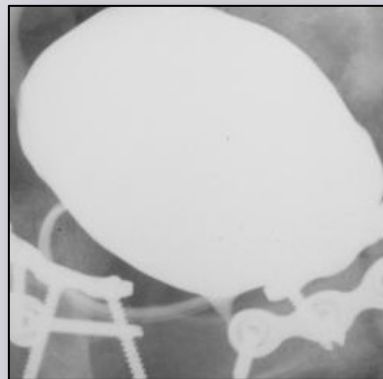


100 cc



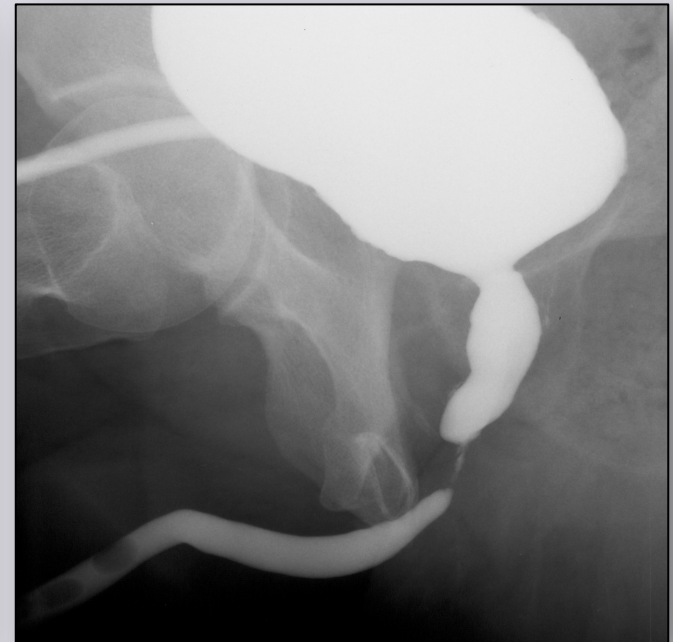
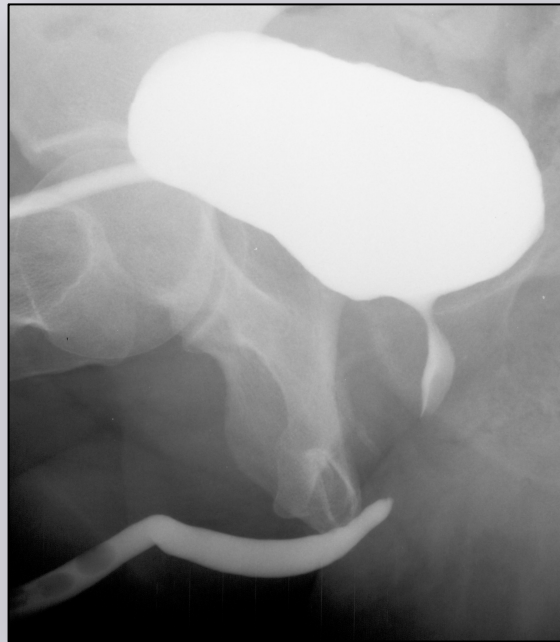
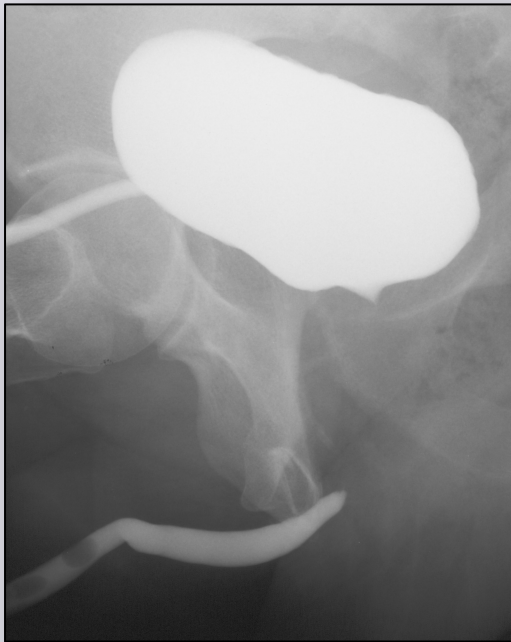
200 cc

