

CENTER FOR RECONSTRUCTIVE URETHRAL SURGERY



GUIDO BARBAGLI, M.D.
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Instructional Course 10

Reconstruction of the Anterior Urethra and Genitalia

G. Barbagli - Arezzo - Italy

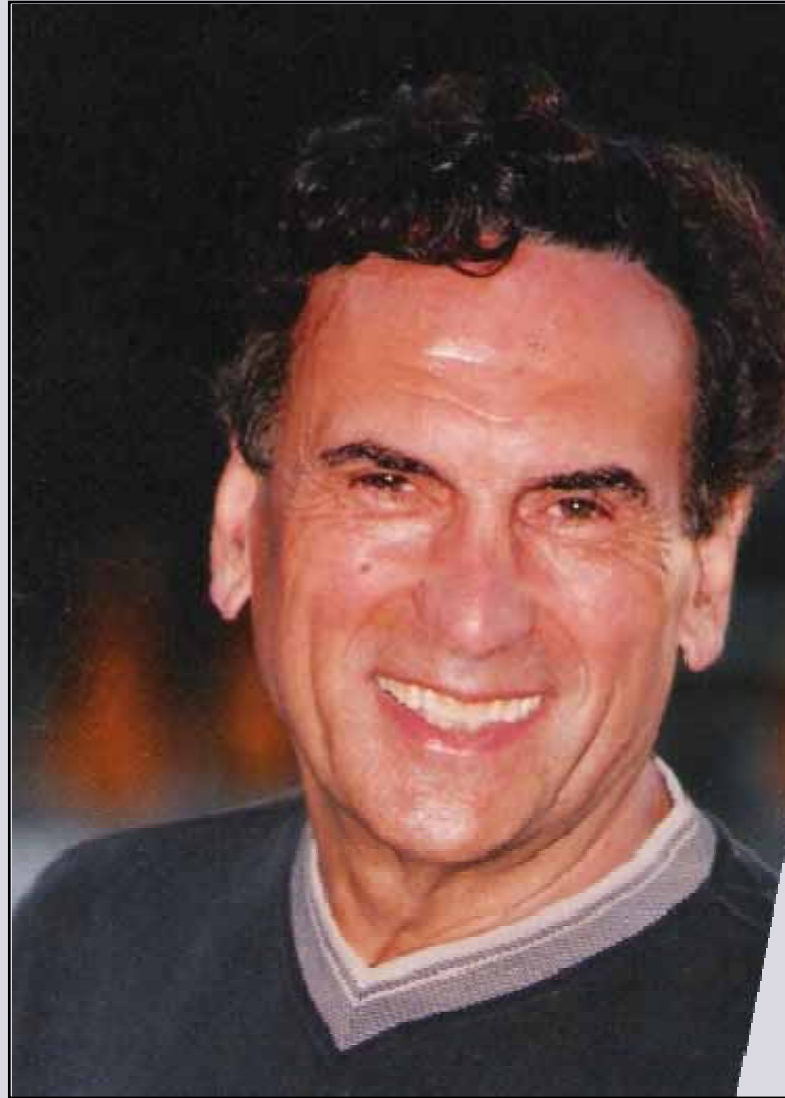
Sanjay B. Kulkarni - Pune - India

Rados Djinovic - Belgrade - Serbia

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How to reconstruct the penile and bulbar urethra in simple traumatic and no-traumatic stricture diseases



Prof. Sava Perovic - Belgrade - Serbia

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Art of
URETHRAL
Reconstruction

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Guido Barbagli

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The Team



Salvatore Sansalone



Sofia Balò

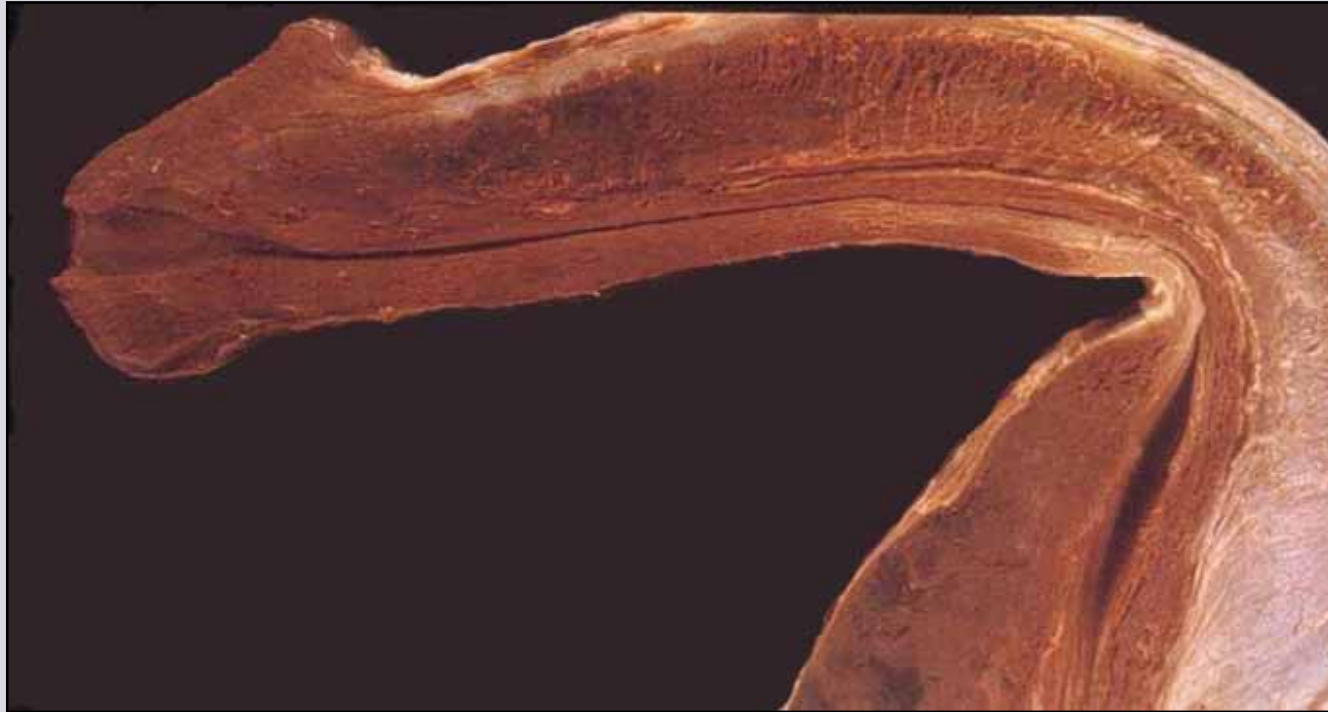


Giuseppe Romano

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Penile urethroplasty



Penile urethral strictures

Simple

Complex

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Simple penile urethral stricture




1. Penis is normal
2. Practicable urethral plate
3. No Lichen Sclerosus
4. No failed hypospadias repair

Complex penile urethral stricture



1. Genital Lichen Sclerosus
2. Failed hypospadias repair
3. Previous failed urethroplasty
4. No practicable urethral plate

Surgical repair of penile urethral strictures

Simple  **One-stage repair**



Graft vs flap urethroplasty

Complex  **Staged repair**

Evolution of one-stage graft penile urethroplasty

1999 - 2001

The use of a dorsal buccal mucosal graft with urethral plate incision (Snodgrass) for hypospadias salvage

M.C. HAYES and P.S. MALONE

Department of Paediatric Urology, Wessex Centre for Paediatric Surgery, Southampton General Hospital, Southampton, UK

BJU Int 1999; 83: 508 - 509

**DORSAL FREE GRAFT URETHROPLASTY FOR URETHRAL
STRICTURE BY VENTRAL SAGITTAL
URETHROTOMY APPROACH**

HARI S. ASOPA, MUKUL GARG, GOVIND G. SINGHAL, LAKHAN SINGH, JYOTI ASOPA, AND
ARCHANA NISCHAL

Urology 2001; 58: 657 - 659

One-stage penile oral graft urethroplasty



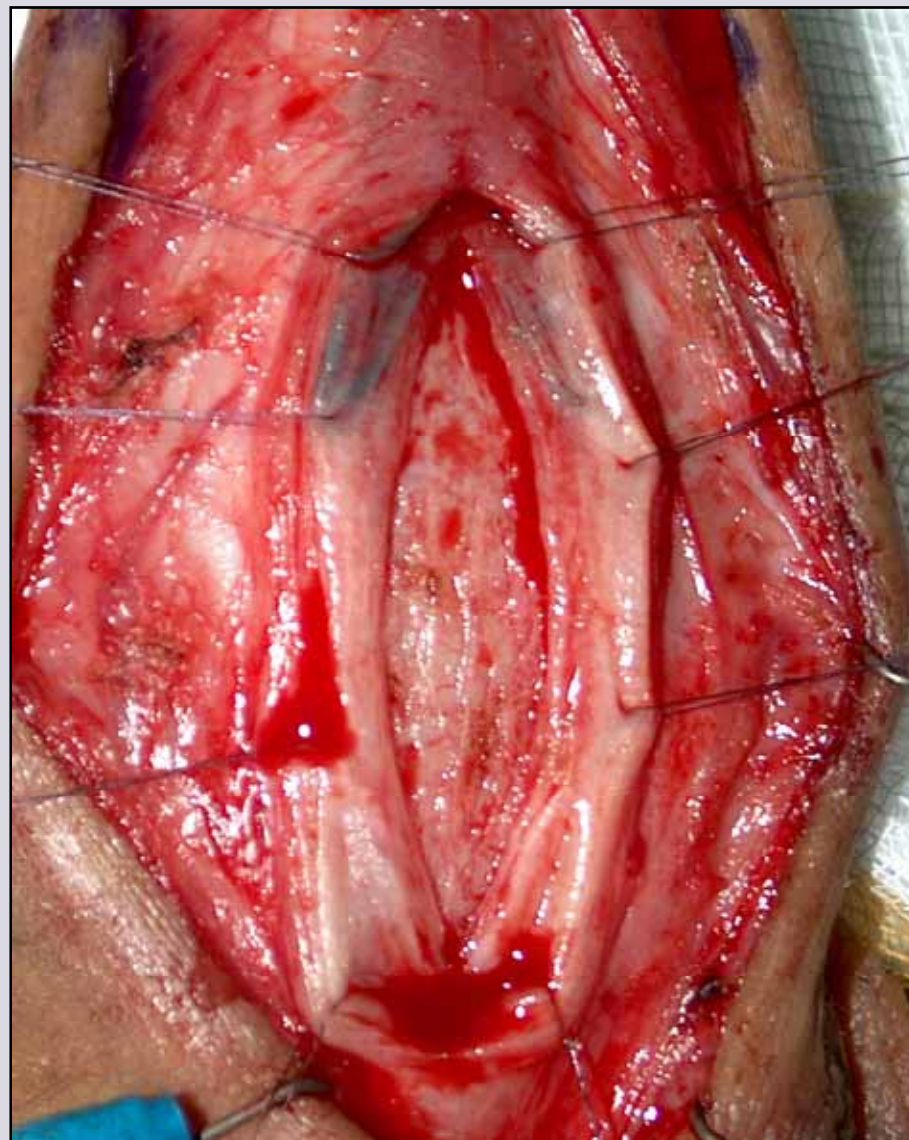
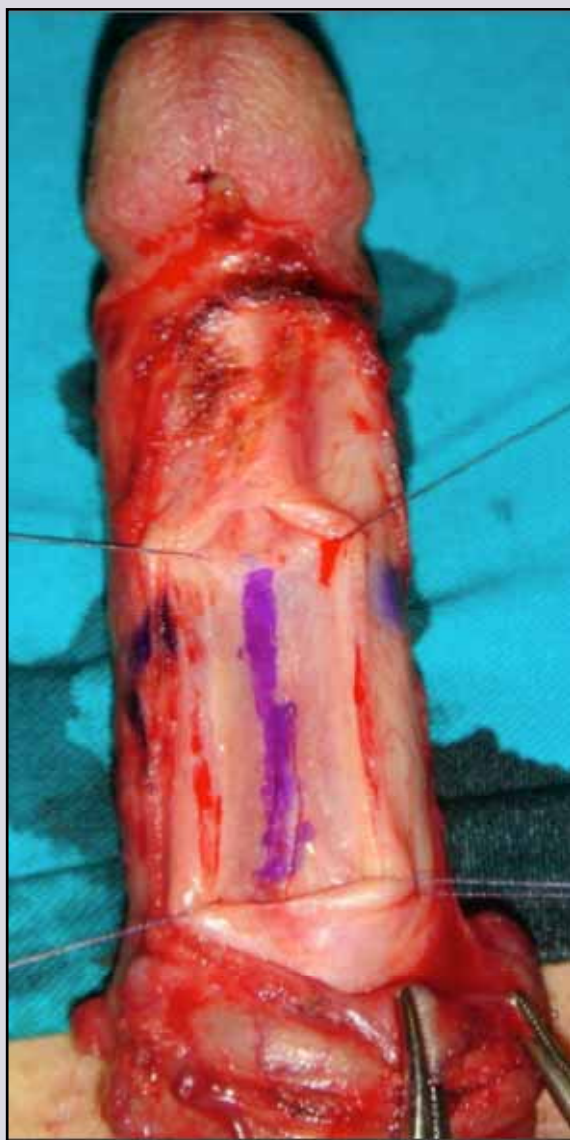
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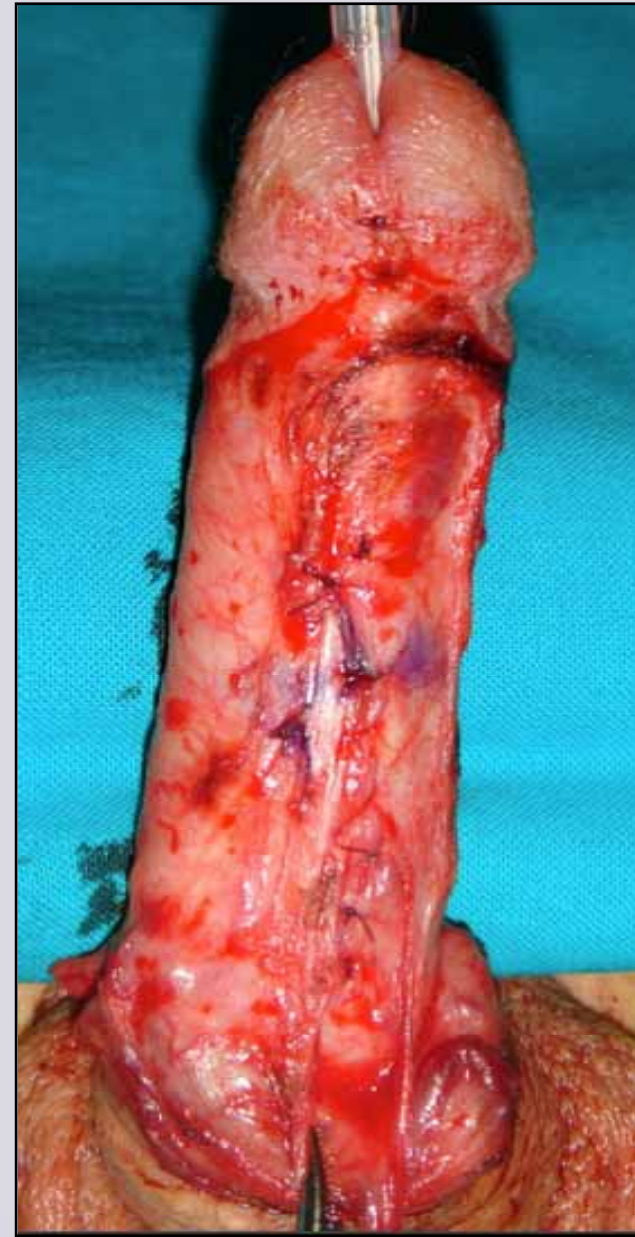
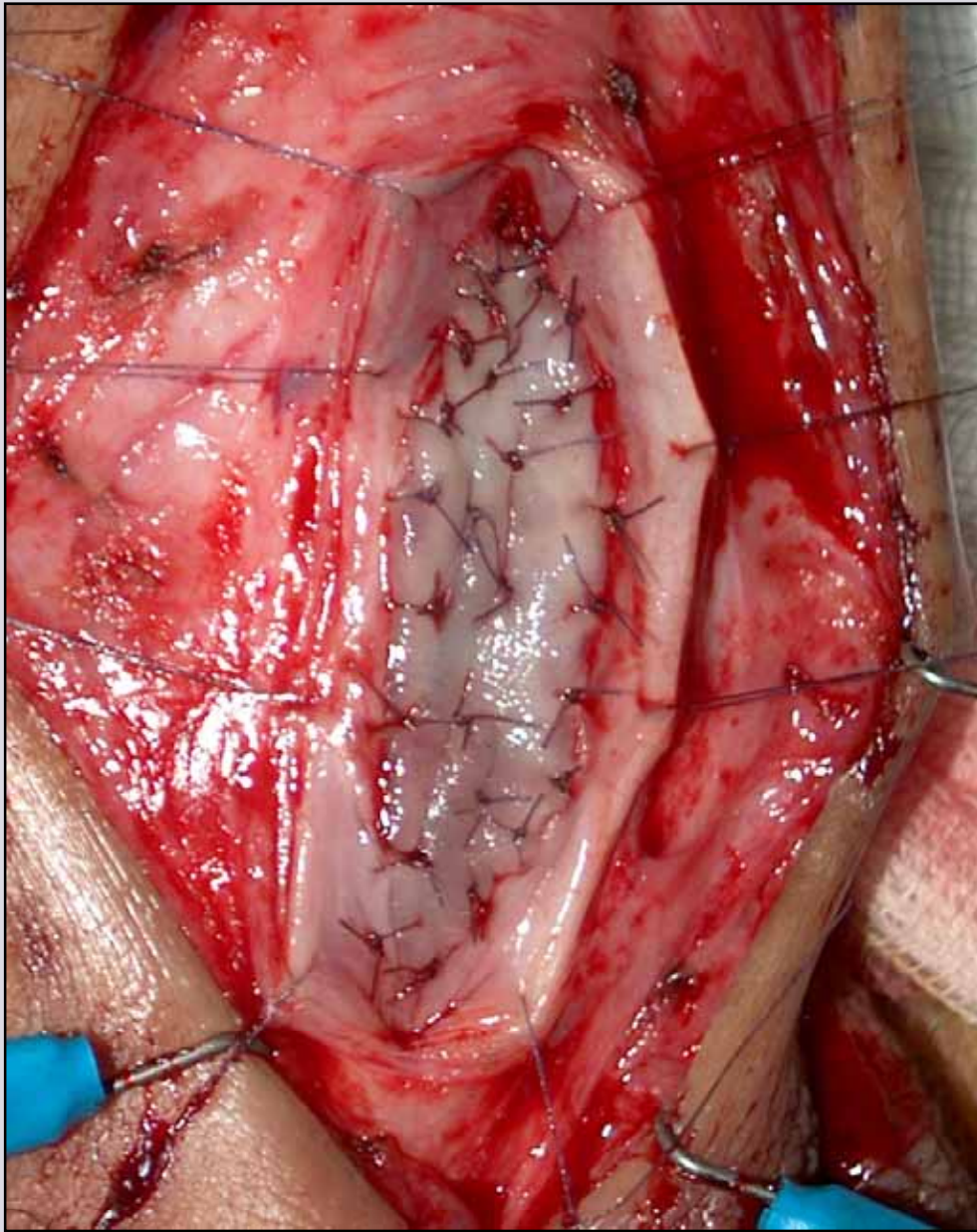
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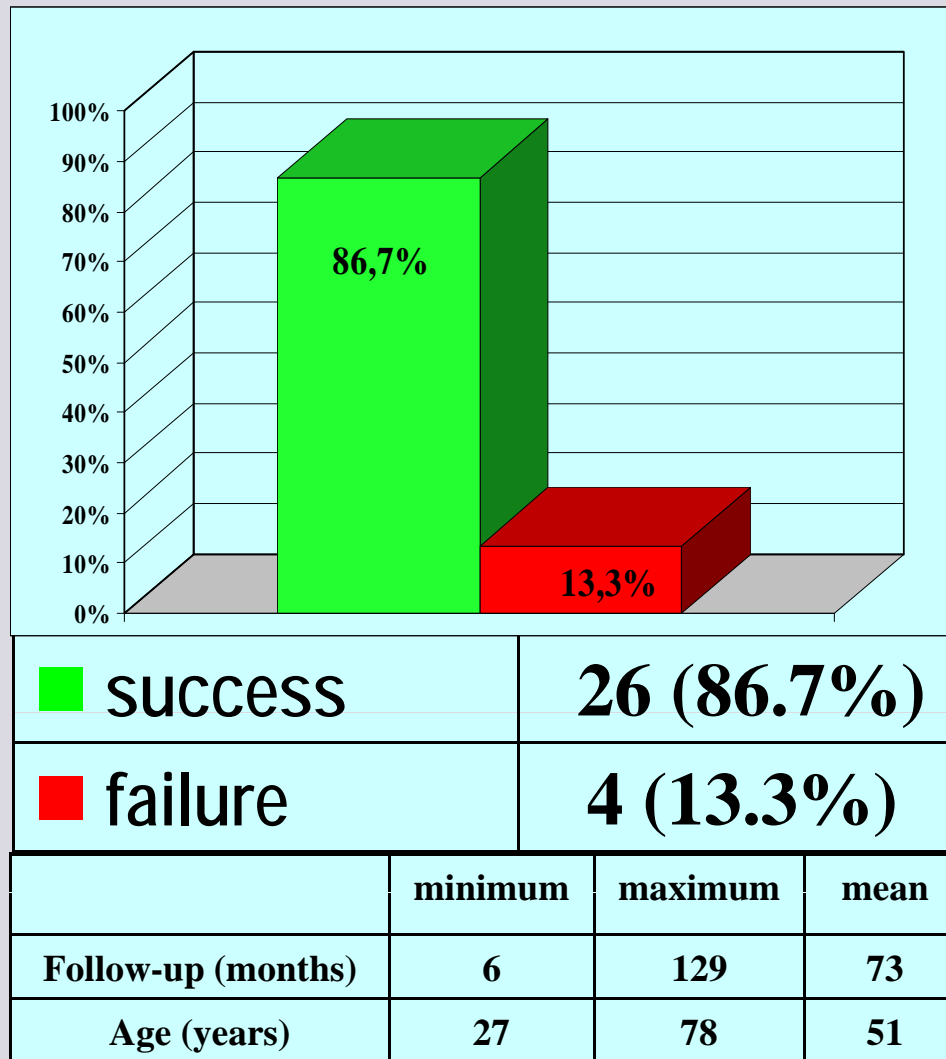
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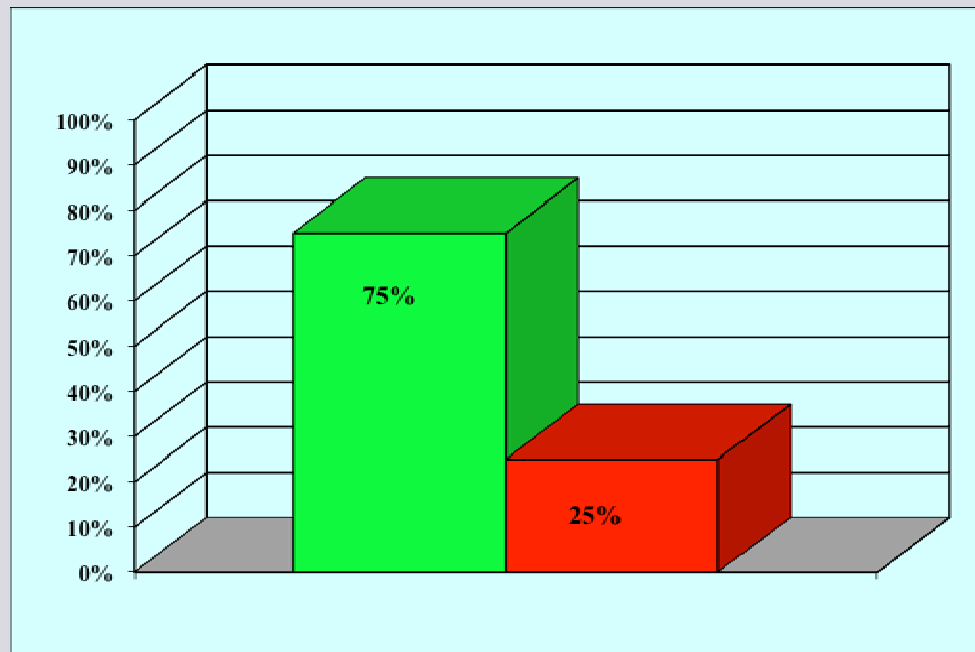
Oral graft