## Cystography – standing position



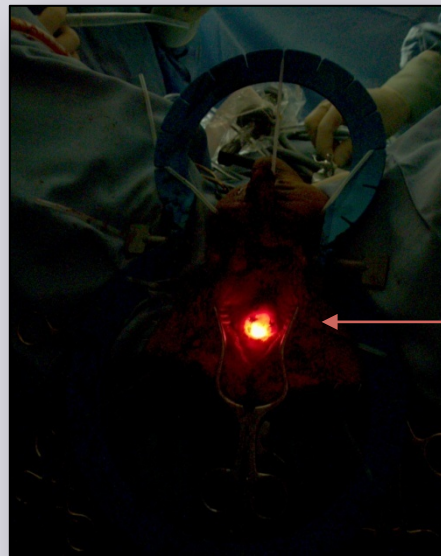
Valsalva

# Combined retrograde and voiding urethrography

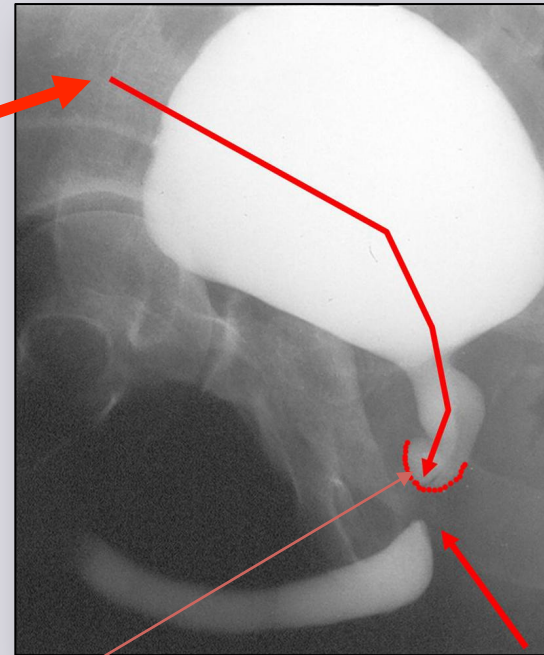


# Posterior urethroplasty using combined approach

suprapubic  
endoscopic  
approach



light



perineal surgical approach



# Patient preparation



**simple lithotomy position**

# Patient preparation



**Allen stirrups**

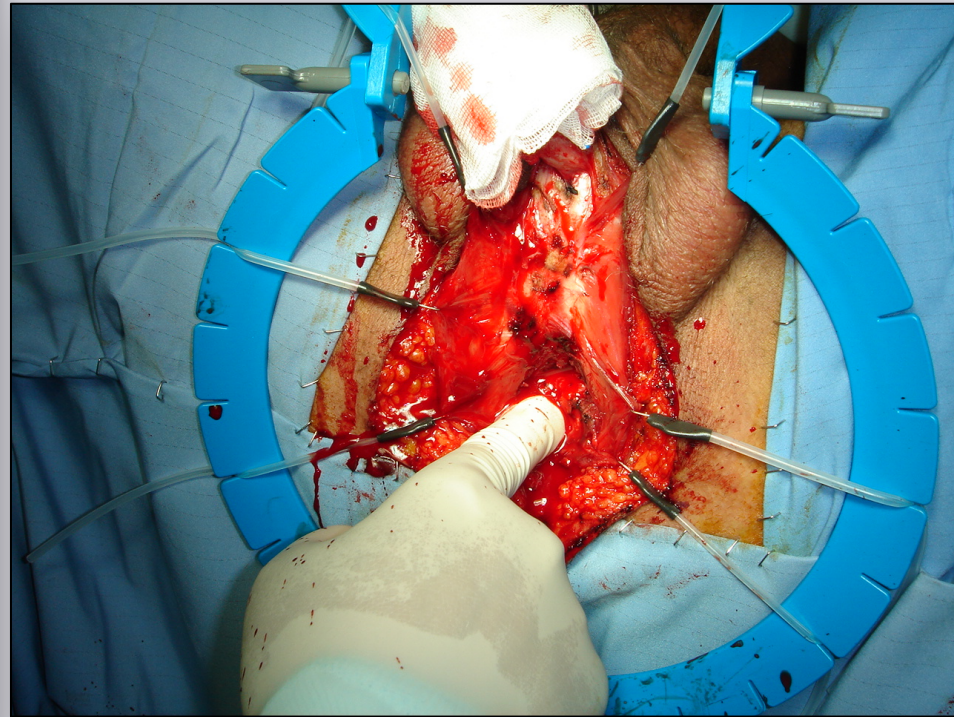


**Inflatable compression sleeves**

# How to do posterior urethroplasty

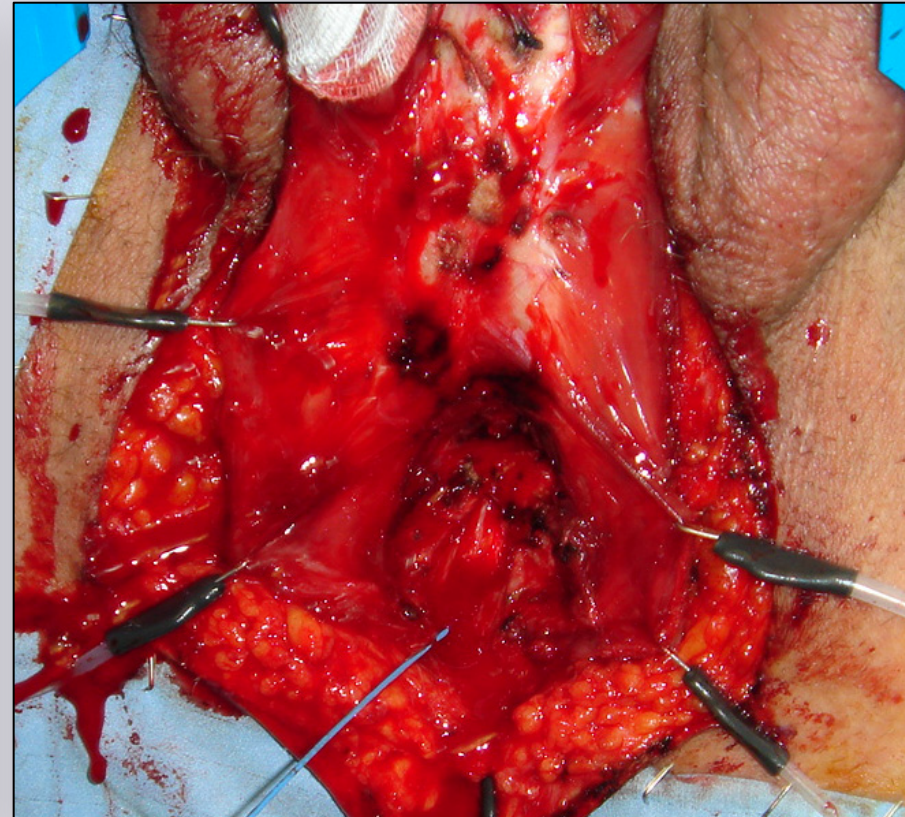
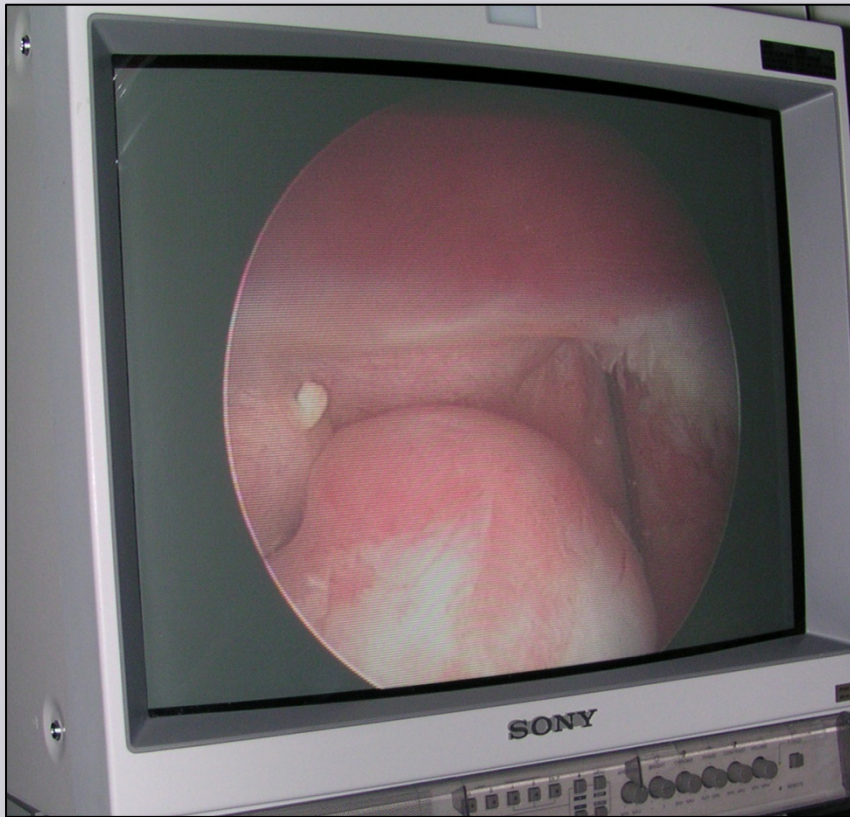
## VIDEO 3