**30
patients**

**Updated
December 31, 2011**

Skin graft

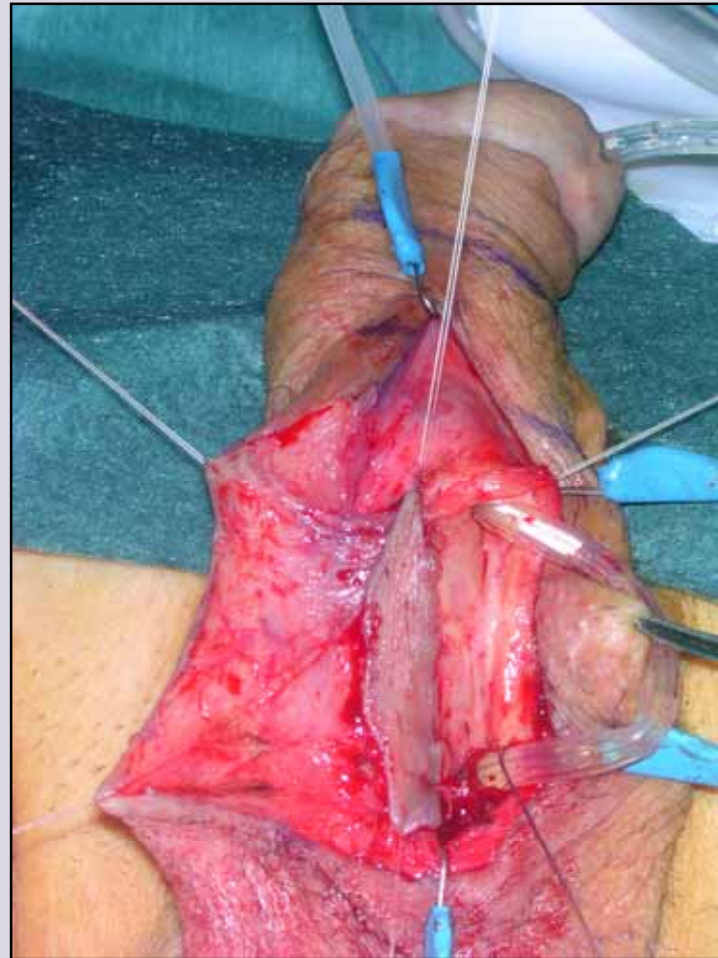


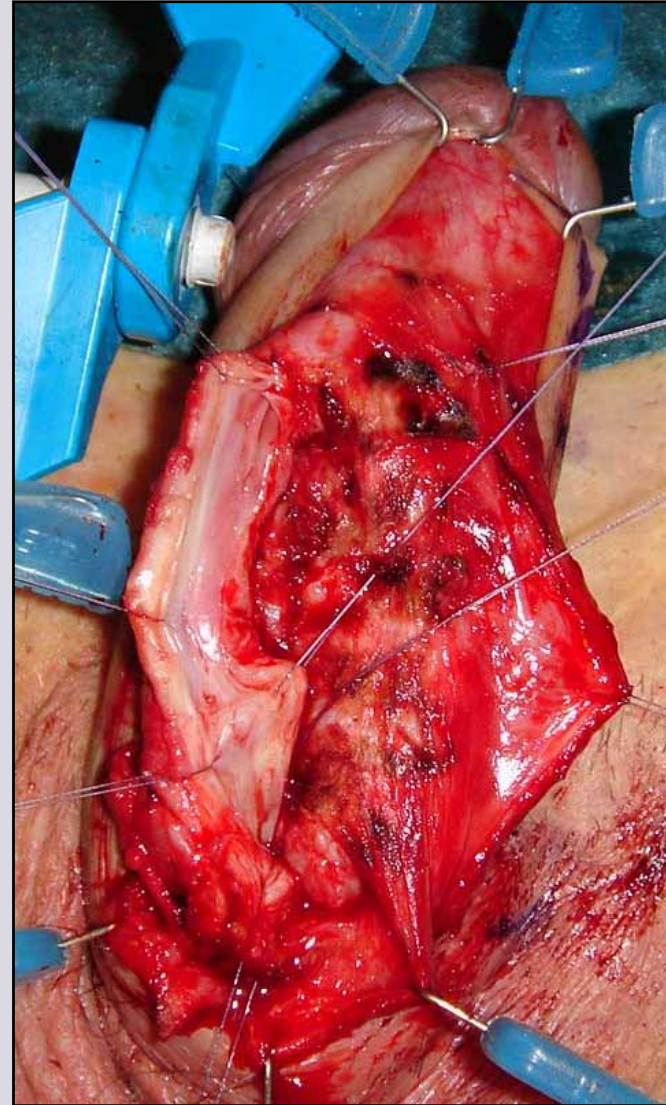
**32
patients**

■ success	24 (75%)		
■ failure	8 (25%)		
	minimum	maximum	mean
Follow-up (months)	8	185	76
Age (years)	15	75	44

**Updated
December 31, 2011**

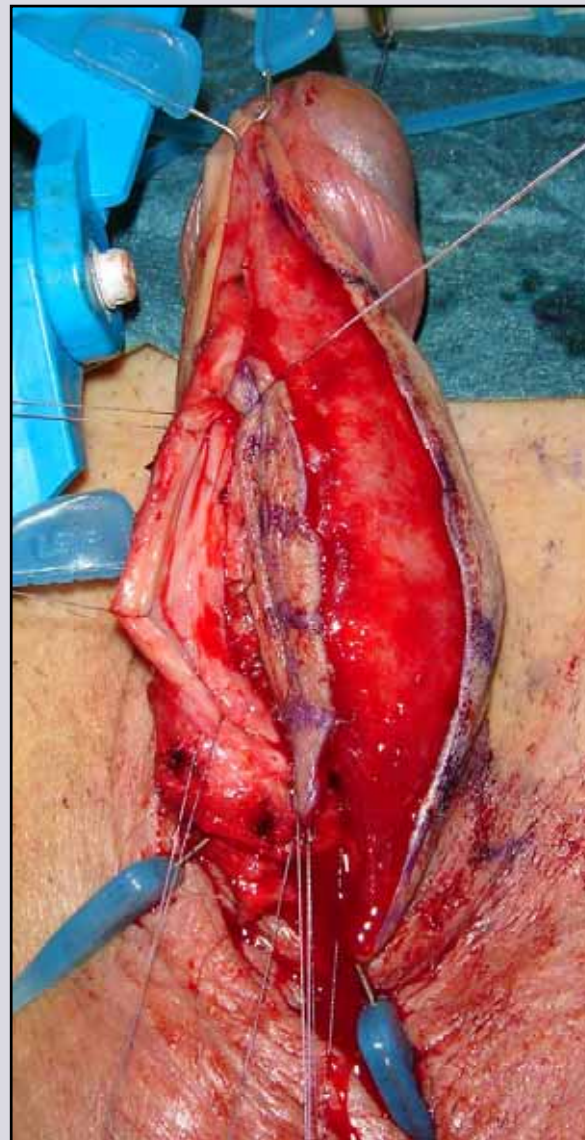
Modified Orandi's flap penile urethroplasty





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One-stage penile urethroplasty: graft or flap

N. patients	Type of urethroplasty	Mean follow-up	Success rate
22	ORAL GRAFT	57 months	82%
23	SKIN GRAFT	37 months	78%
18	PENILE SKIN FLAP	57 months	67%

BJU Int 2008; 102: 853-860

One-stage penile urethroplasty: graft or flap

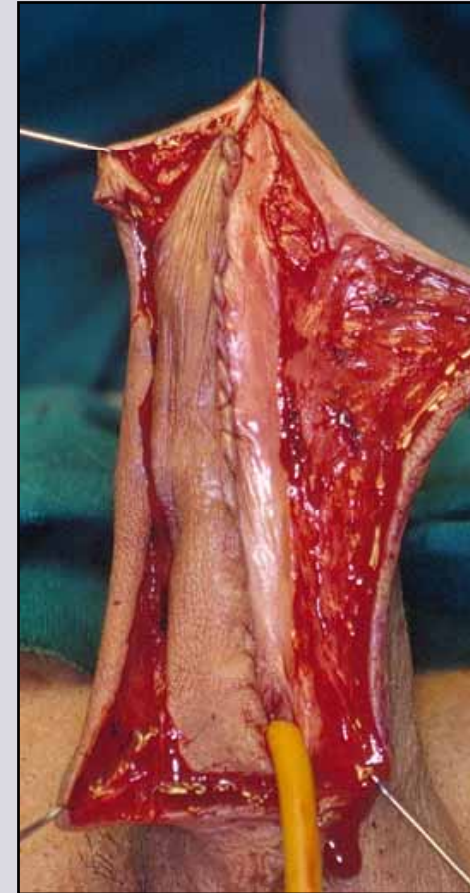
- ❖ NO sure data available from literature
- ❖ NO comparative studies including evaluation of post-operative sexual and aesthetic dysfunctions and patient satisfaction
- ❖ Surgeon background and preference



One-stage penile urethroplasty: graft or flap ?



Wide urethral plate: GRAFT



Narrow urethral plate: FLAP

Bulbar urethroplasty



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Bulbar urethroplasty



Bulbar urethral strictures

Traumatic

No traumatic



Simple lithotomy position



Allen stirrups

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Sequential inflatable compression sleeves

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Etiology of bulbar urethral stricture

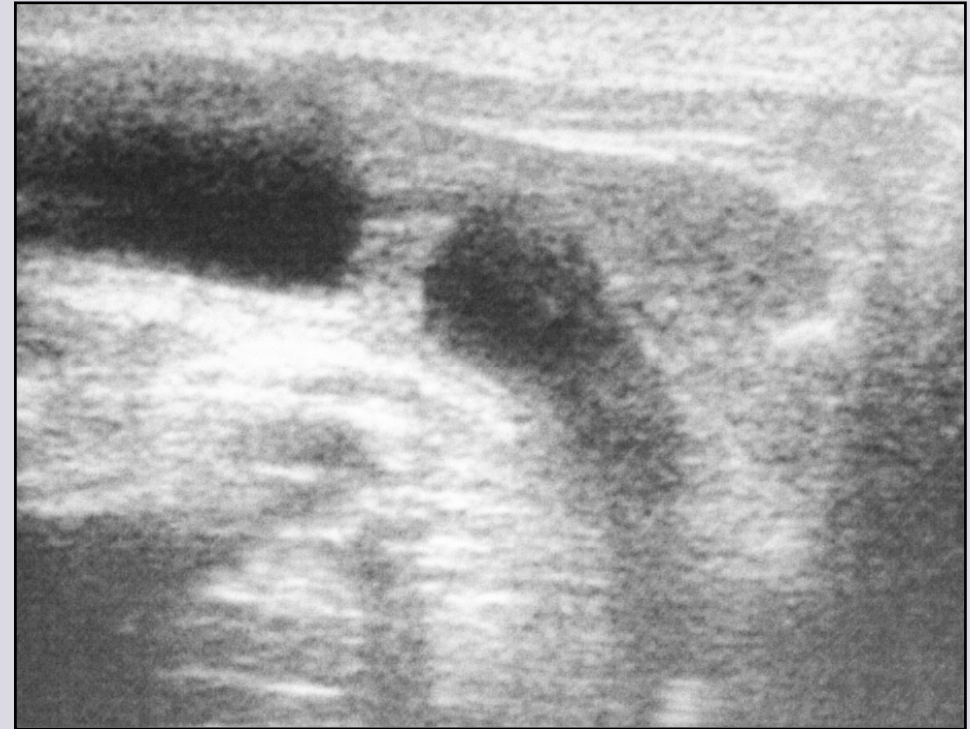
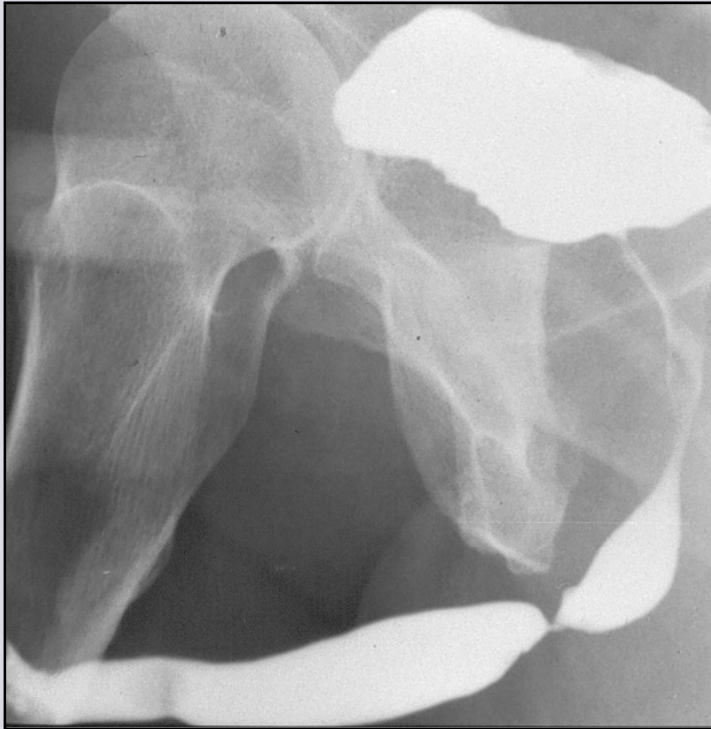
Trauma



Idiopathic
Instrumentation
Catheter
Infection
Other

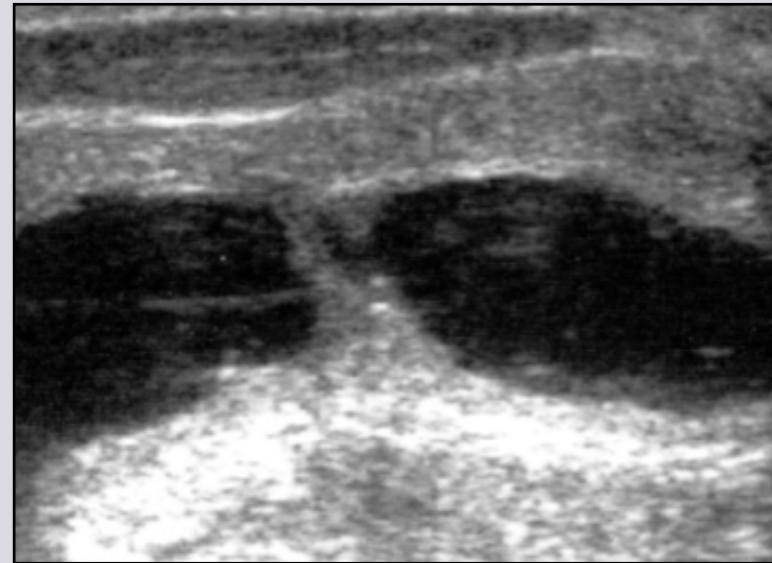


Traumatic bulbar urethral stricture

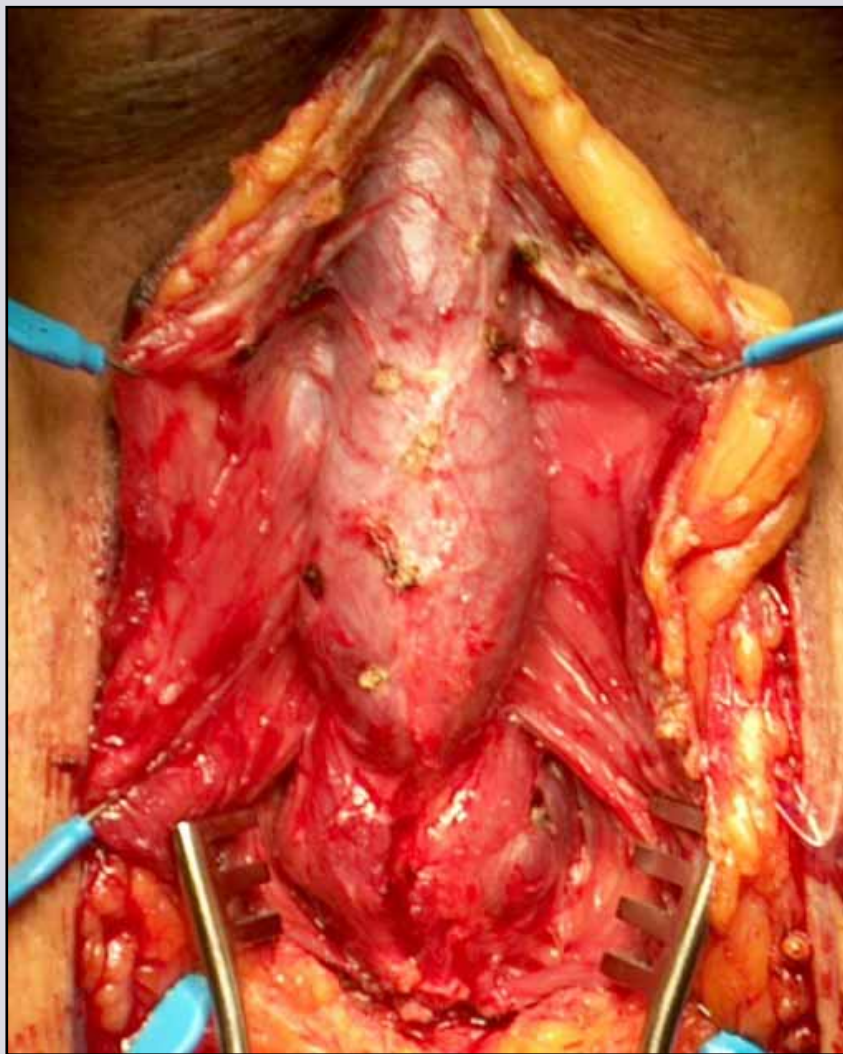


1. Obliterative stricture
2. No practicable urethral plate
3. Scar tissue
4. Short or long fibrous gap

1 - 2 cm traumatic bulbar urethral stricture



End-to-end anastomosis

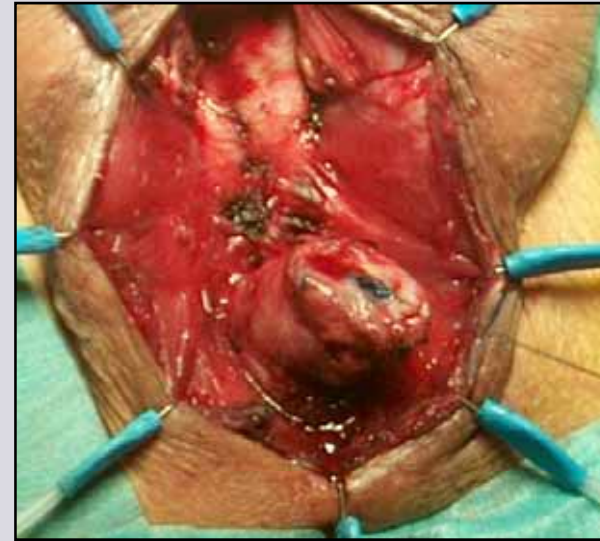


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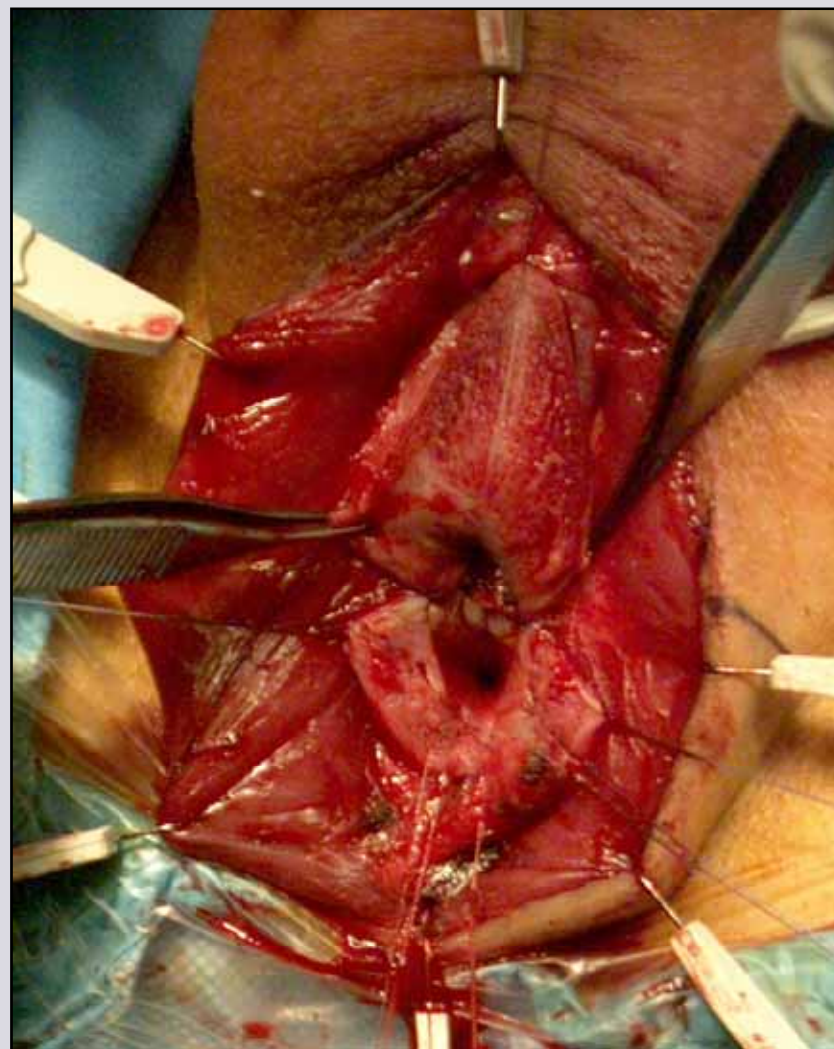


distal end



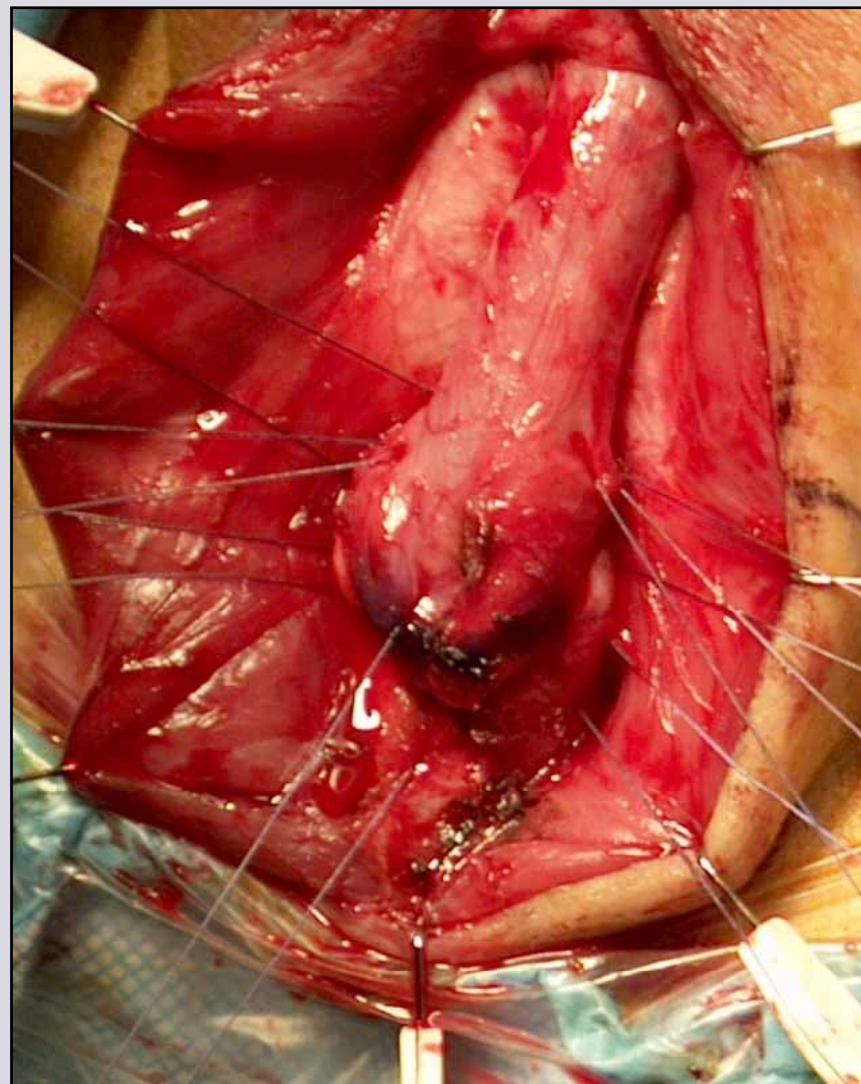
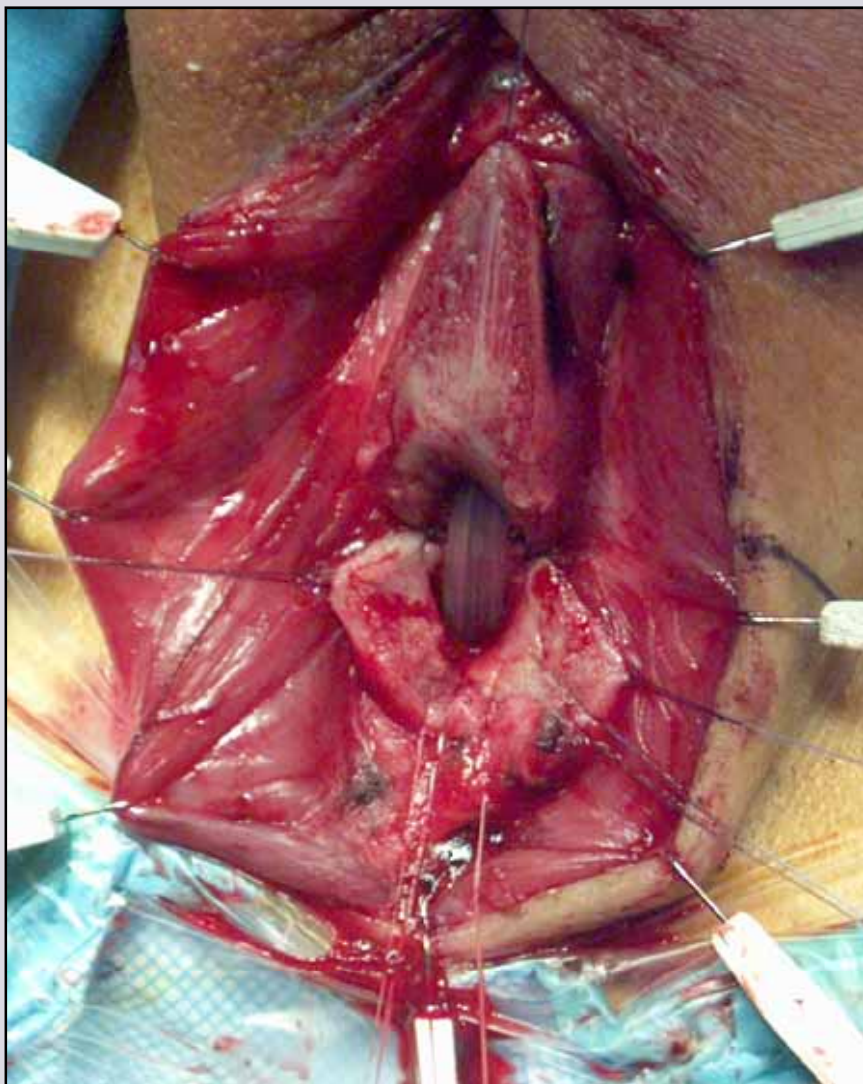
proximal end





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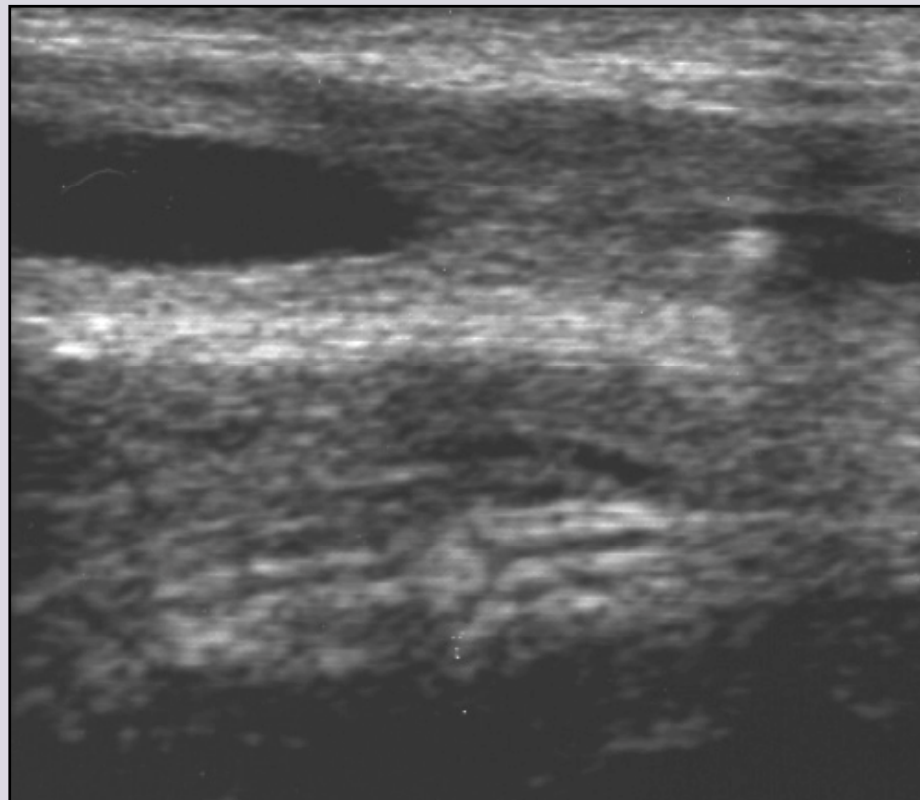
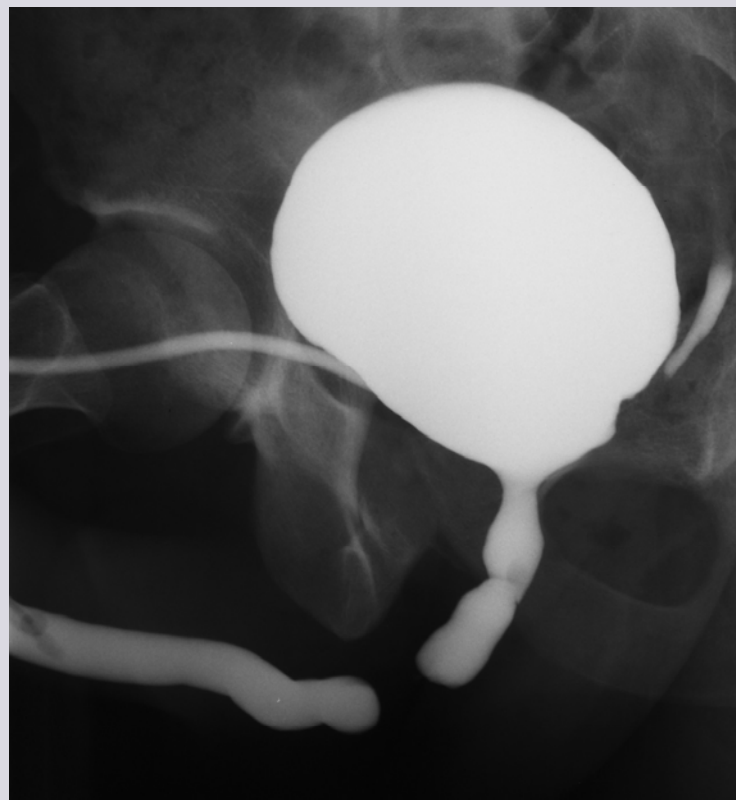
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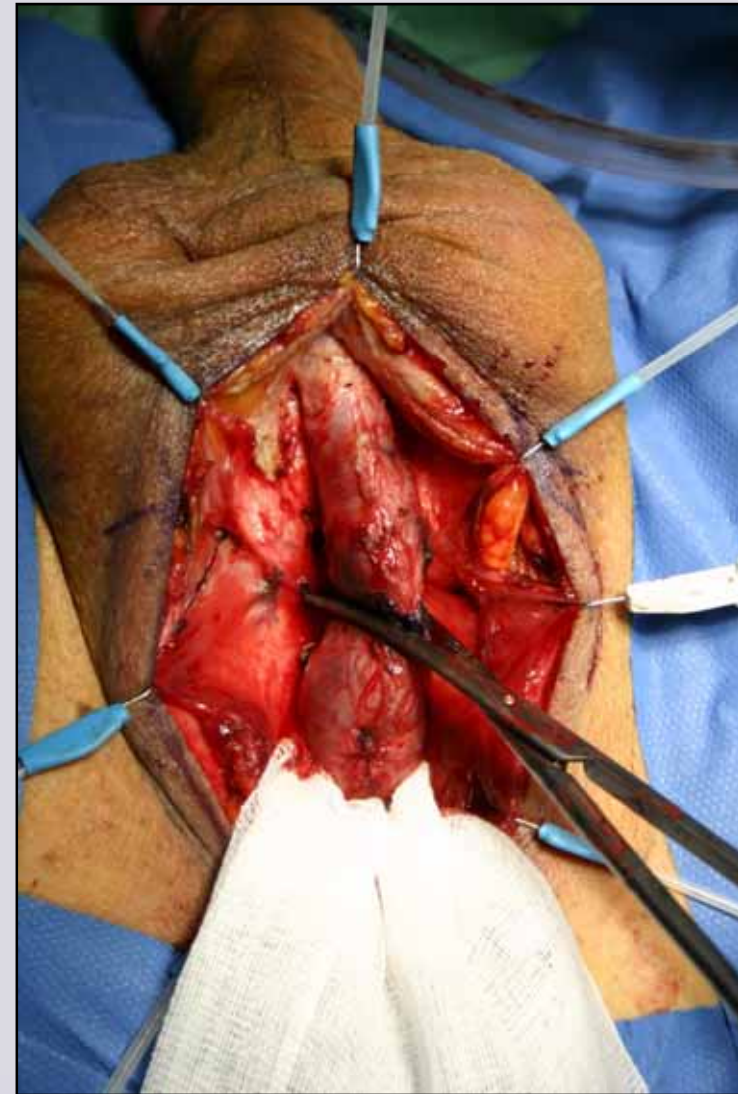
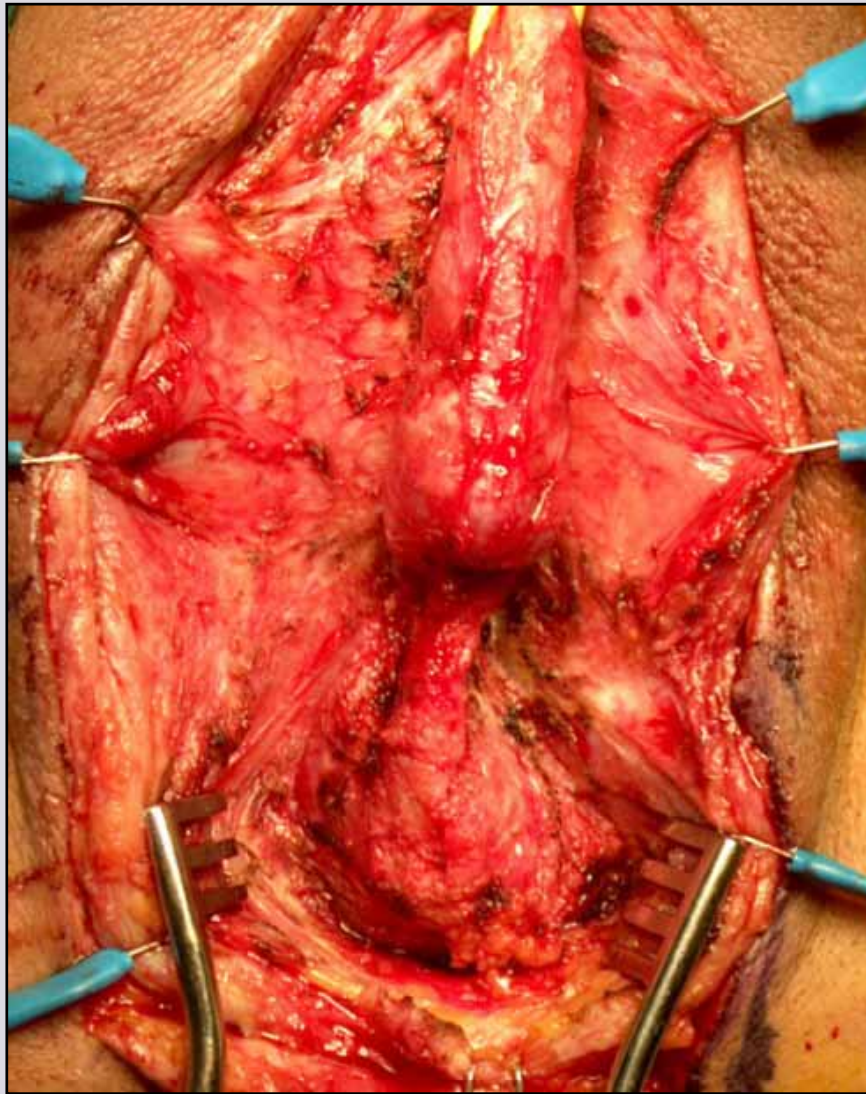
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2 - 4 cm traumatic bulbar urethral stricture

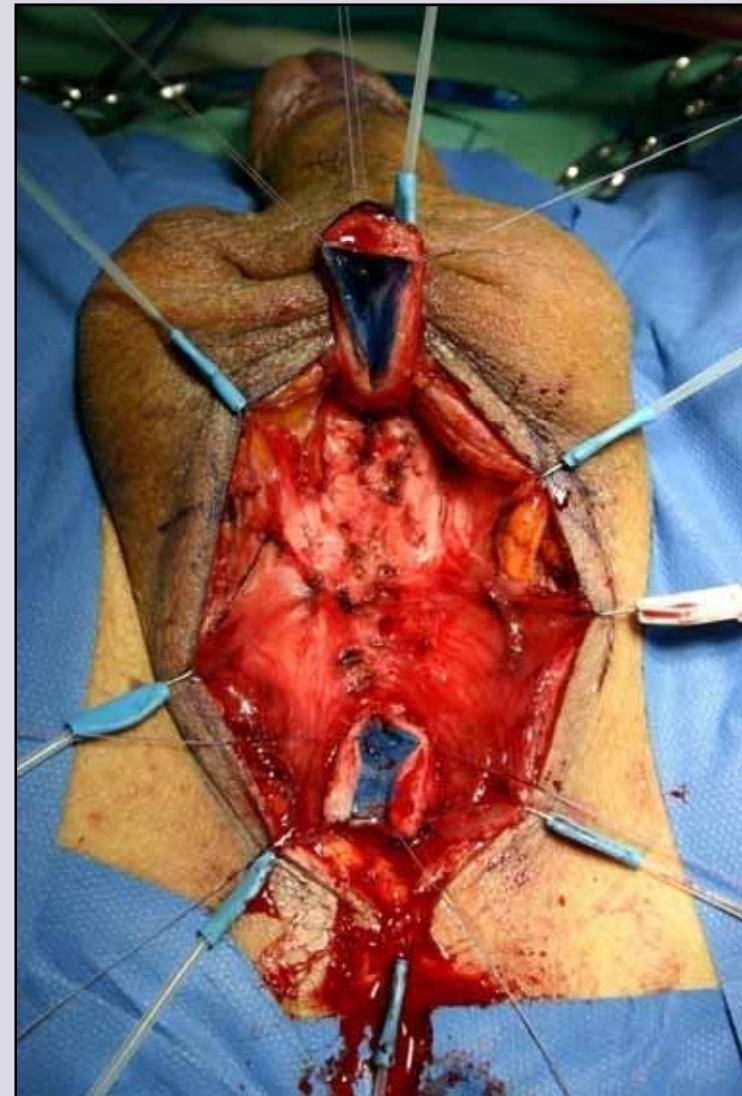


Augmented anastomotic repair



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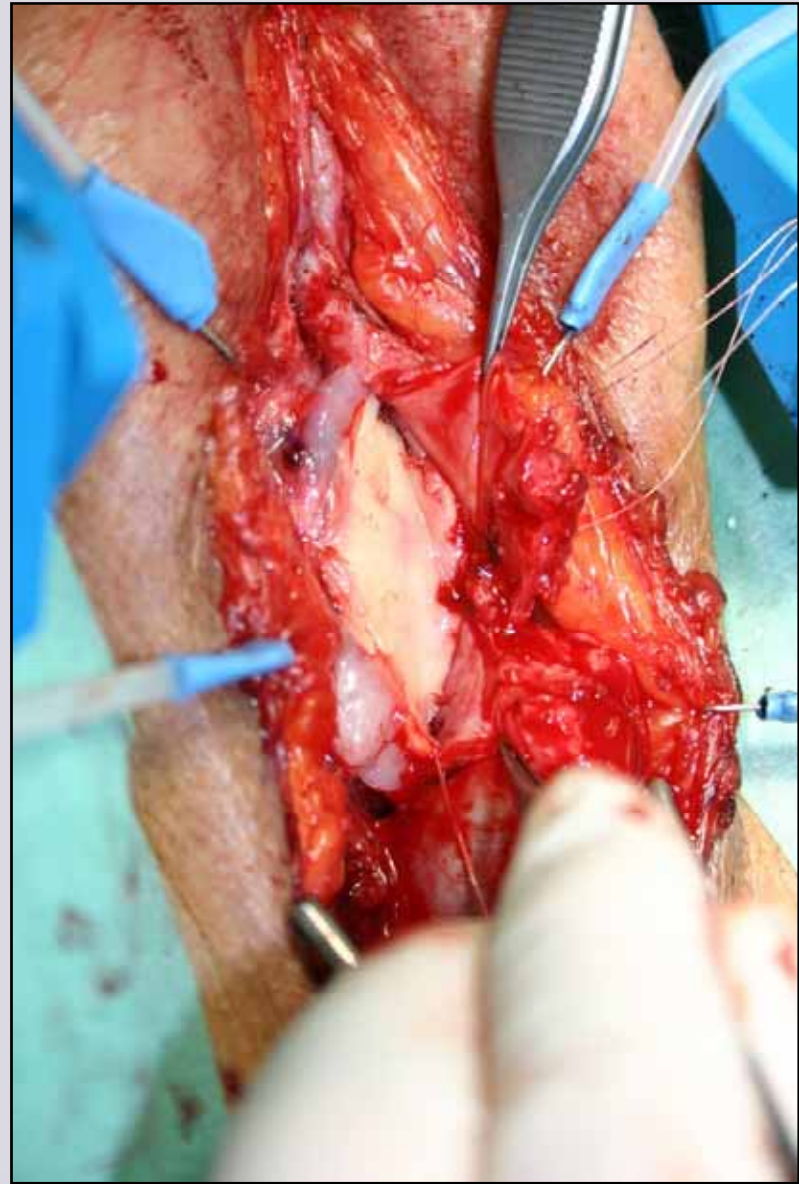
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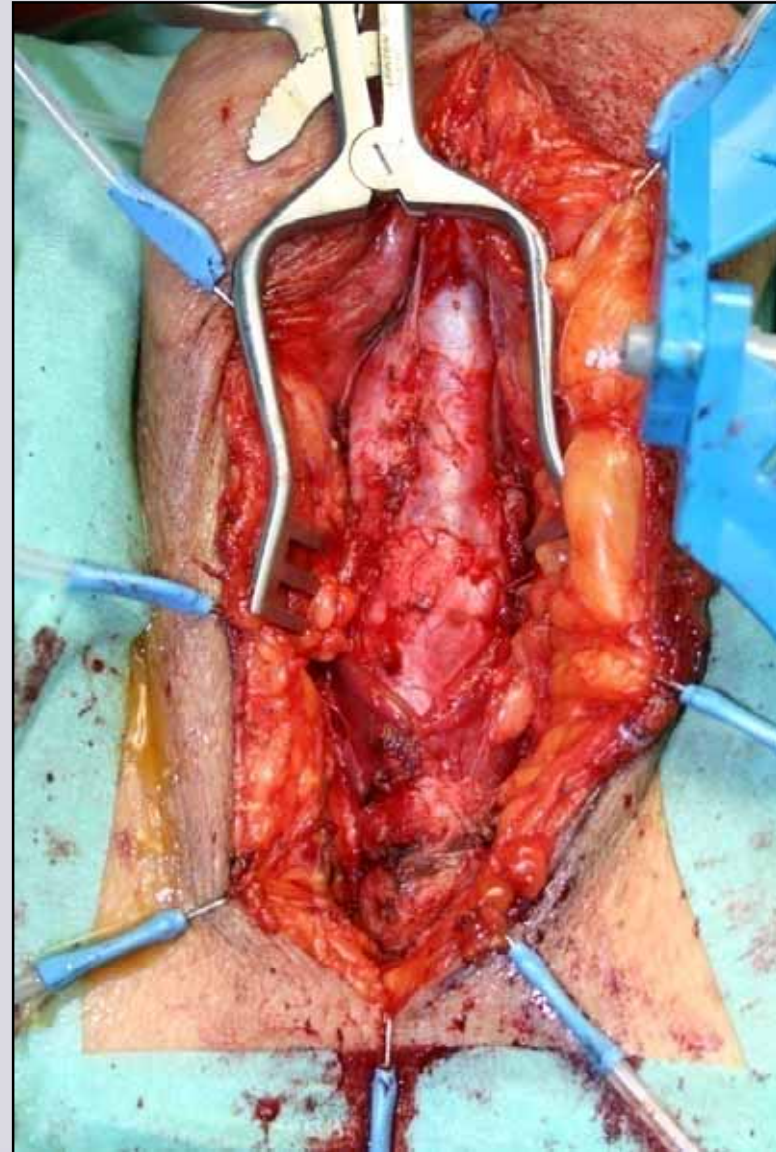
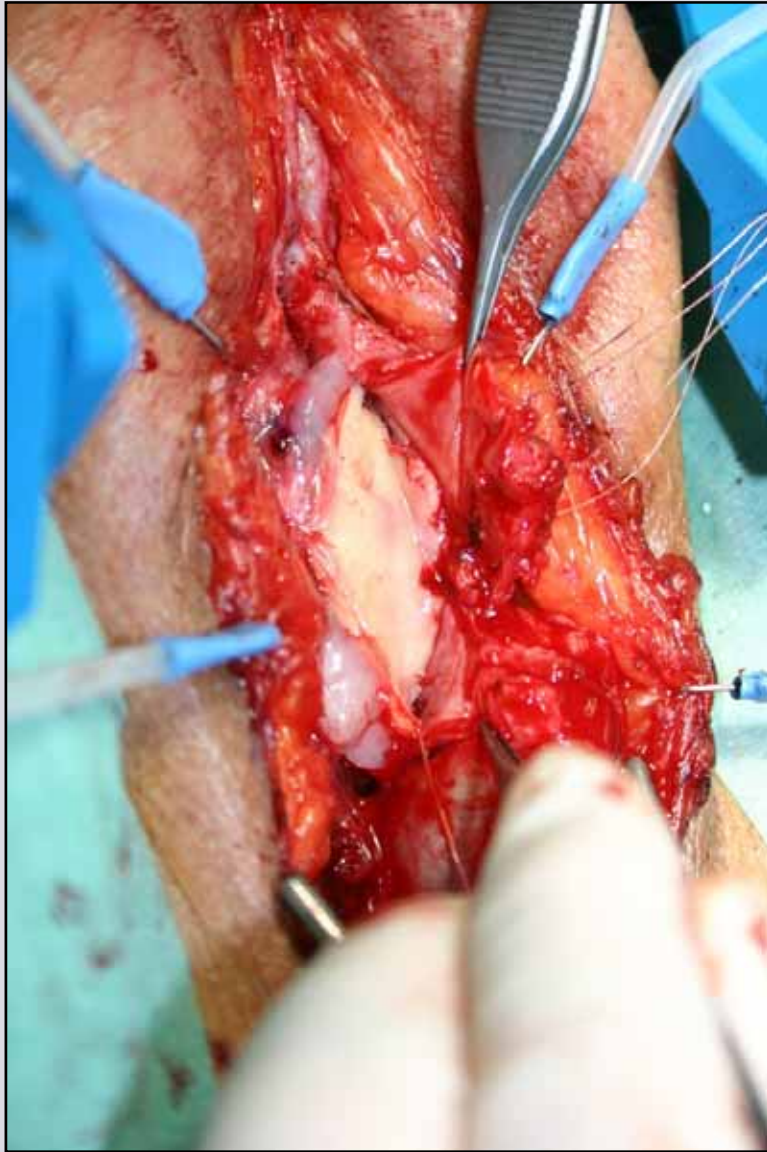
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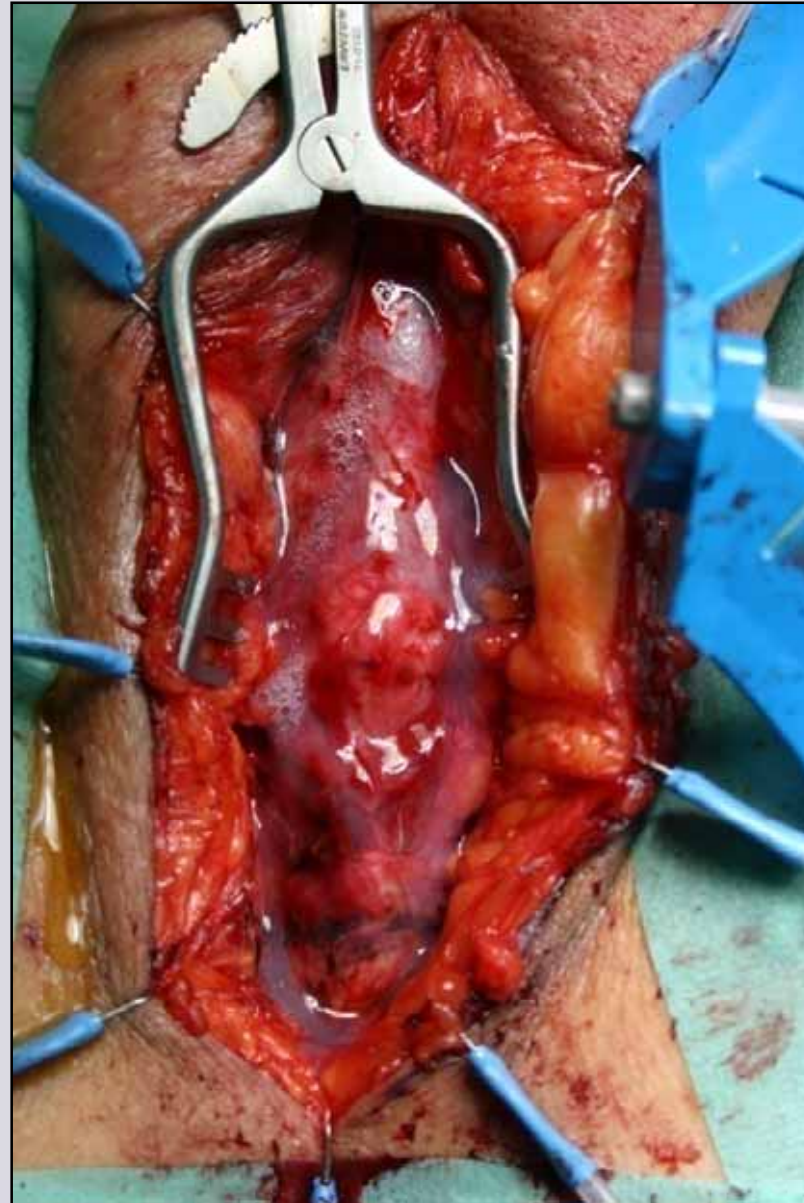
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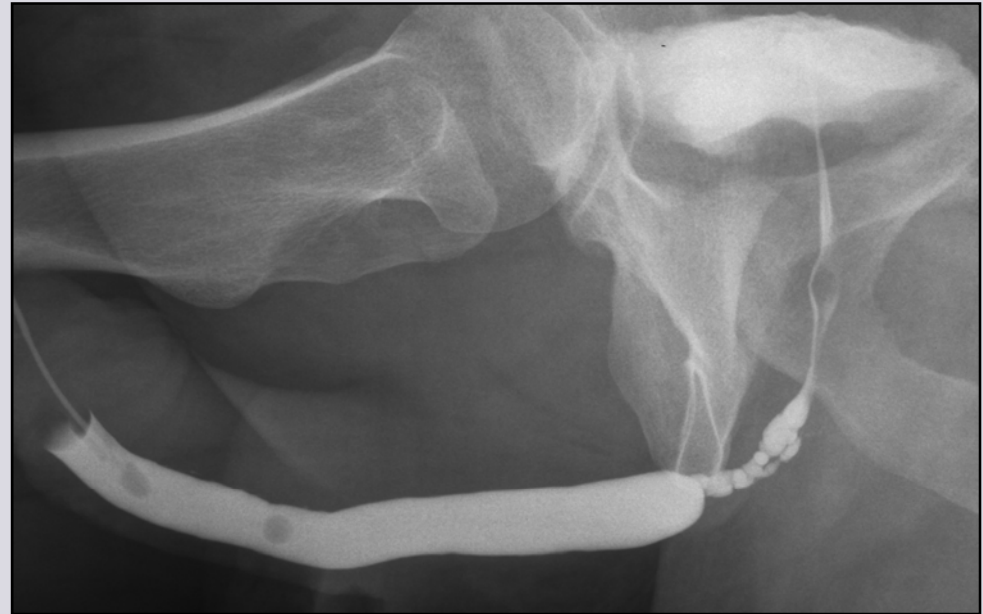
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No traumatic bulbar urethral stricture