## Cut on the tip



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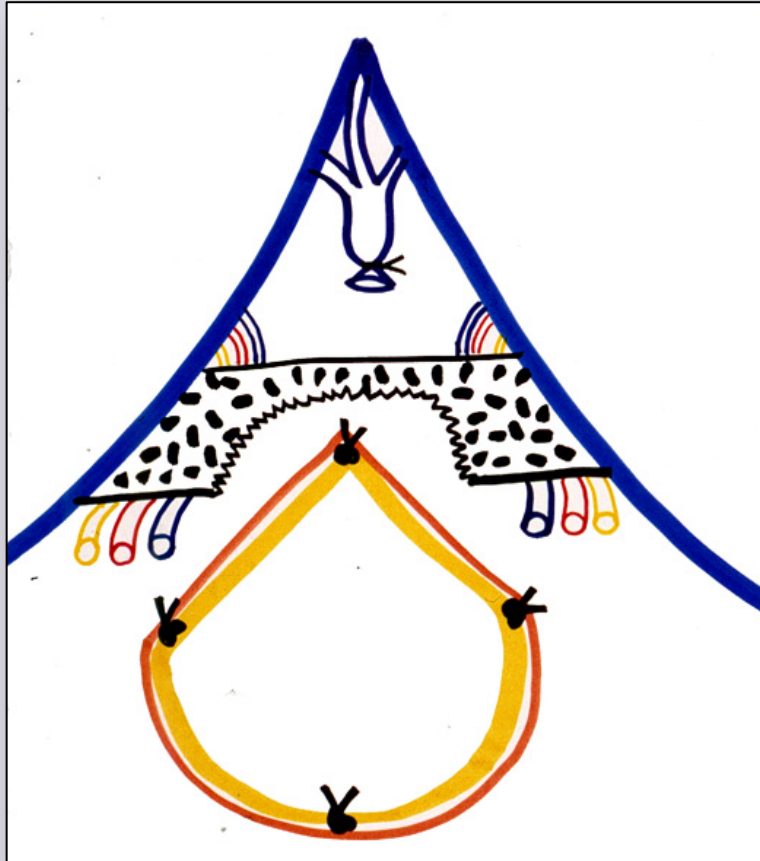
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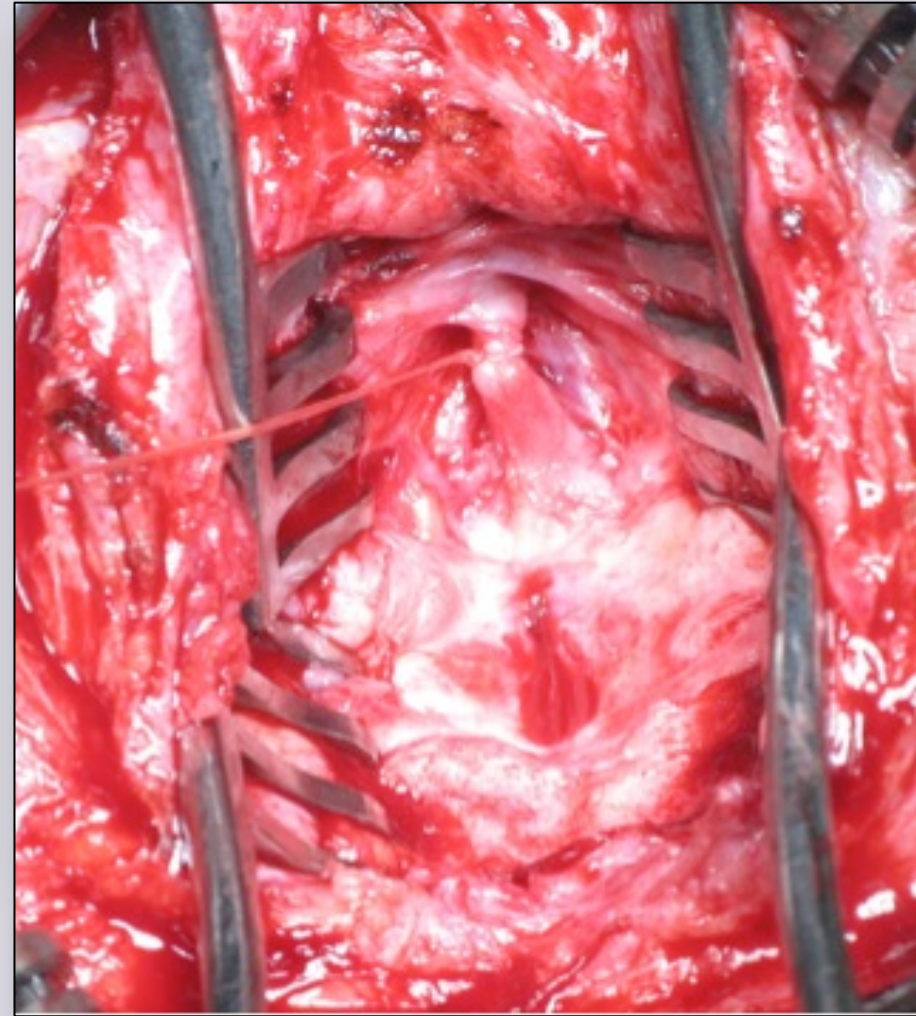
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[www.urethralcenter.it](http://www.urethralcenter.it)