1. Etiology: Idiopathic – catheter - instrumentation –infection – other
2. Practicable urethral plate (3 Fr. Sensor guidewire)
3. No fibrous gap

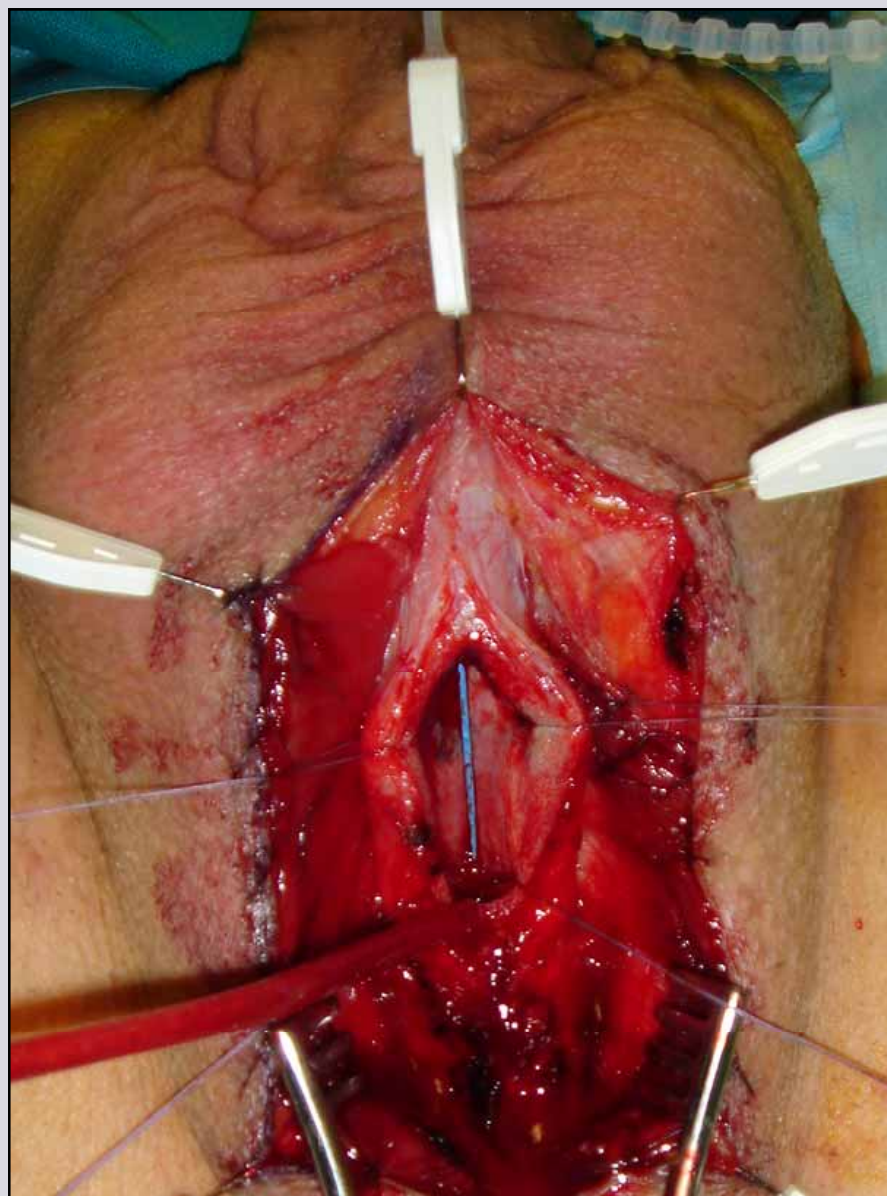
No traumatic bulbar urethral stricture



**Pre-operative
urethroscopy**



Insert Sensor 3 Fr. guidewire



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No traumatic bulbar urethral stricture



**Inject methylene blue
inside the urethra**

(G. Webster)

No traumatic bulbar urethral stricture



Calibrate the distal urethra and identify the distal stop

No traumatic bulbar urethral stricture



Ventral or dorsal graft?

Ventral or dorsal graft?



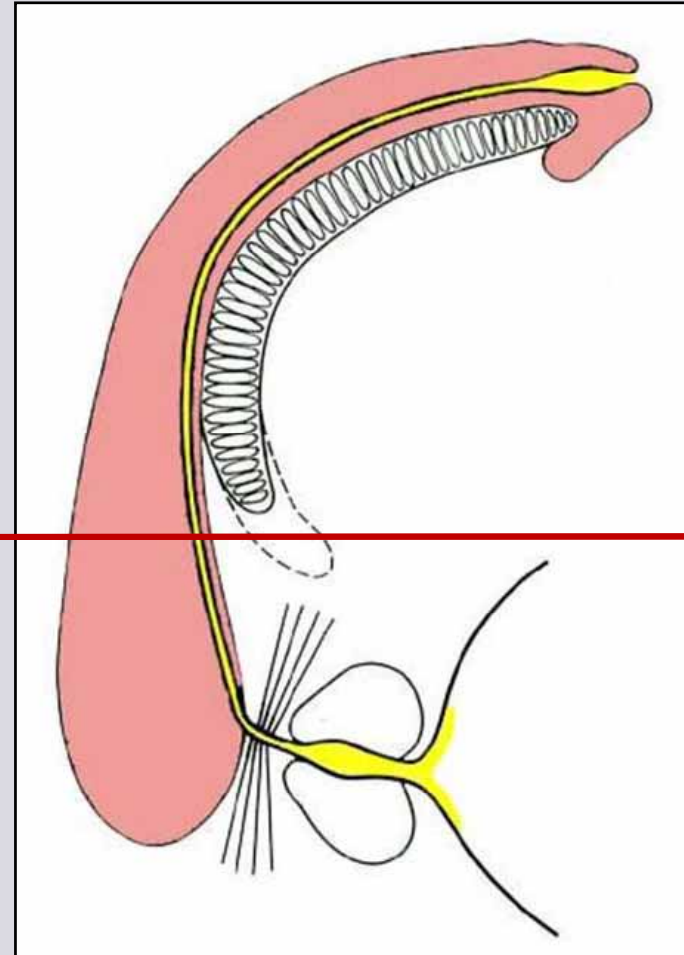
Distal

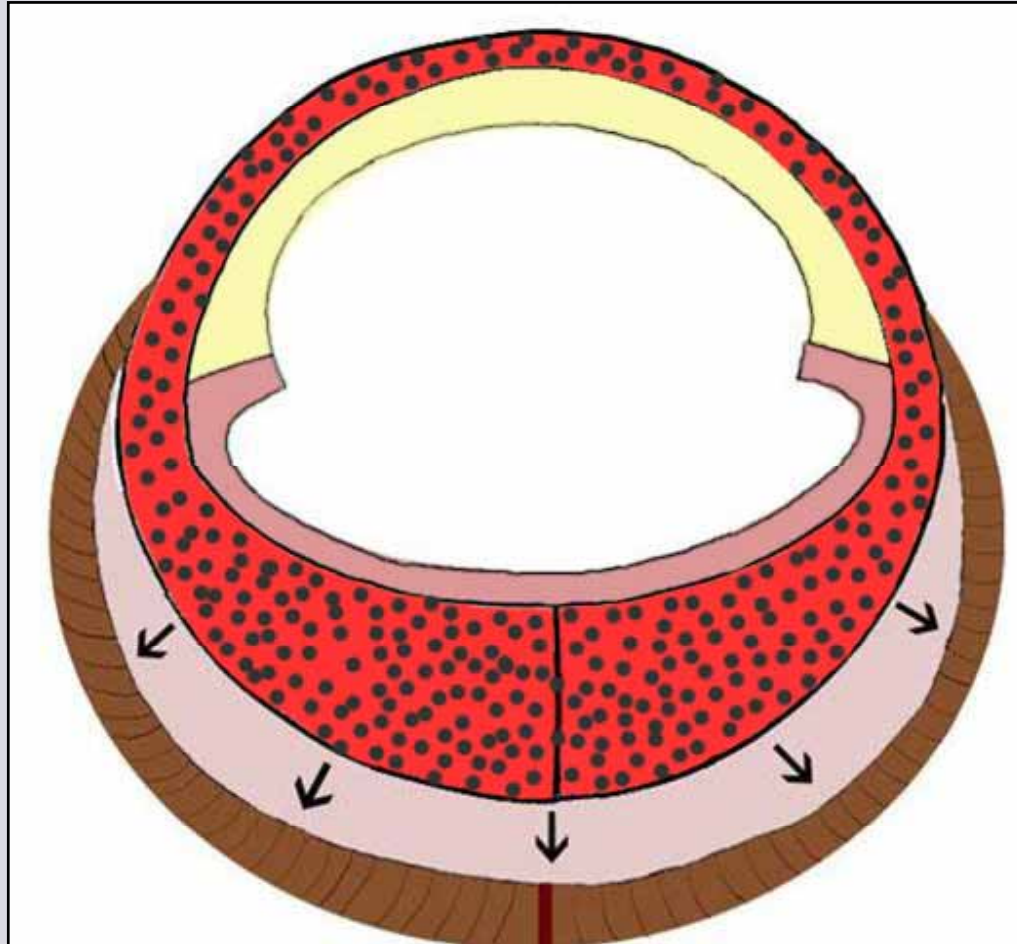
Dorsal onlay



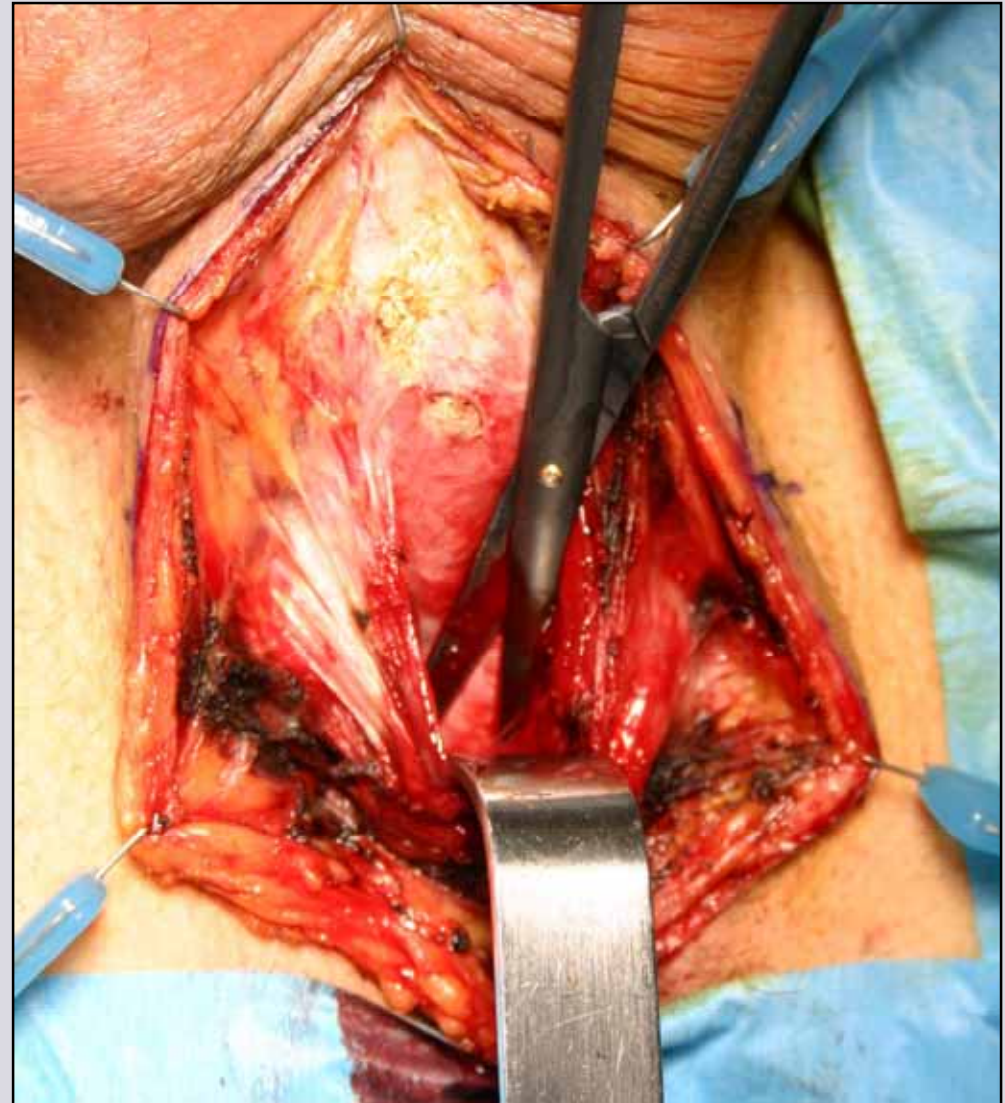
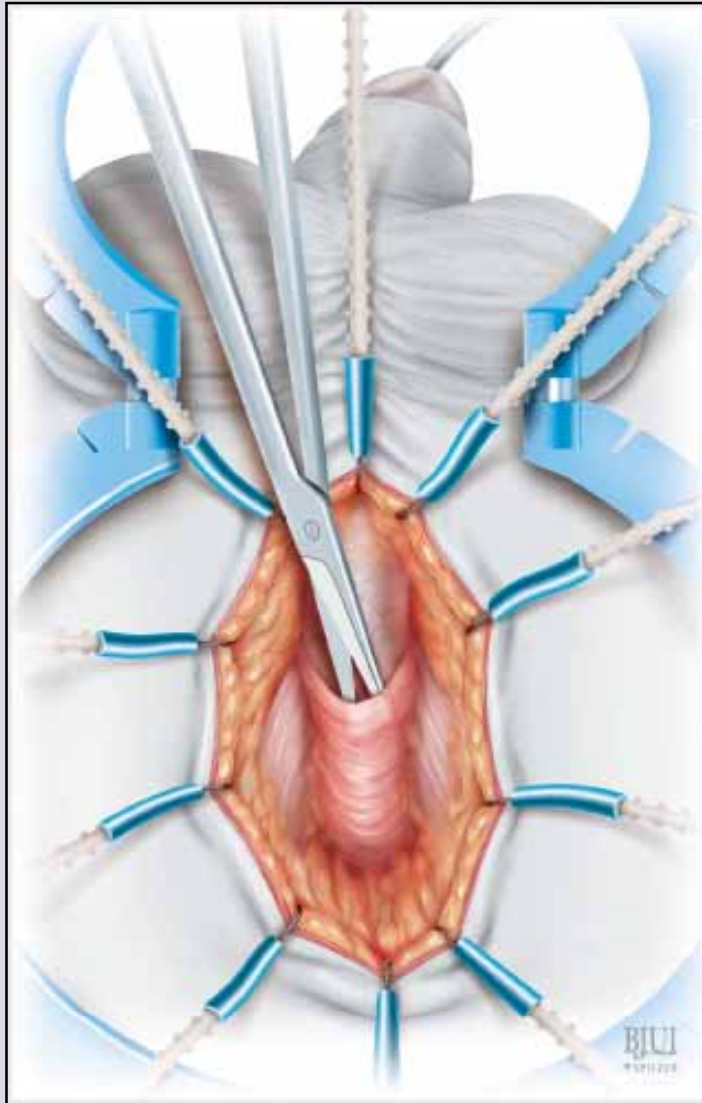
Proximal

Ventral onlay



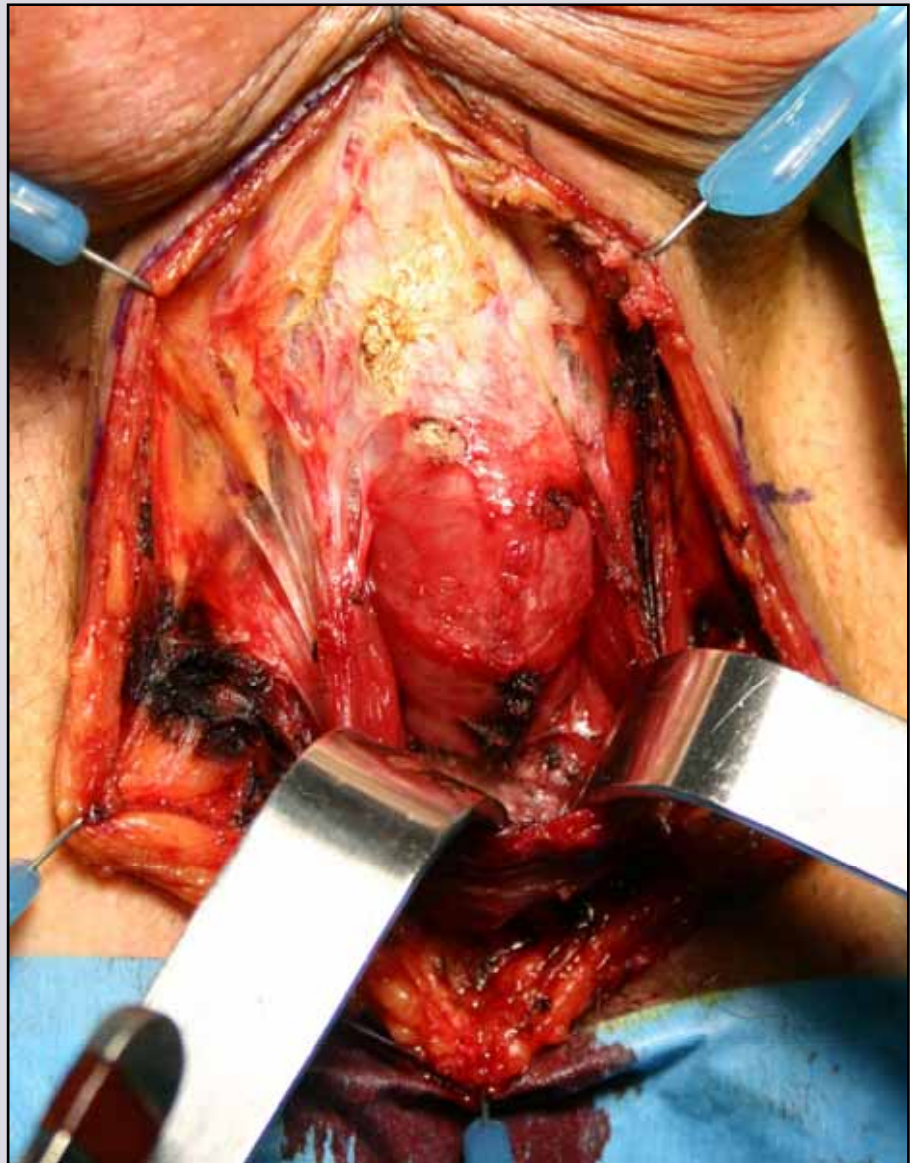
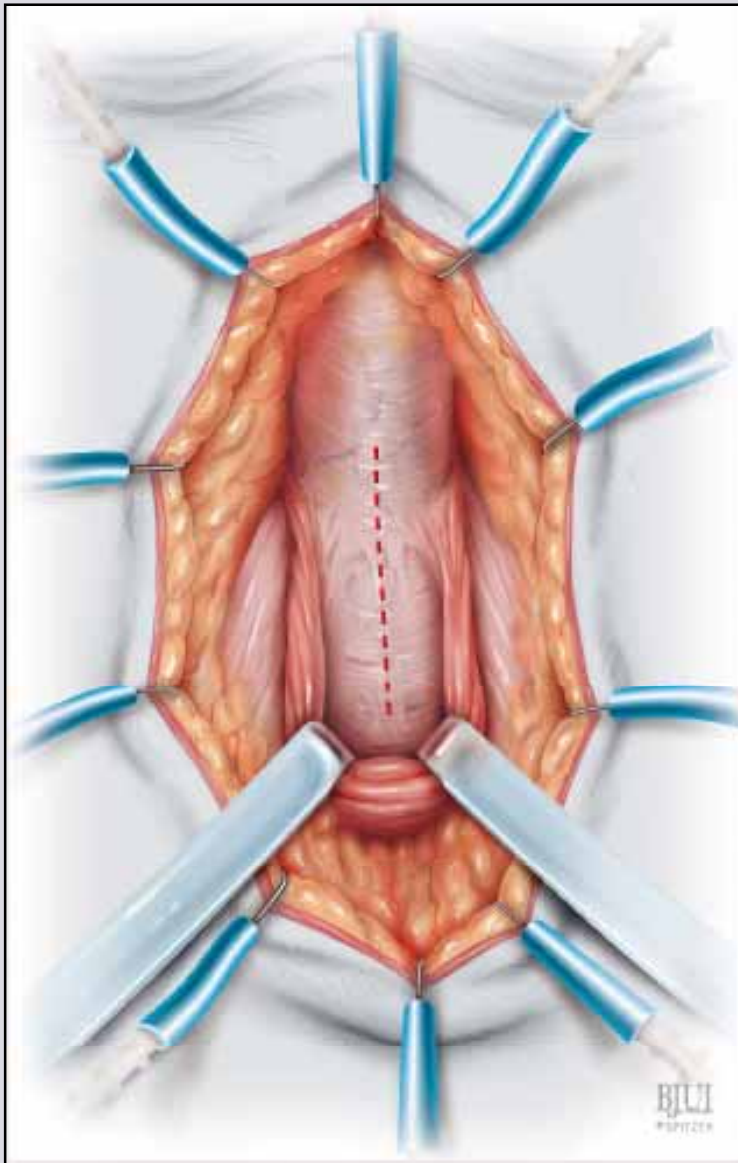