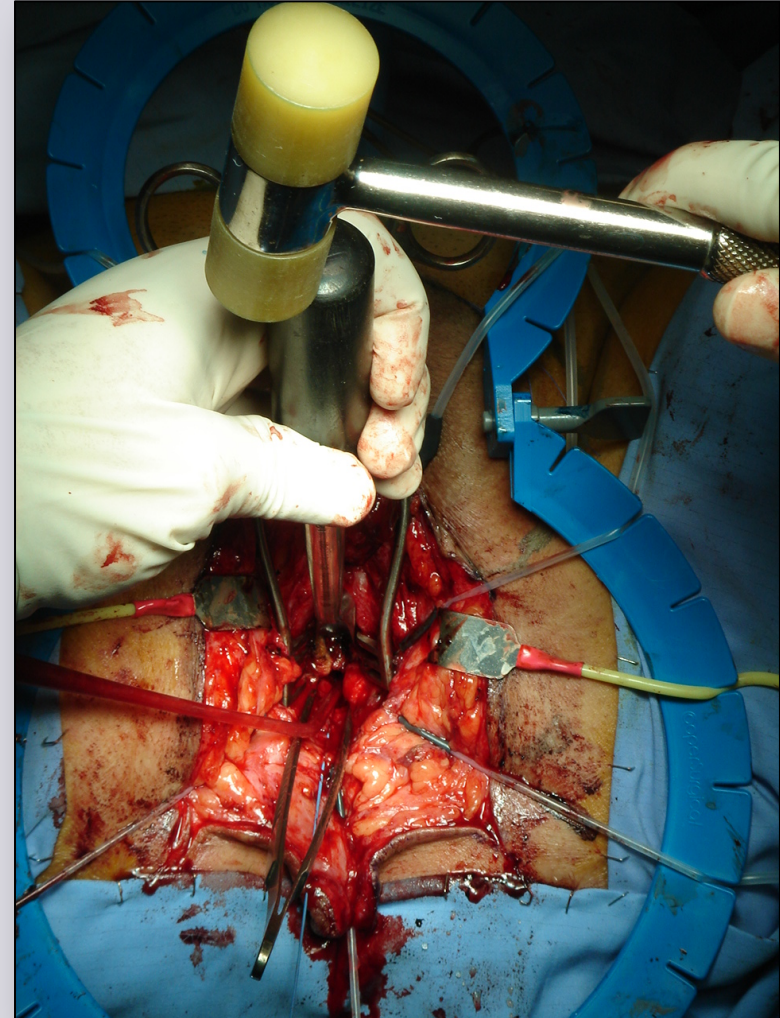
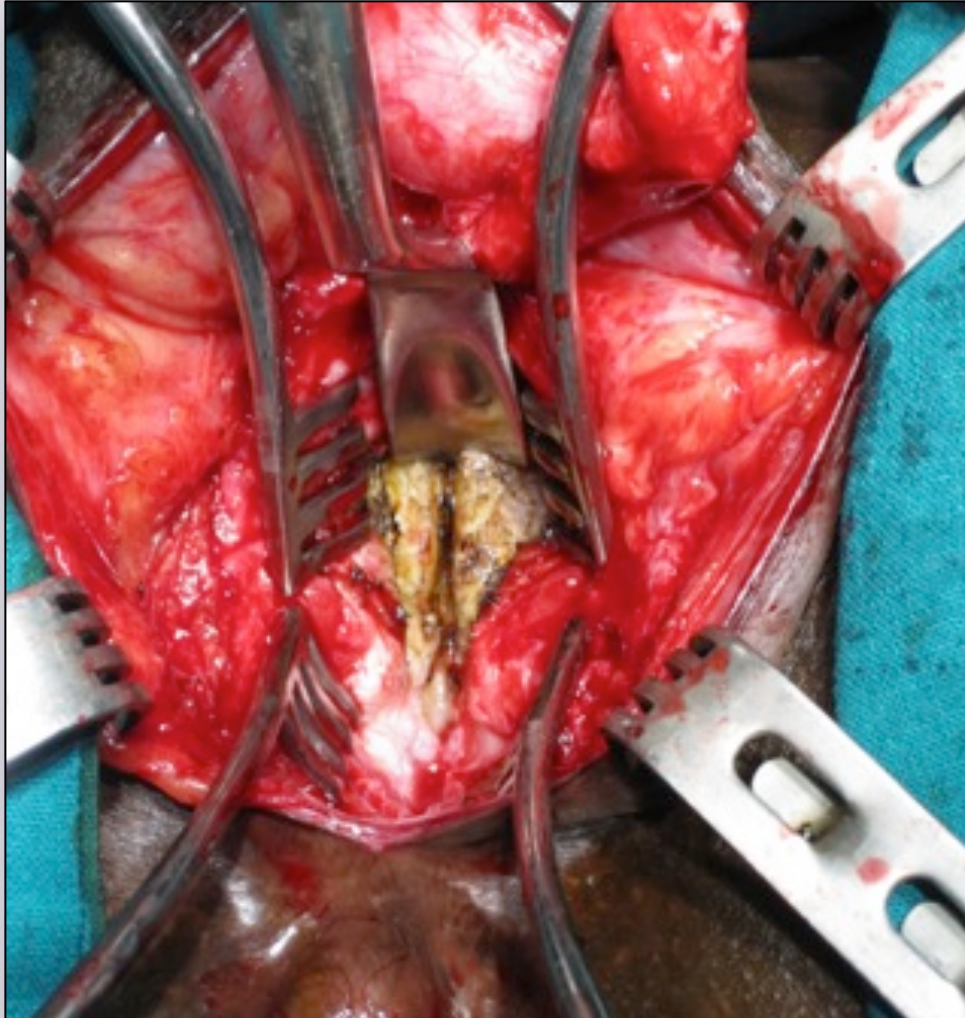
# Crural separation