Muscle and nerve-sparing **ventral** onlay graft bulbar urethroplasty



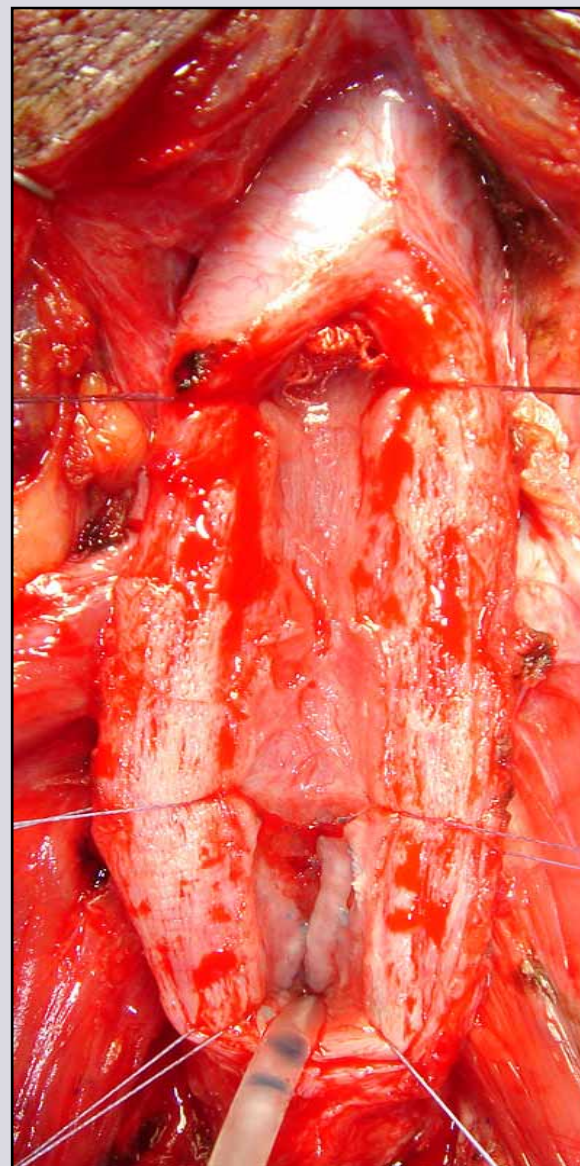
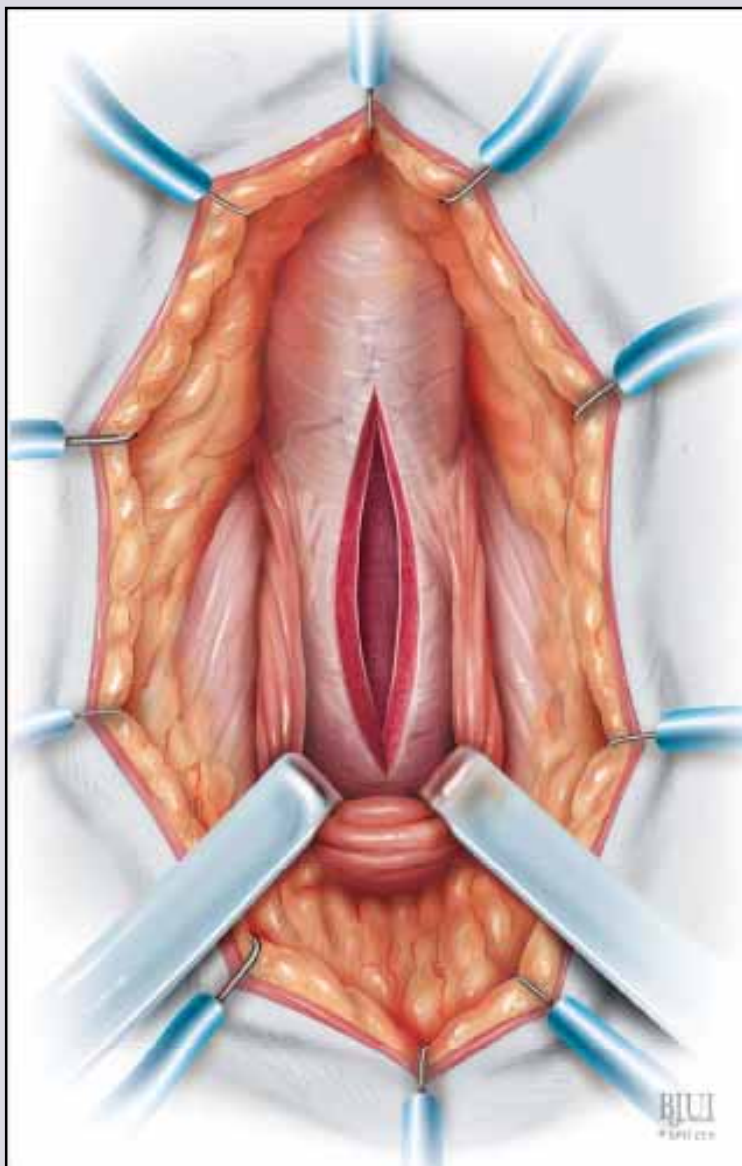
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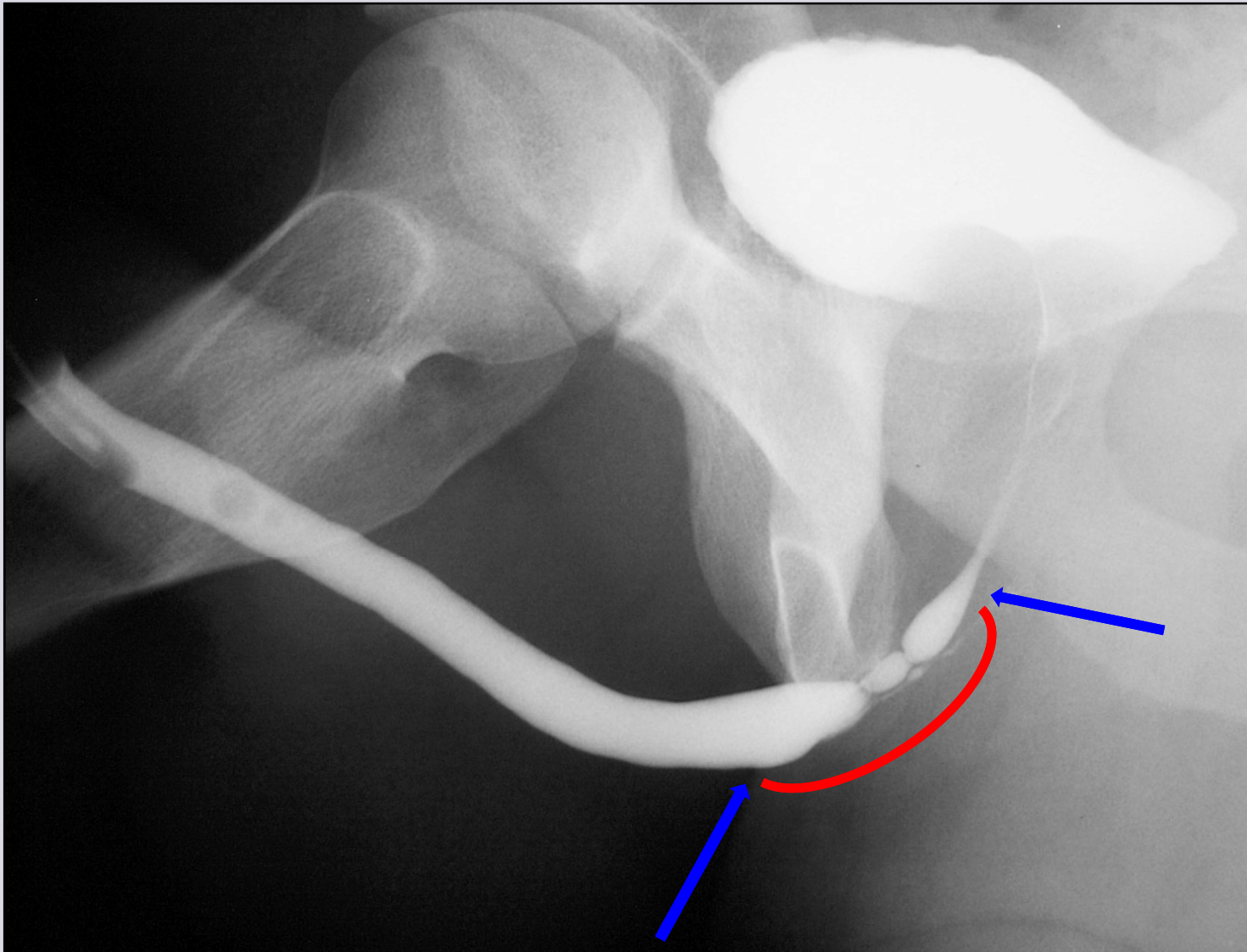
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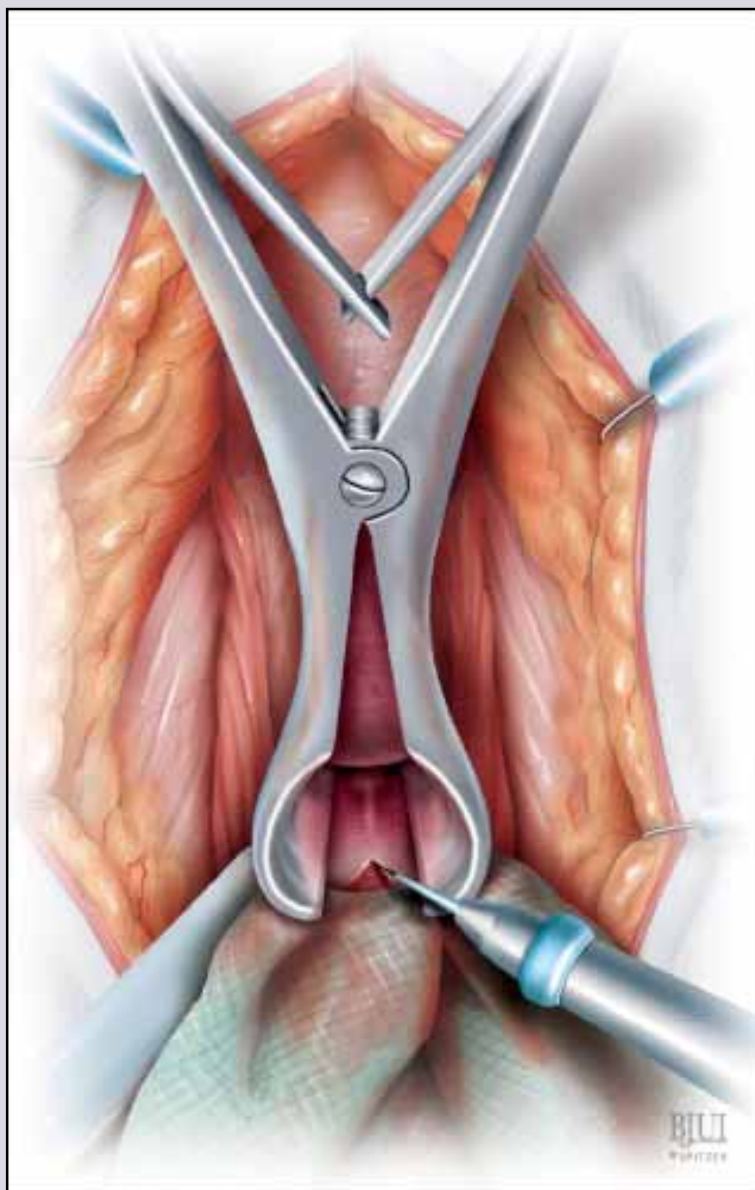
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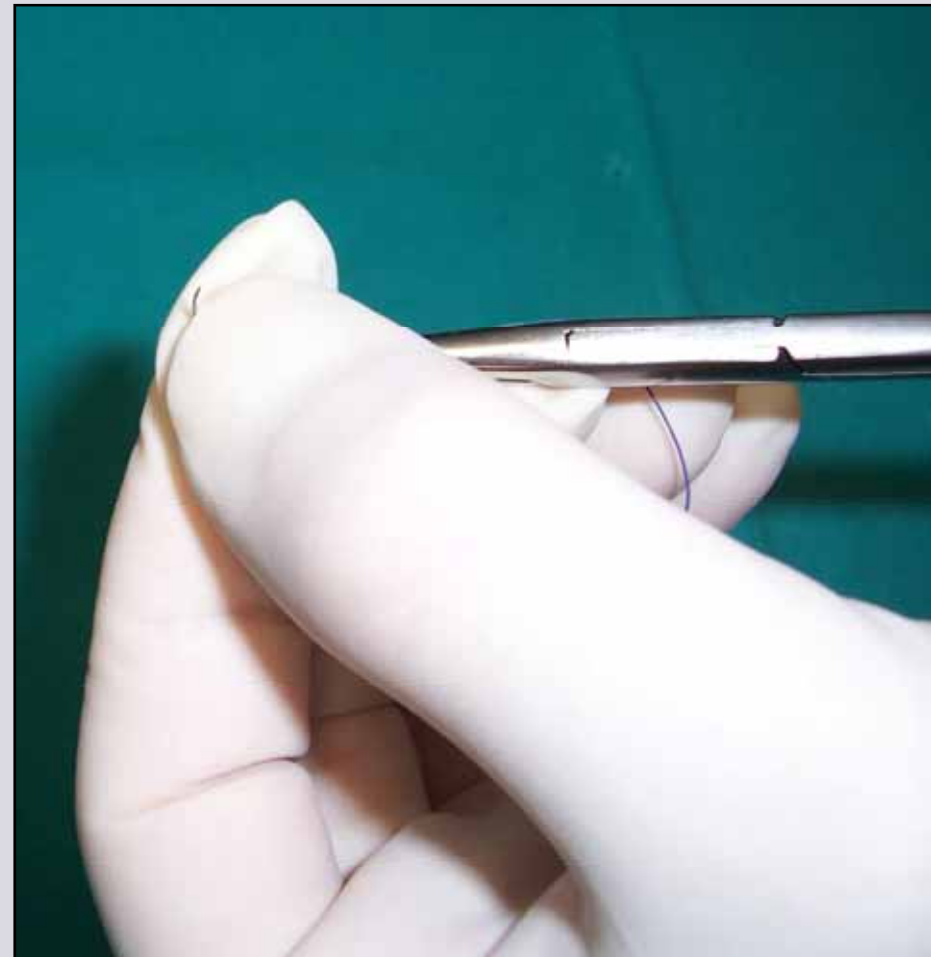
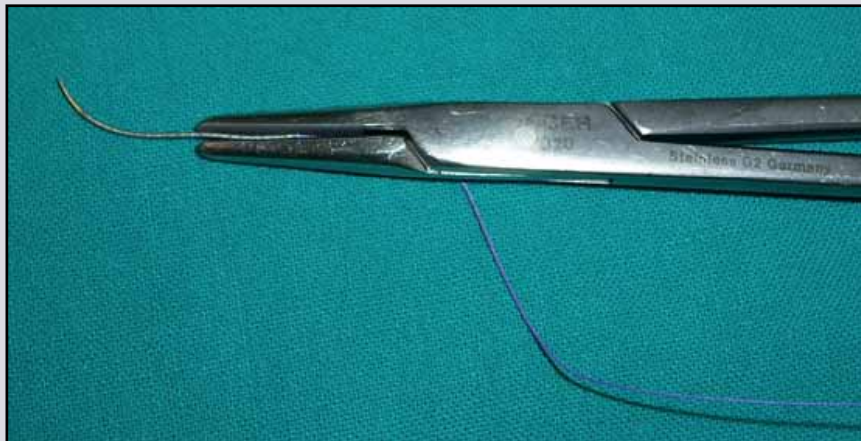
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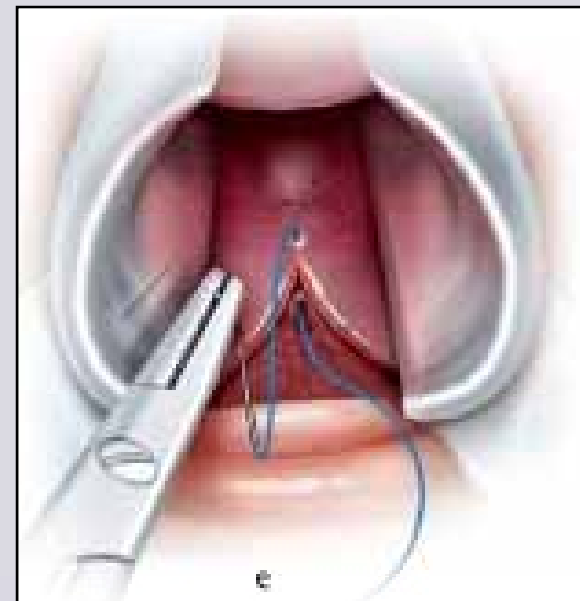
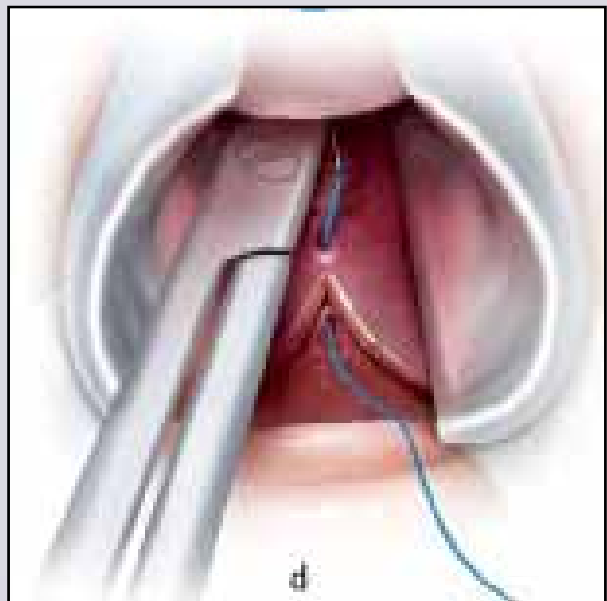
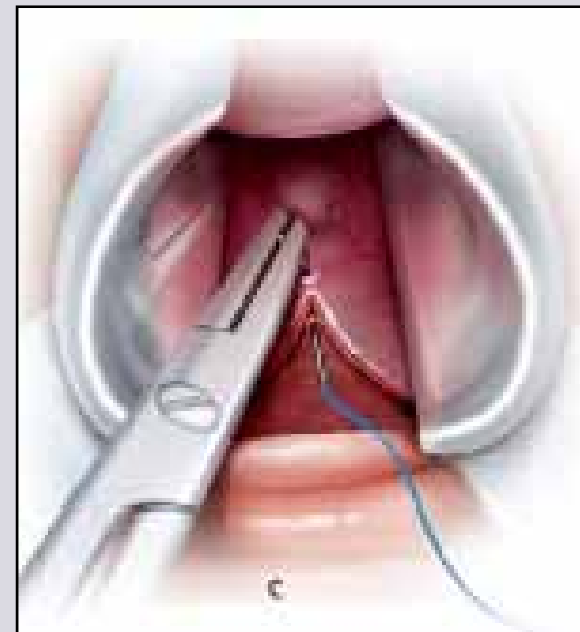
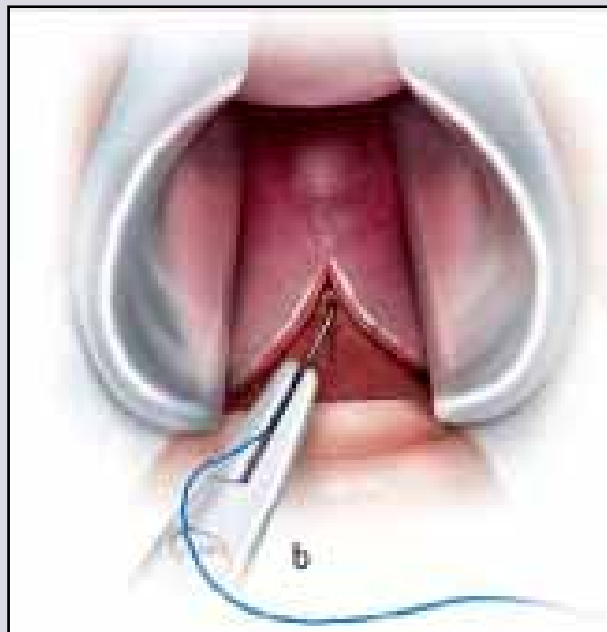
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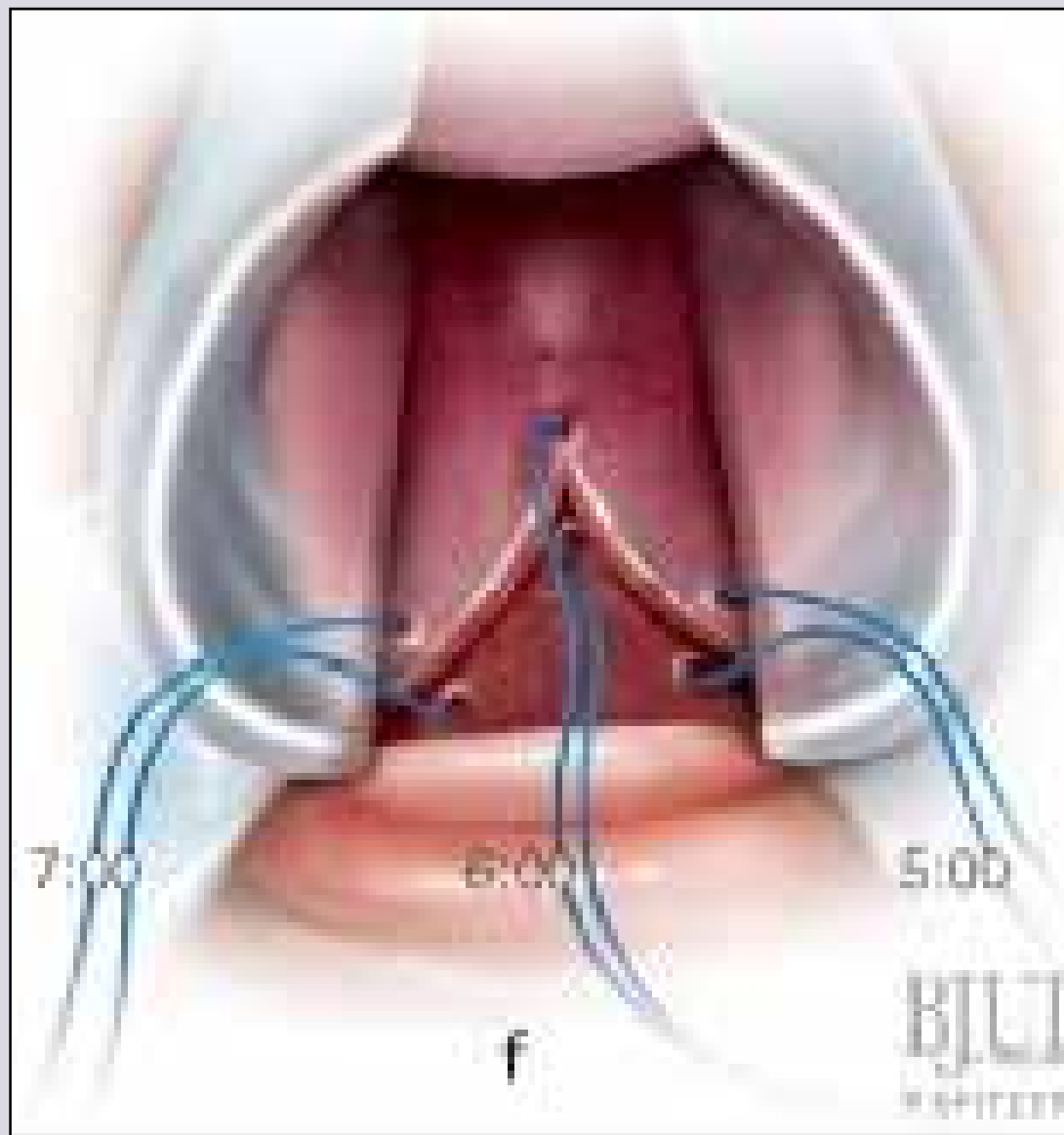
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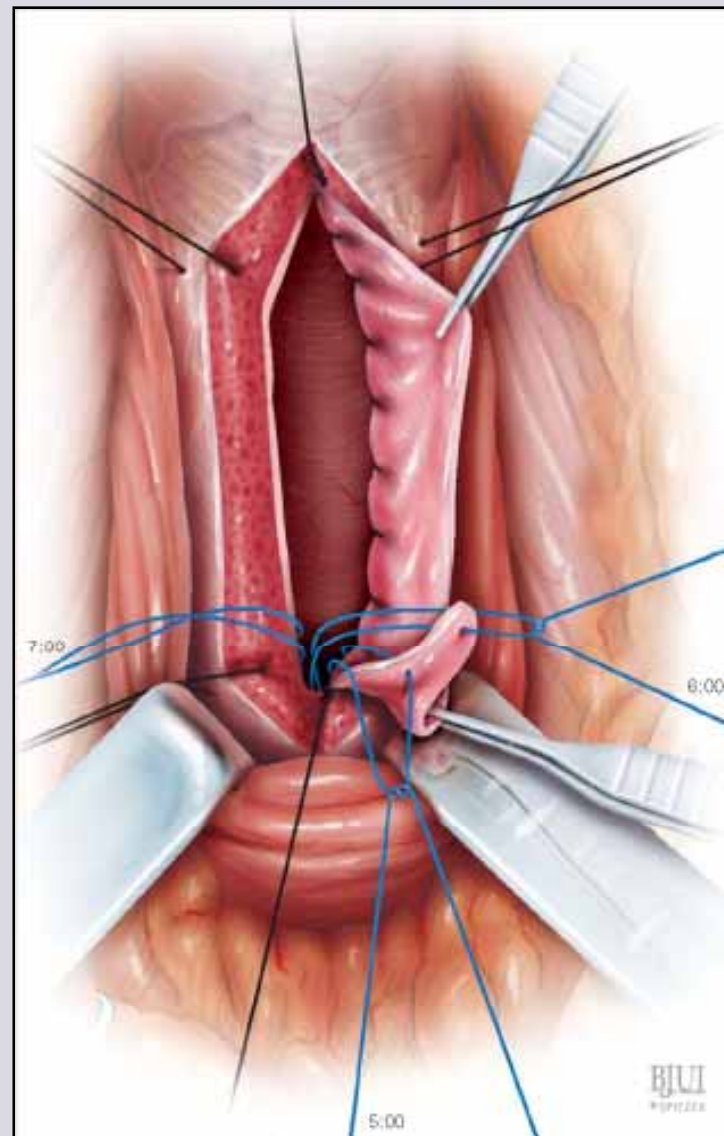
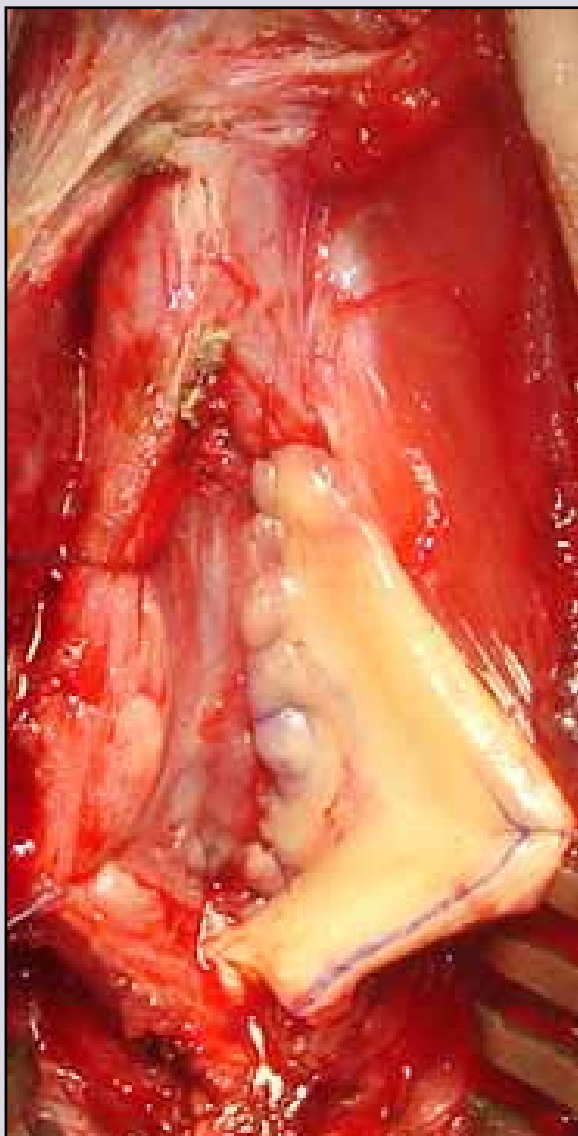
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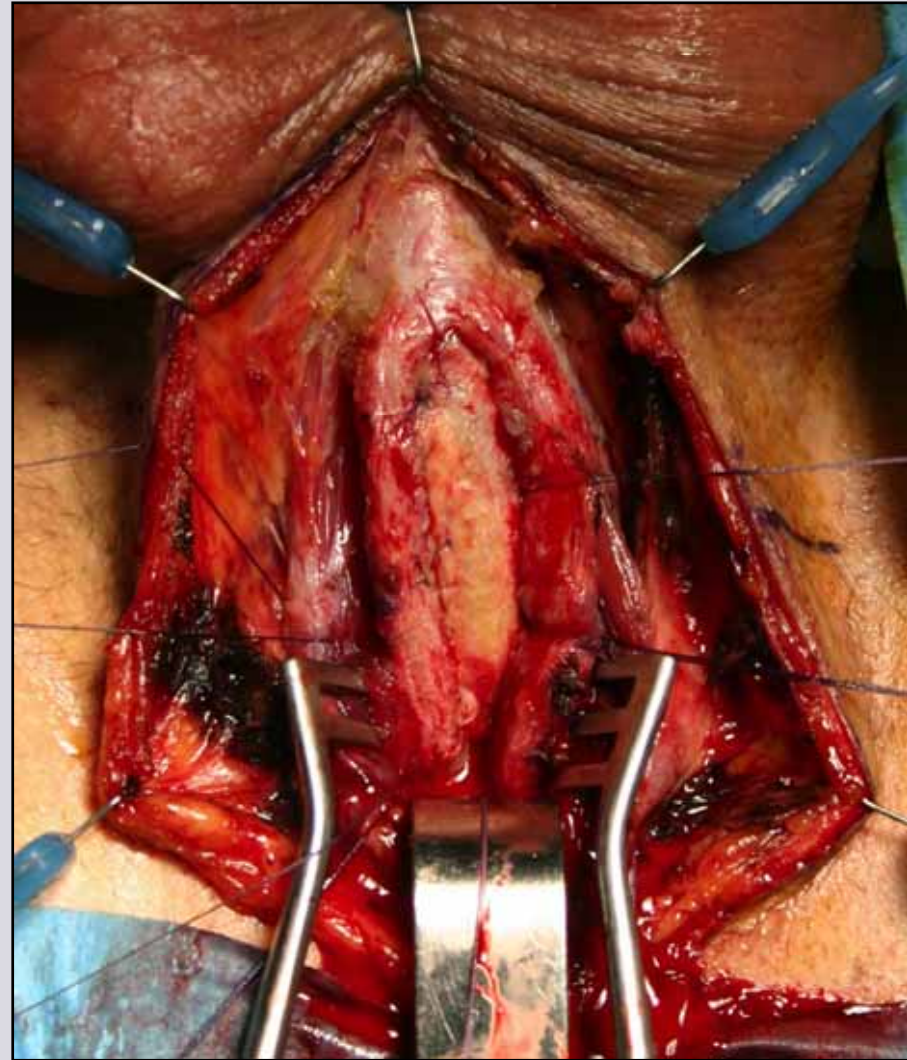
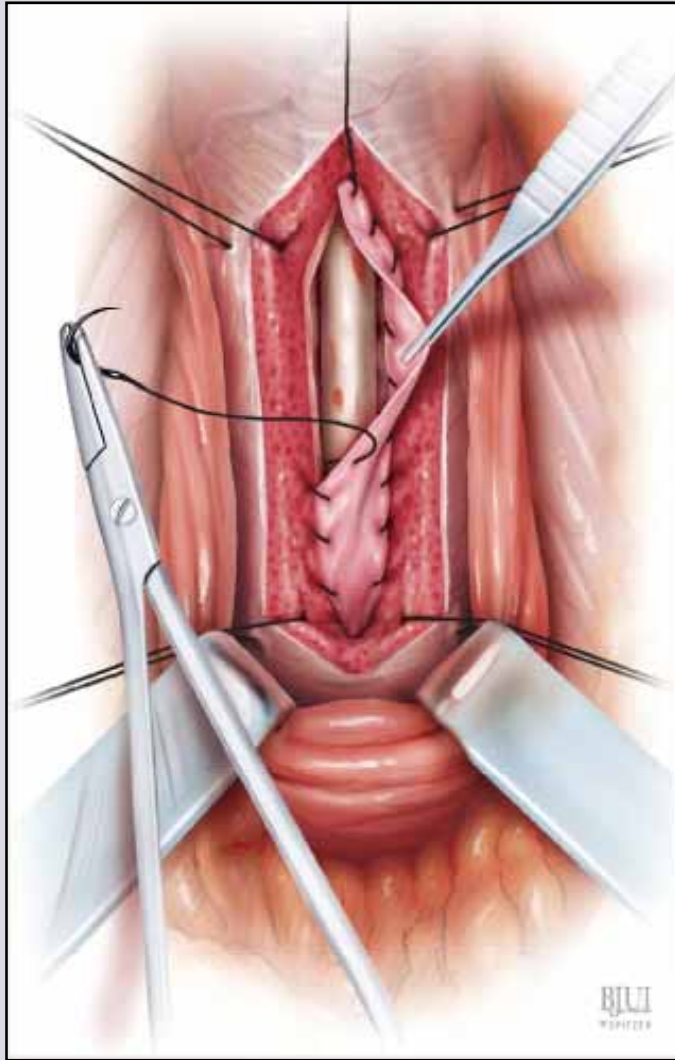
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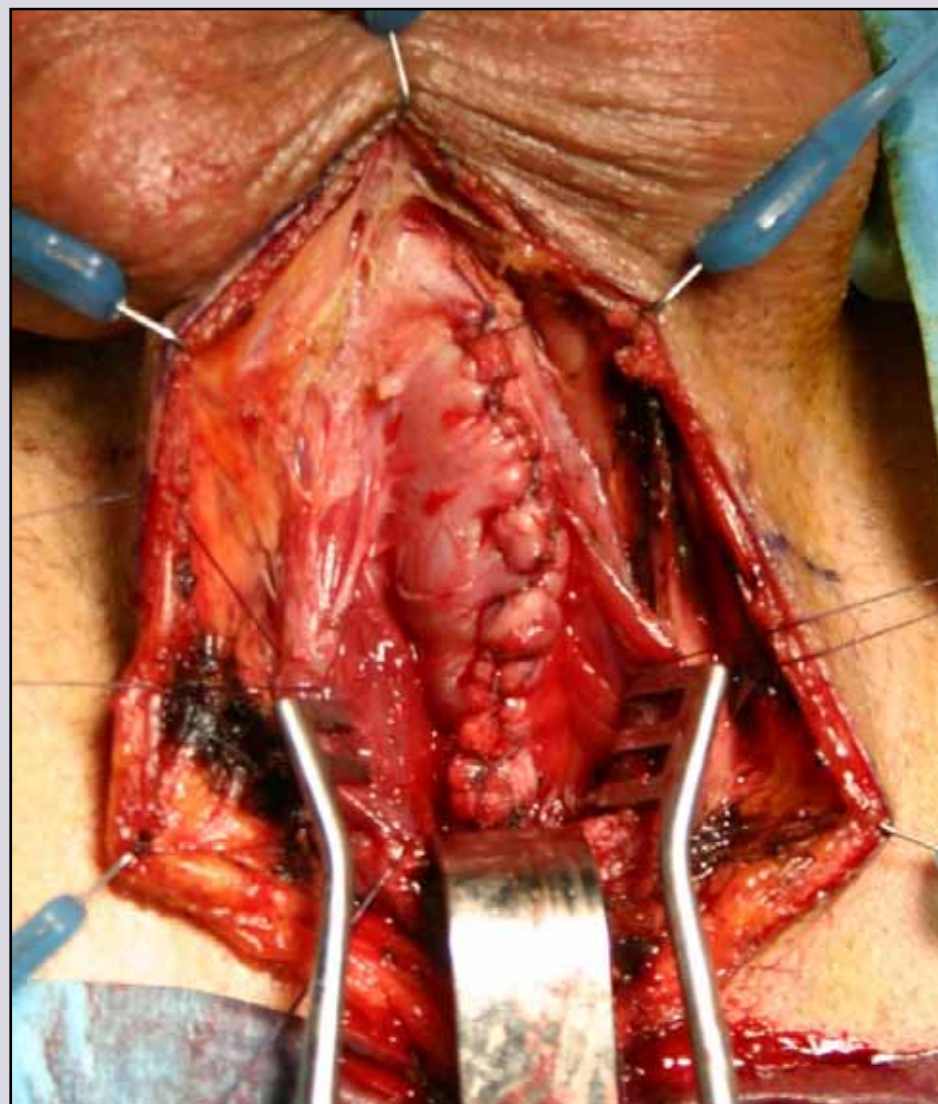
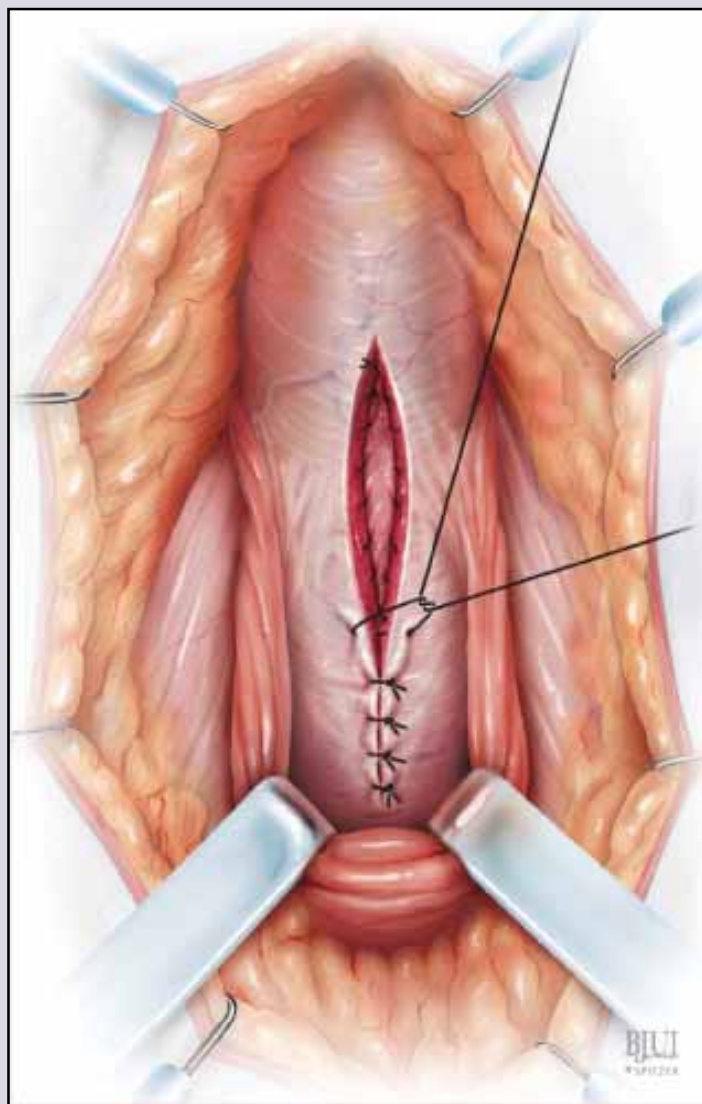
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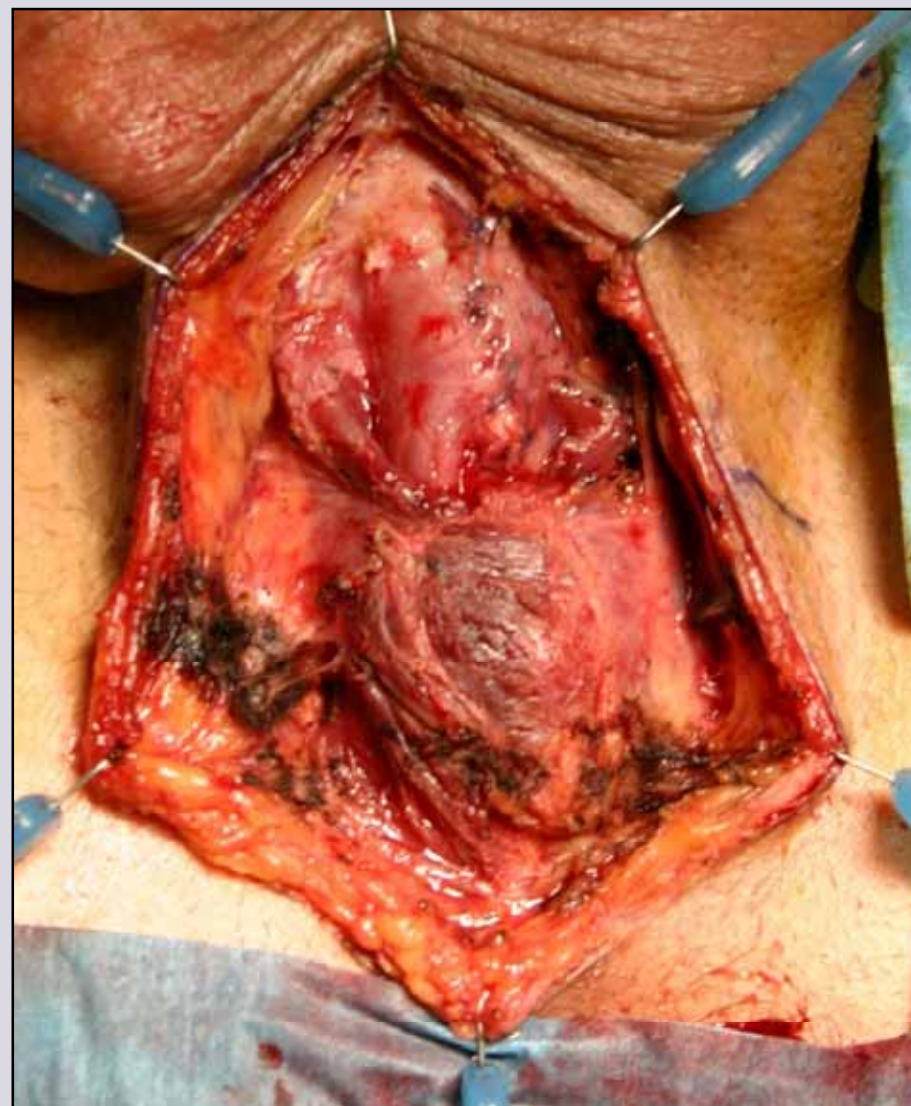
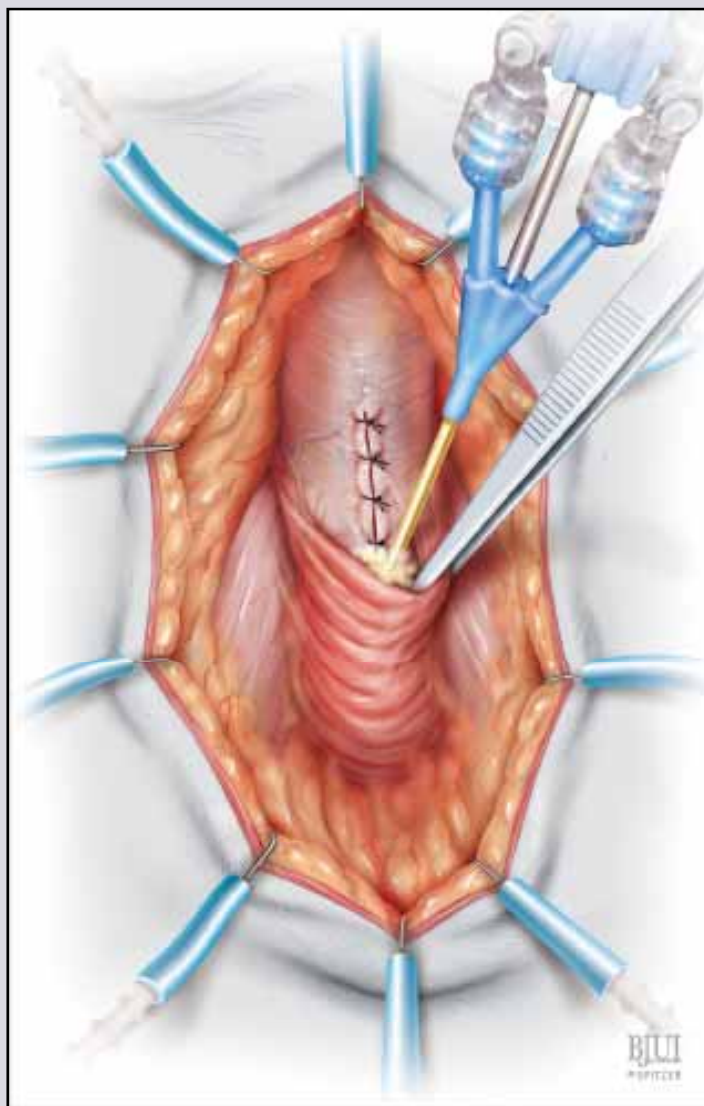
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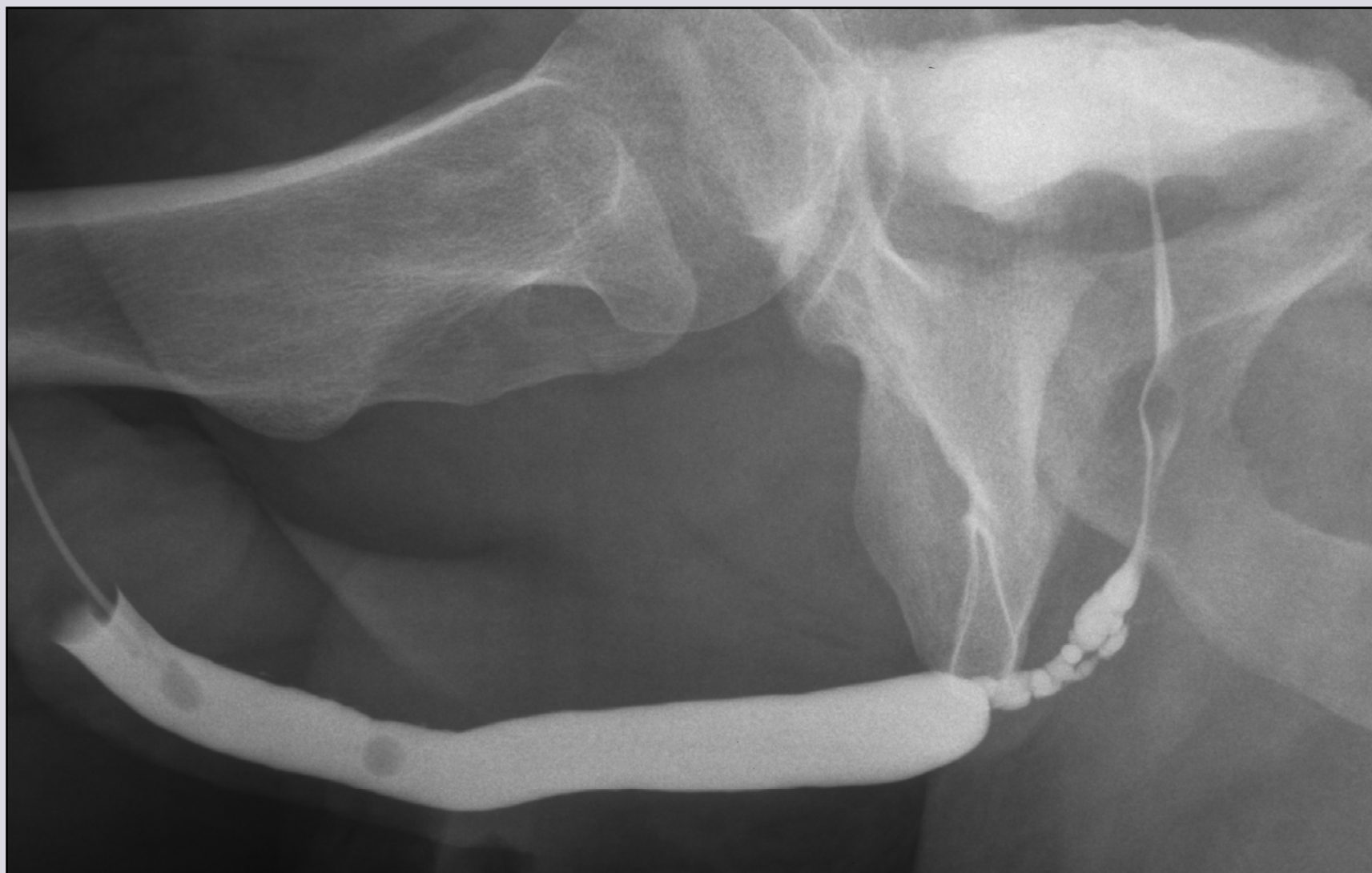
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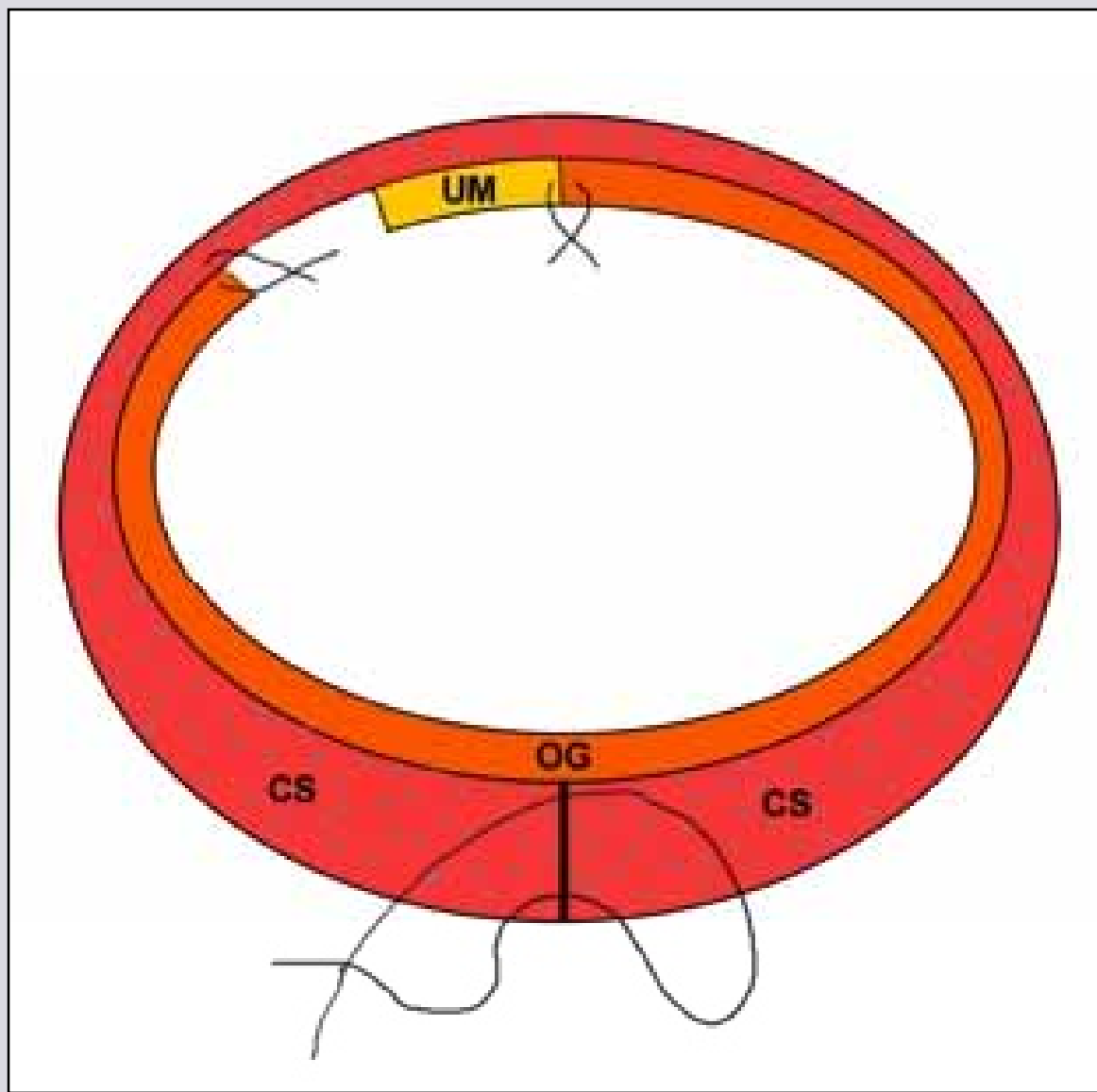
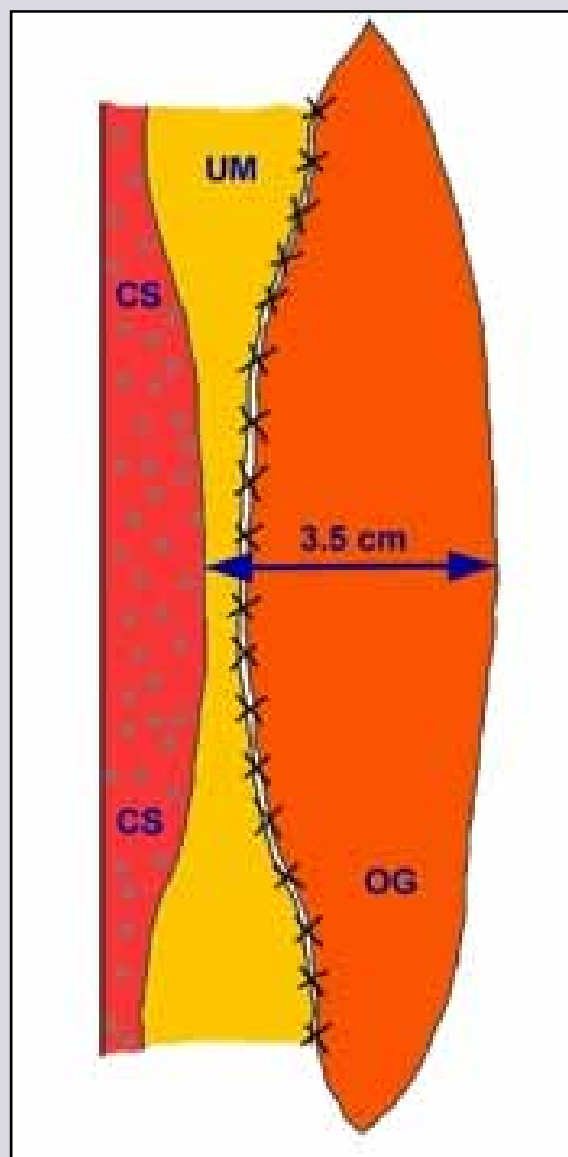
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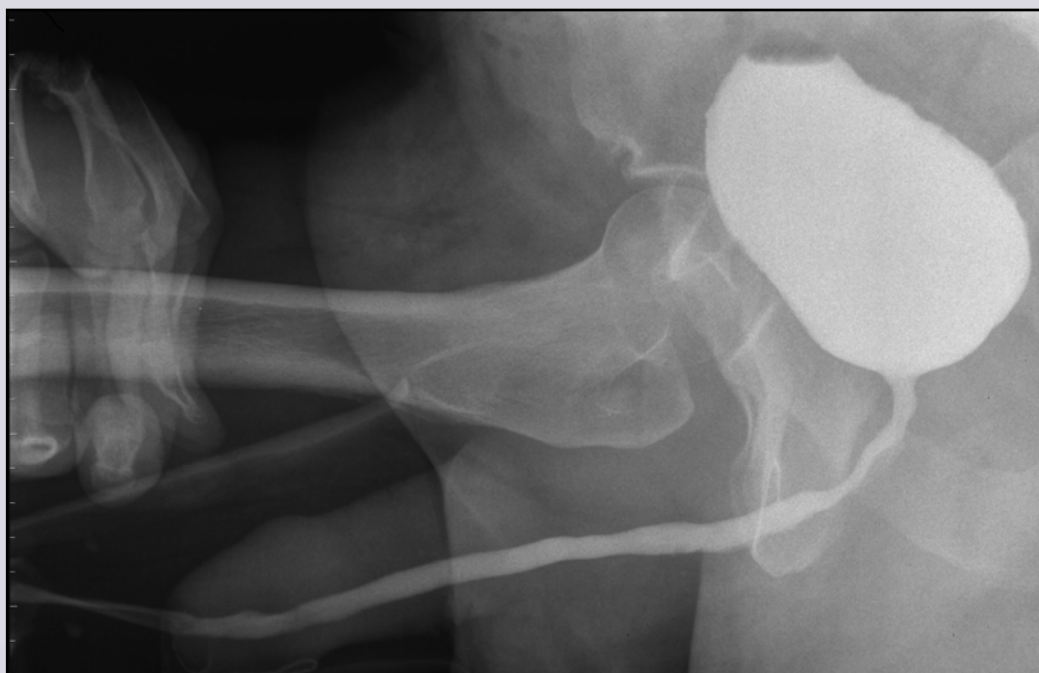


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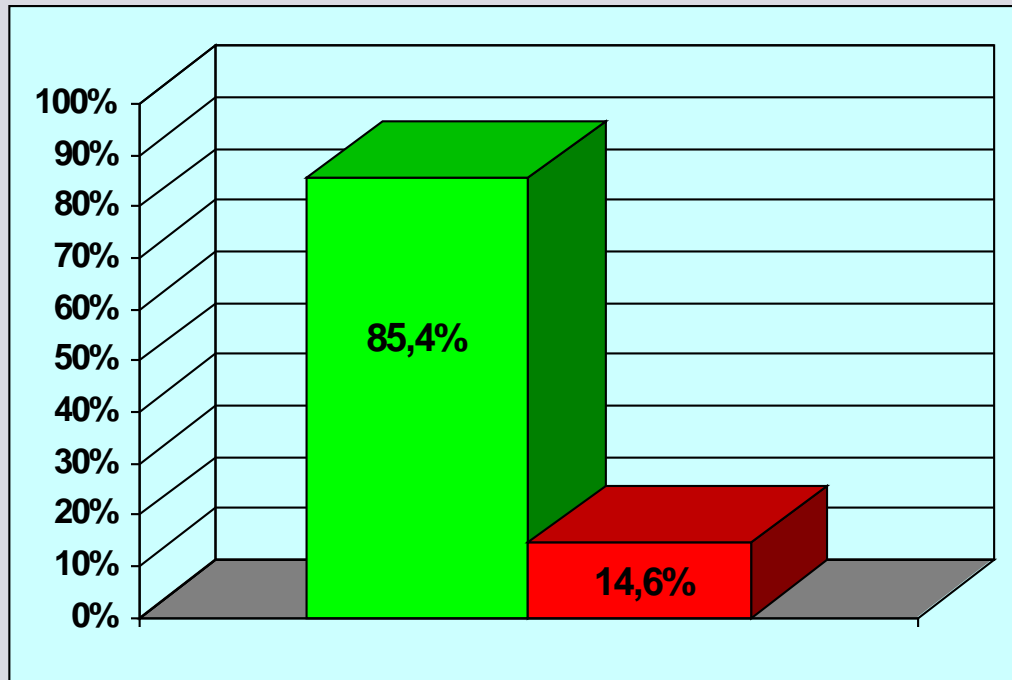




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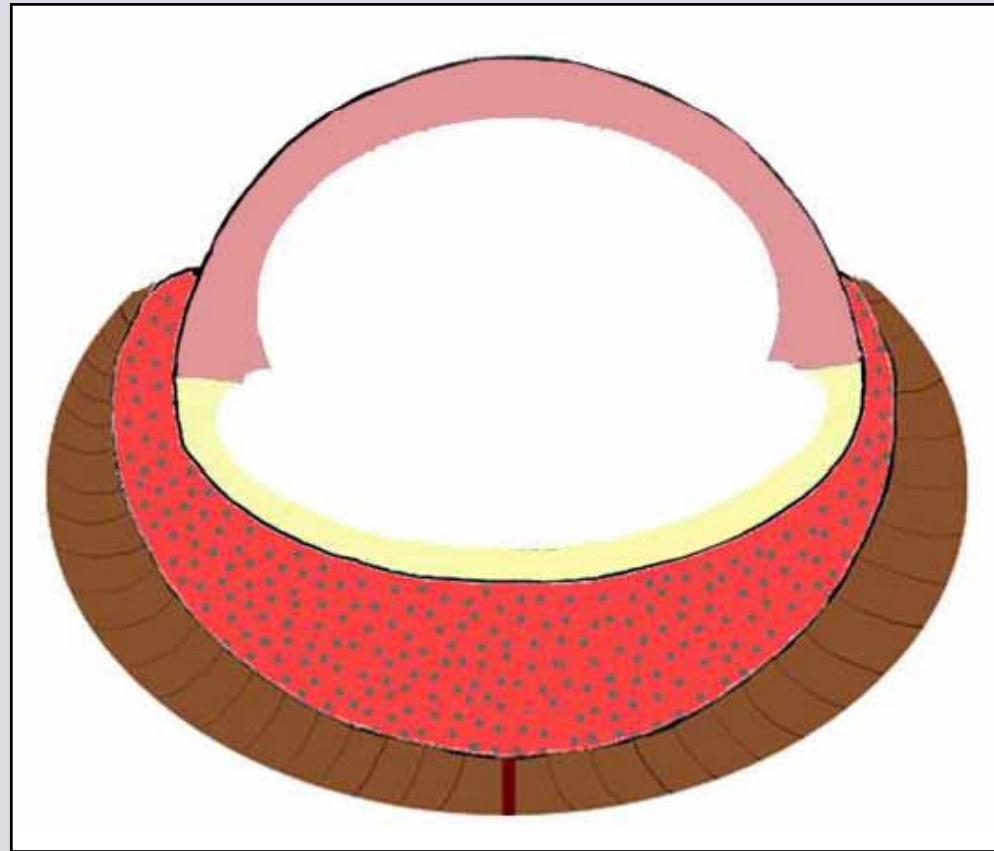
Oral graft



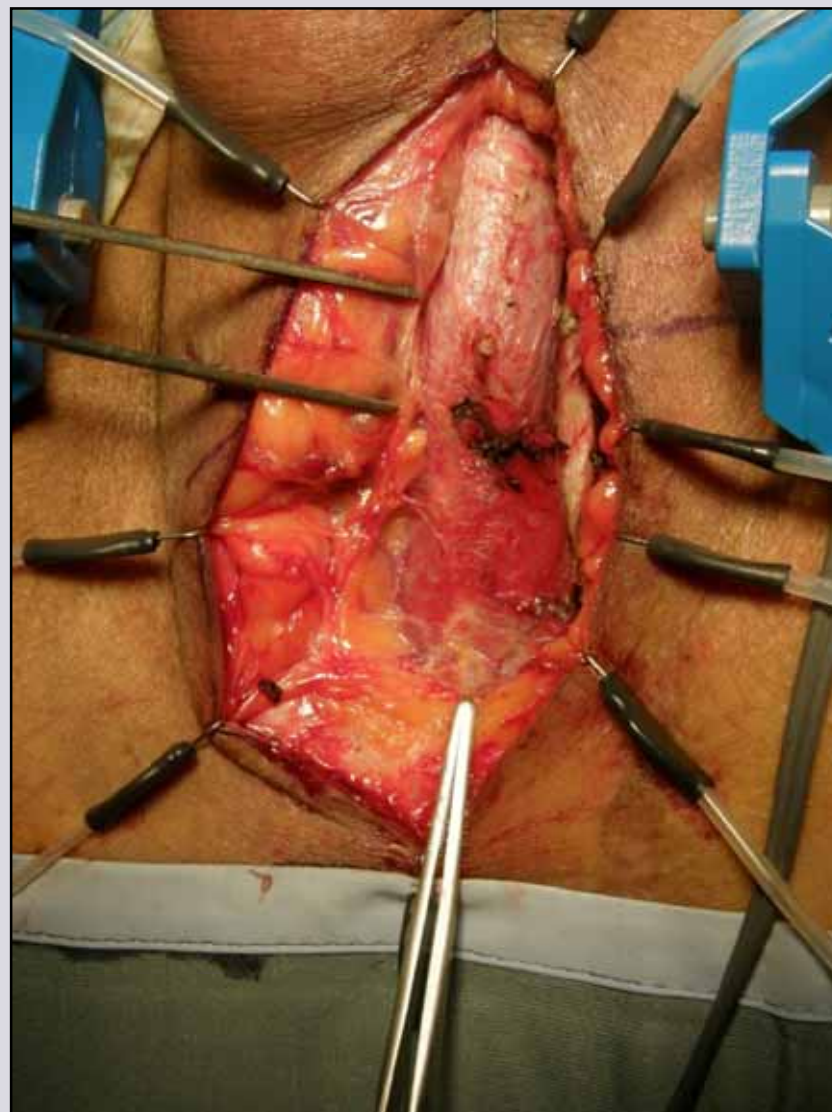
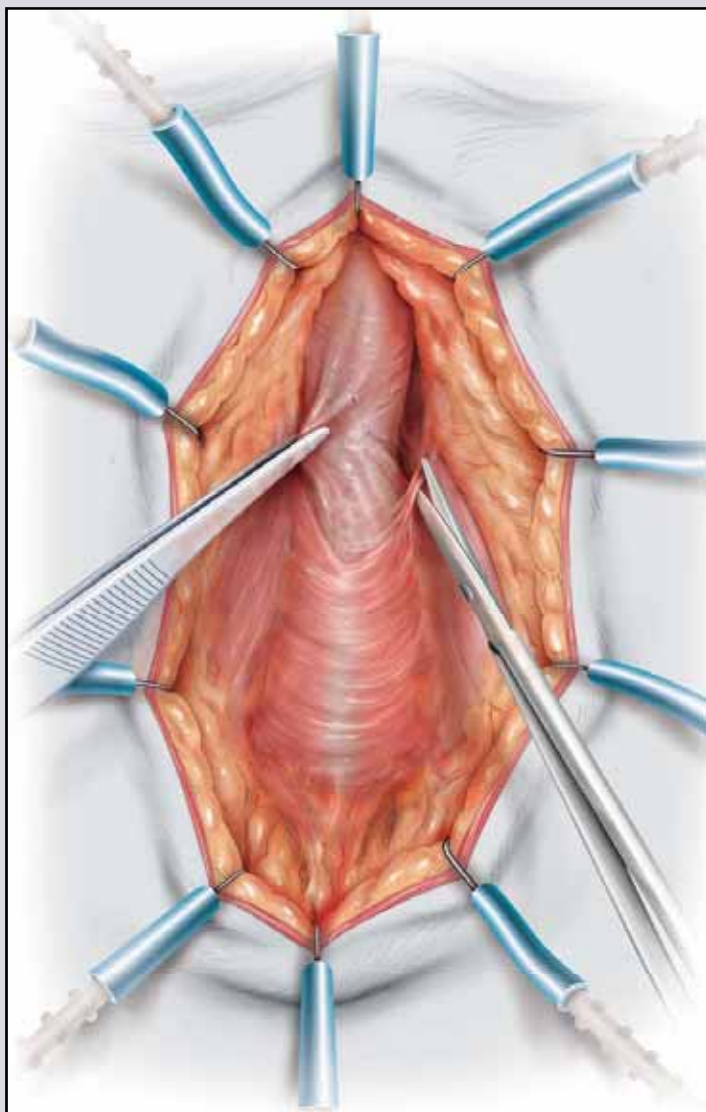
247
patients

■ success	211 (85.4%)		
■ failure	36 (14.6%)		
	minimum	maximum	mean
Follow-up (months)	6	139	55
Age (years)	14	77	39