**perineal pubectomy**



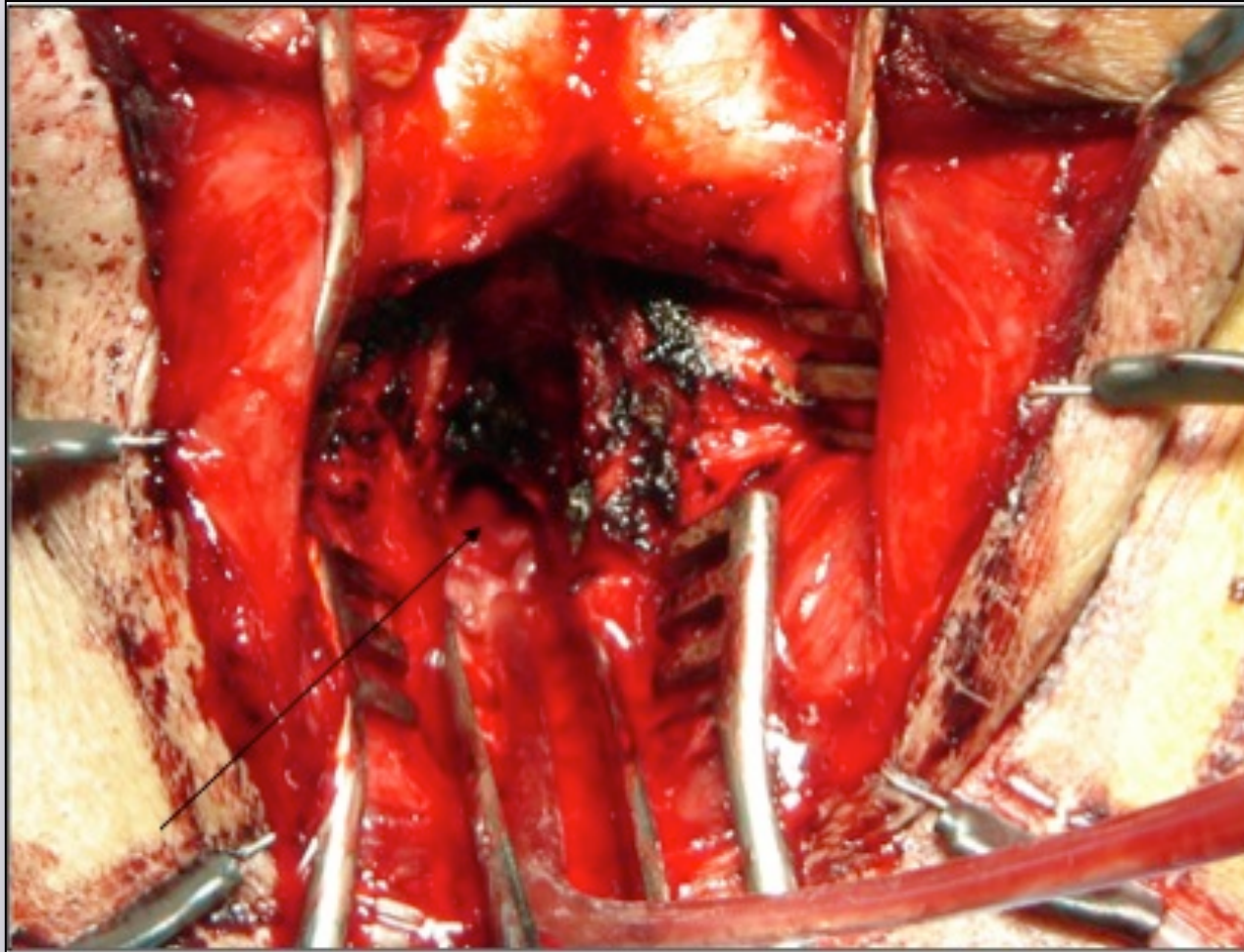
# Pubectomy



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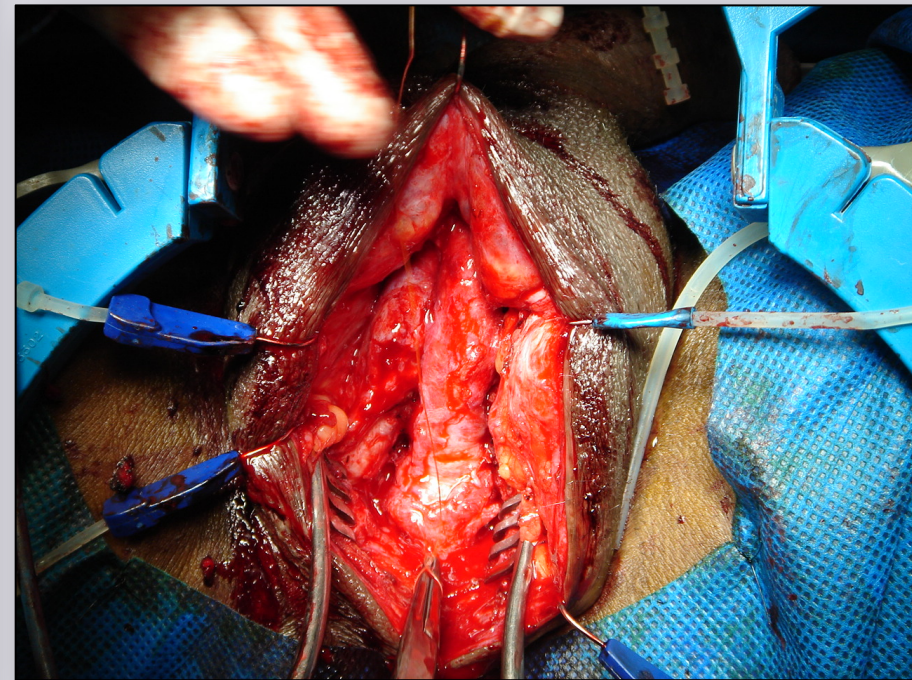
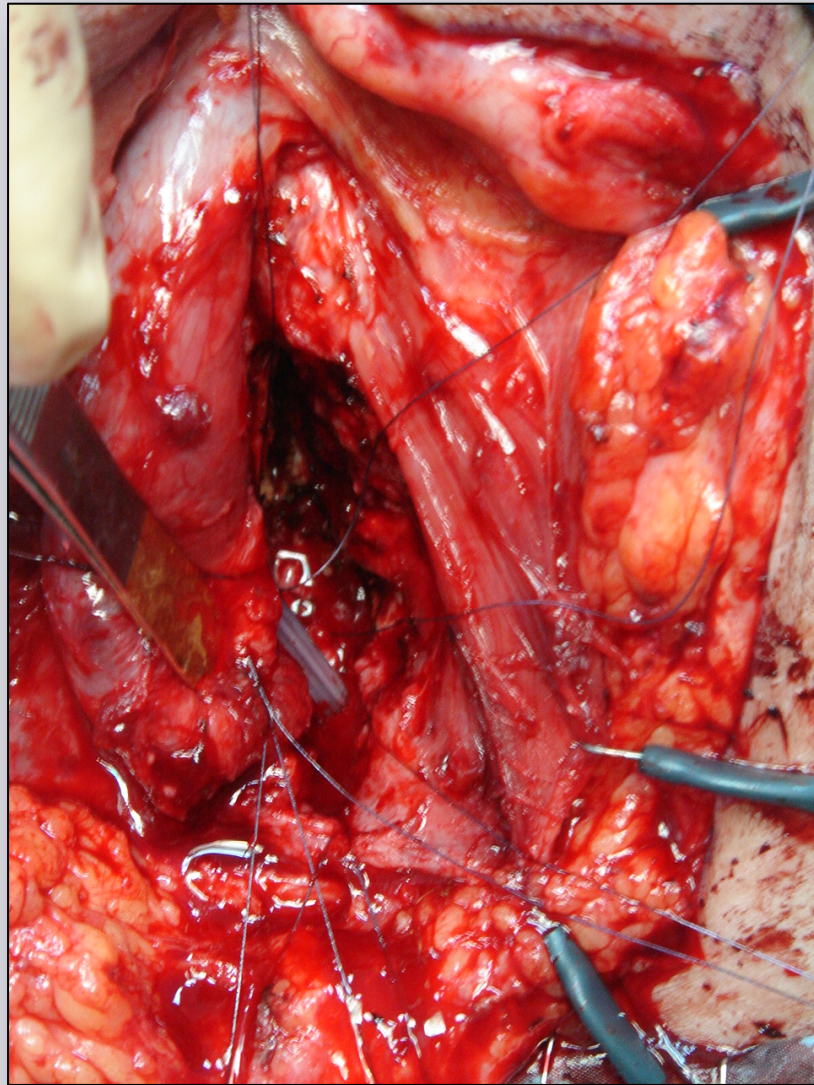
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## Exposure of the prostatic urethra





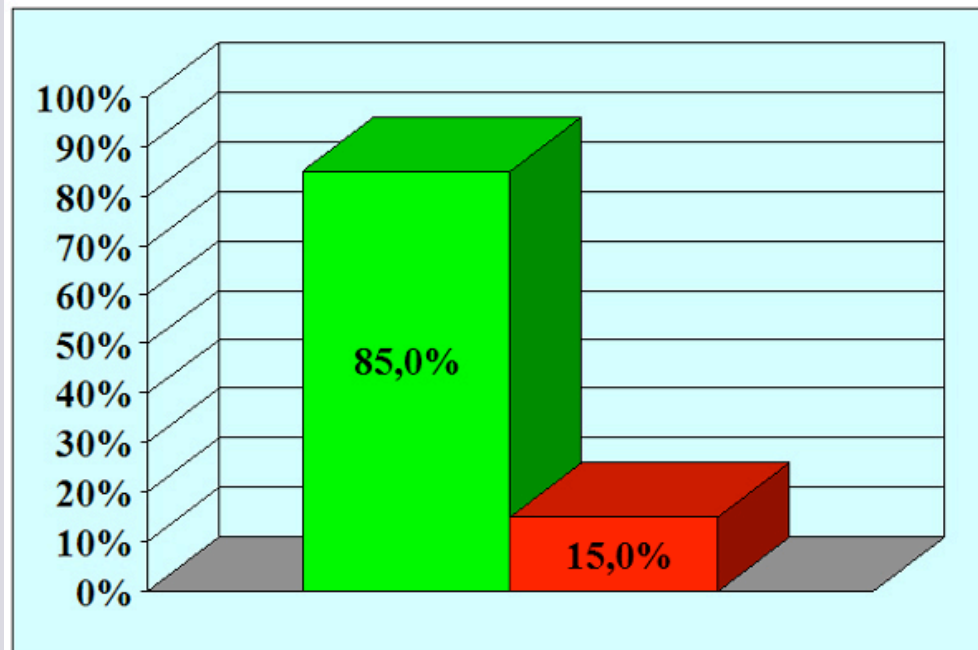
# Complex bulbo-prostatic anastomosis



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# Our results in 120 patients updated to December 2013



■ successo	102 (85%)
■ fallimento	18 (15%)

**85%**  
(mean followup  
124 months)

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