Updated
December 31, 2011

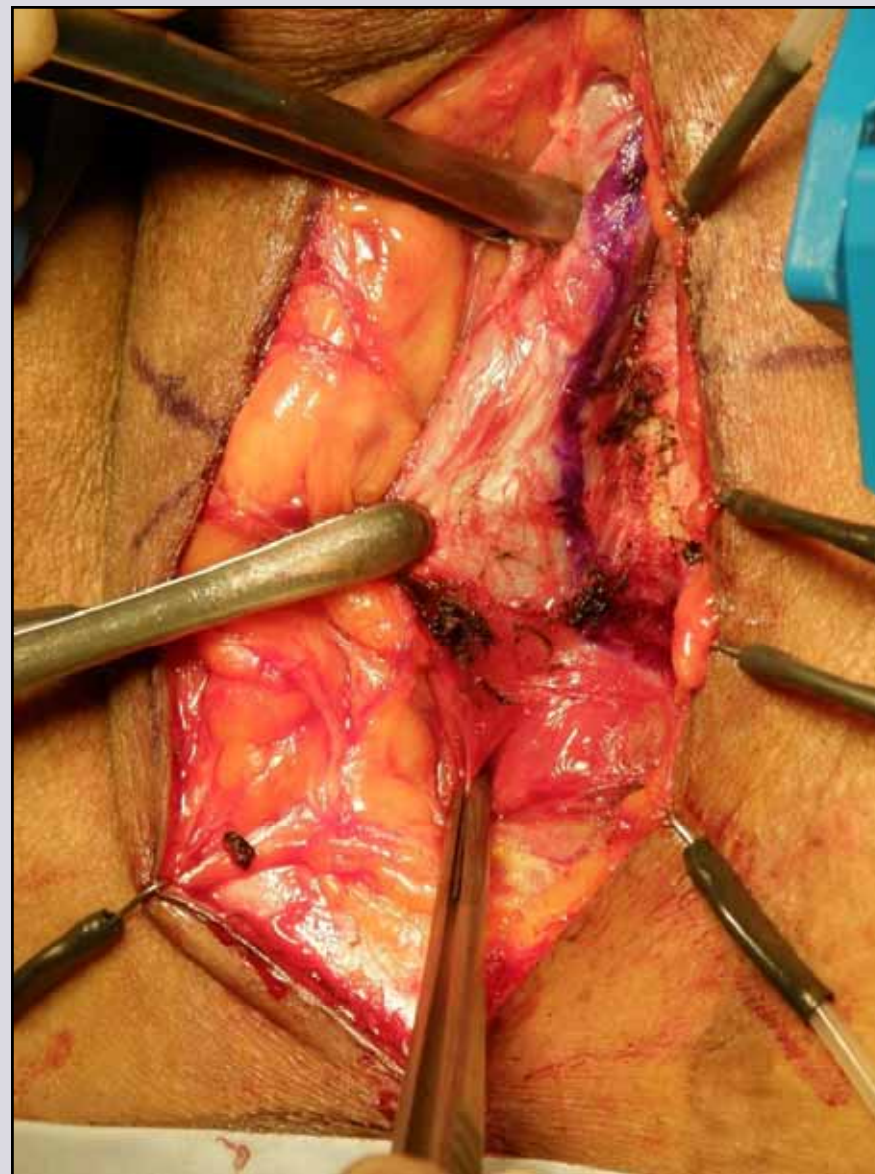
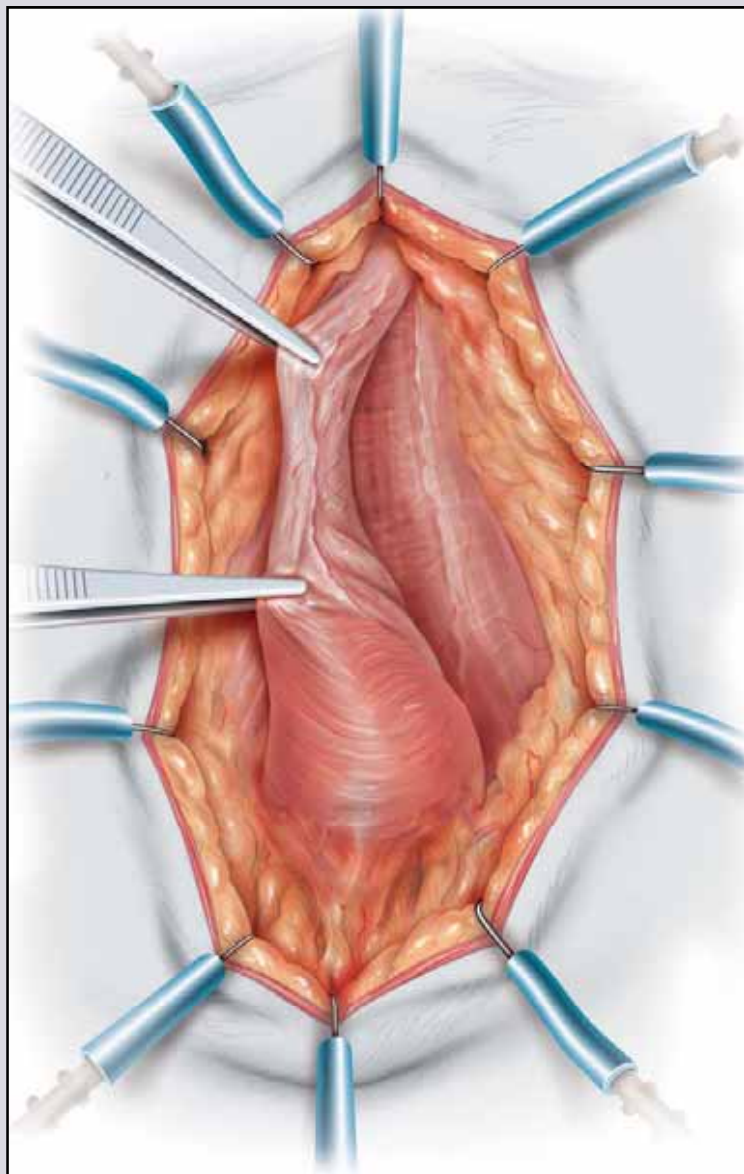


Muscle and nerve-sparing **dorsal** onlay graft bulbar urethroplasty



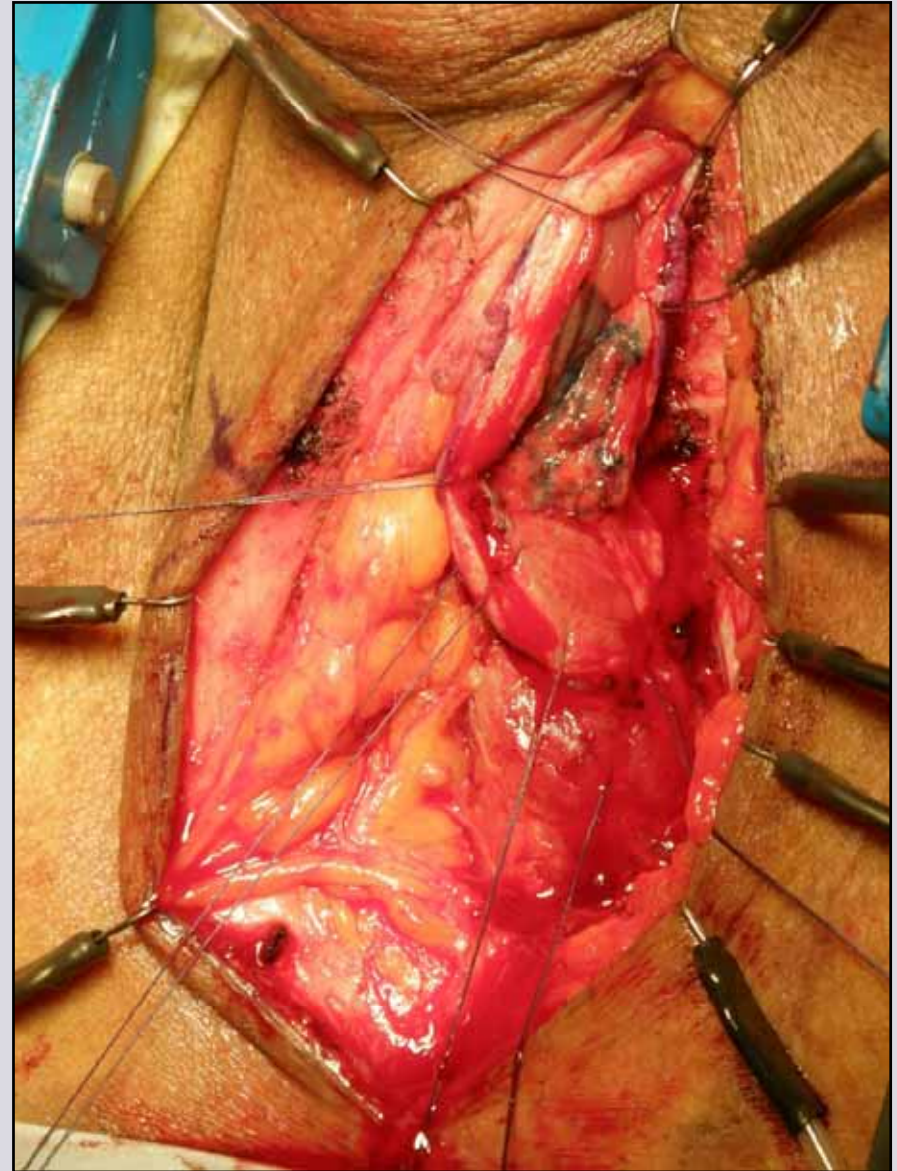
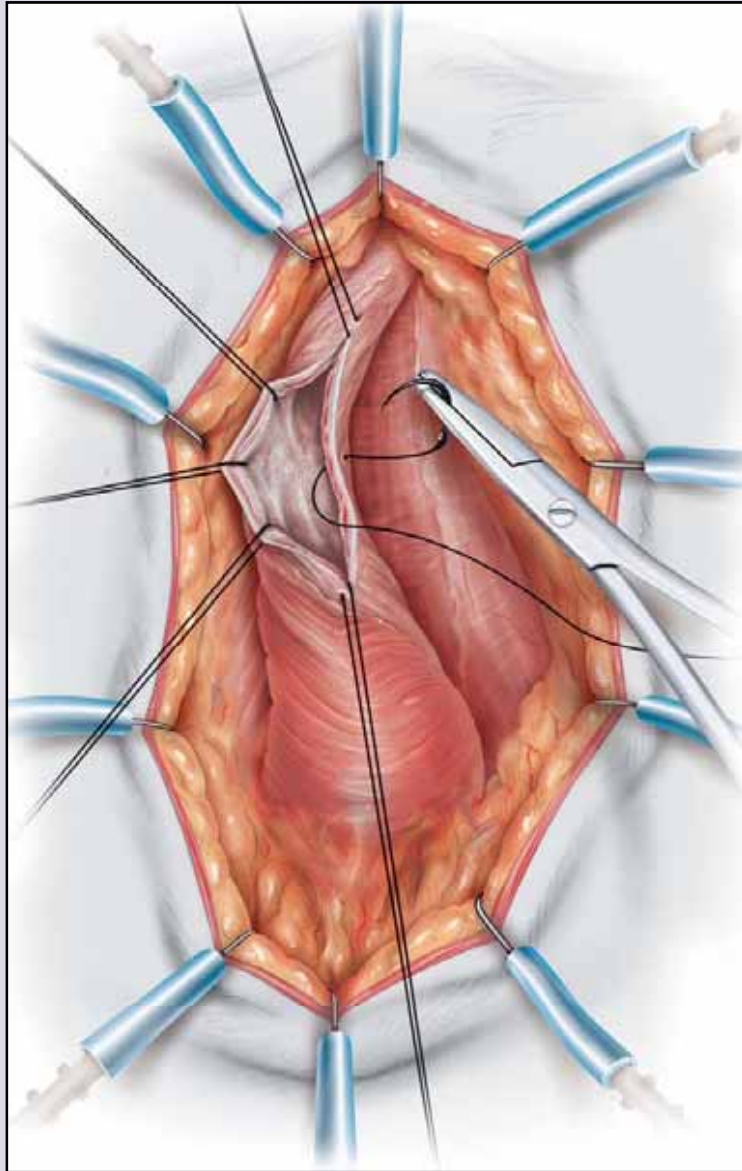
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Websites: www.uretra.it
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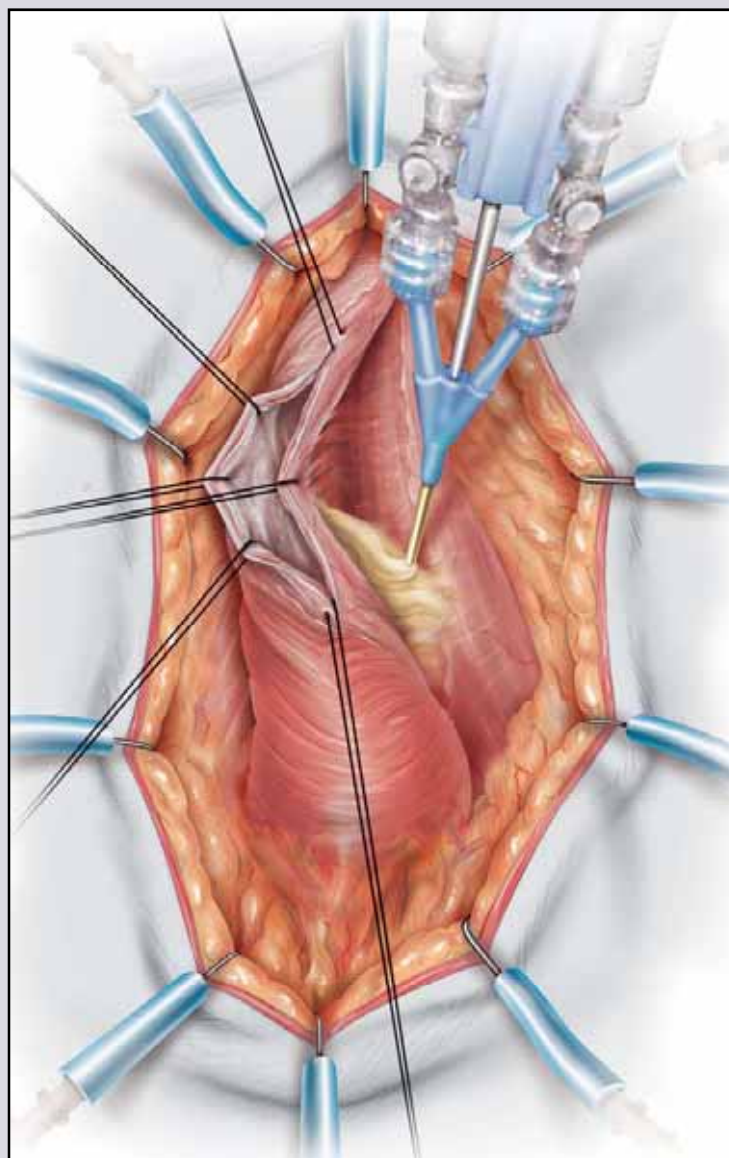
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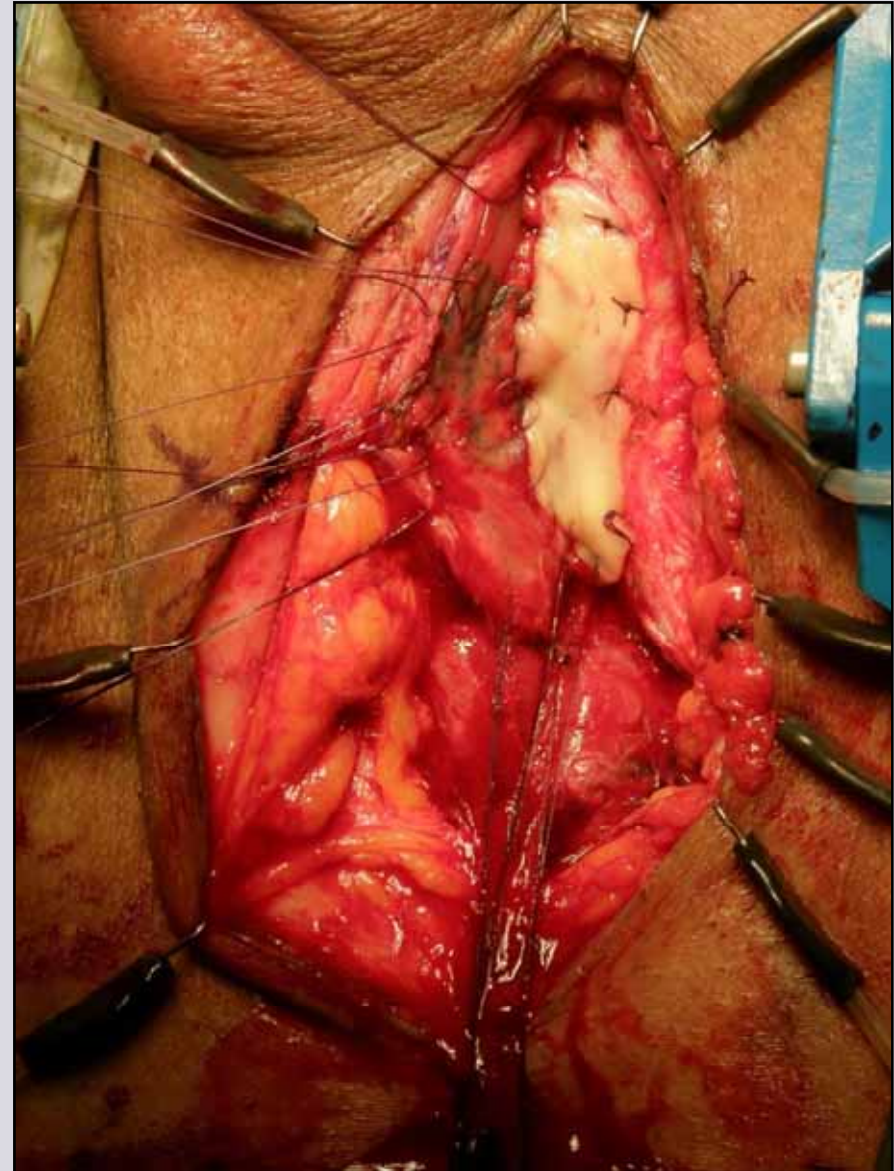
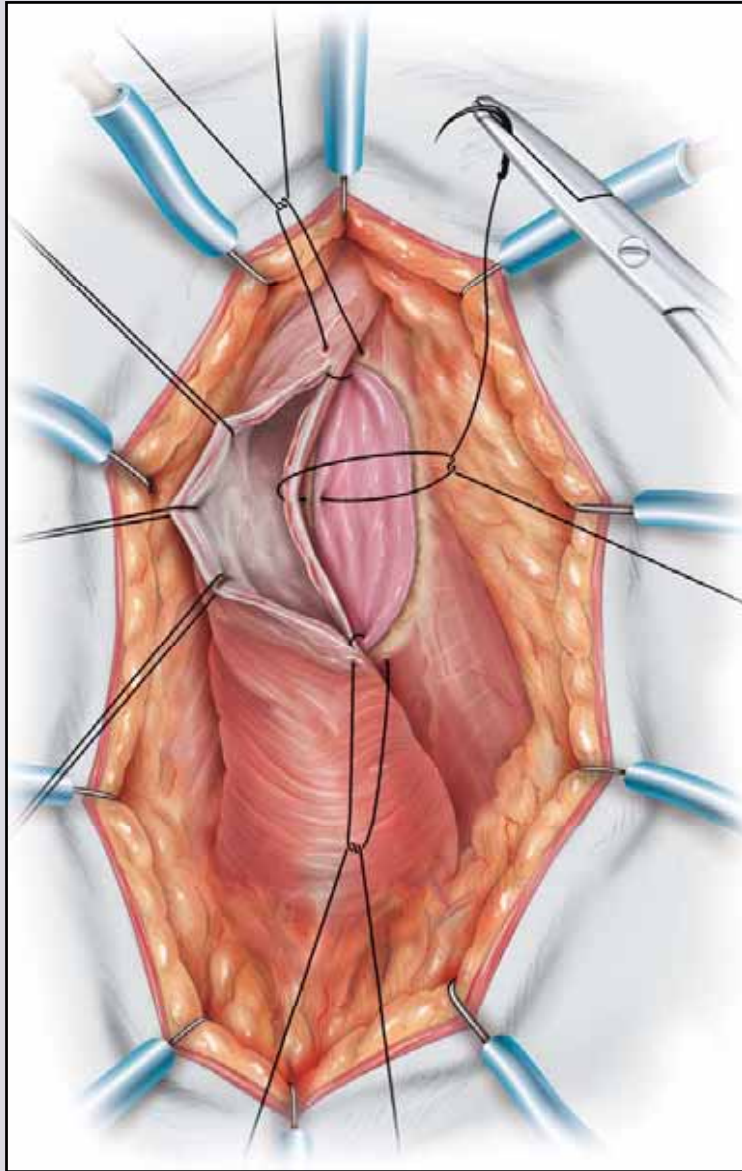
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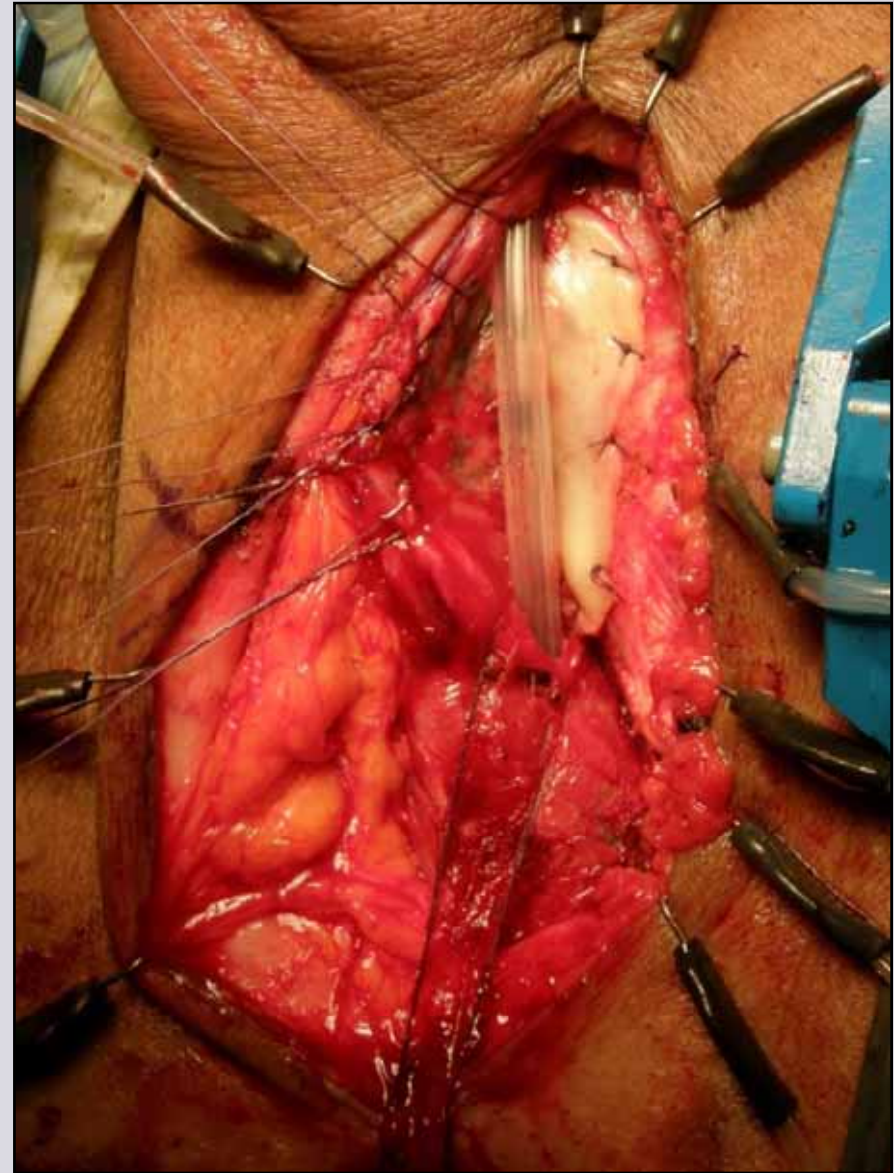
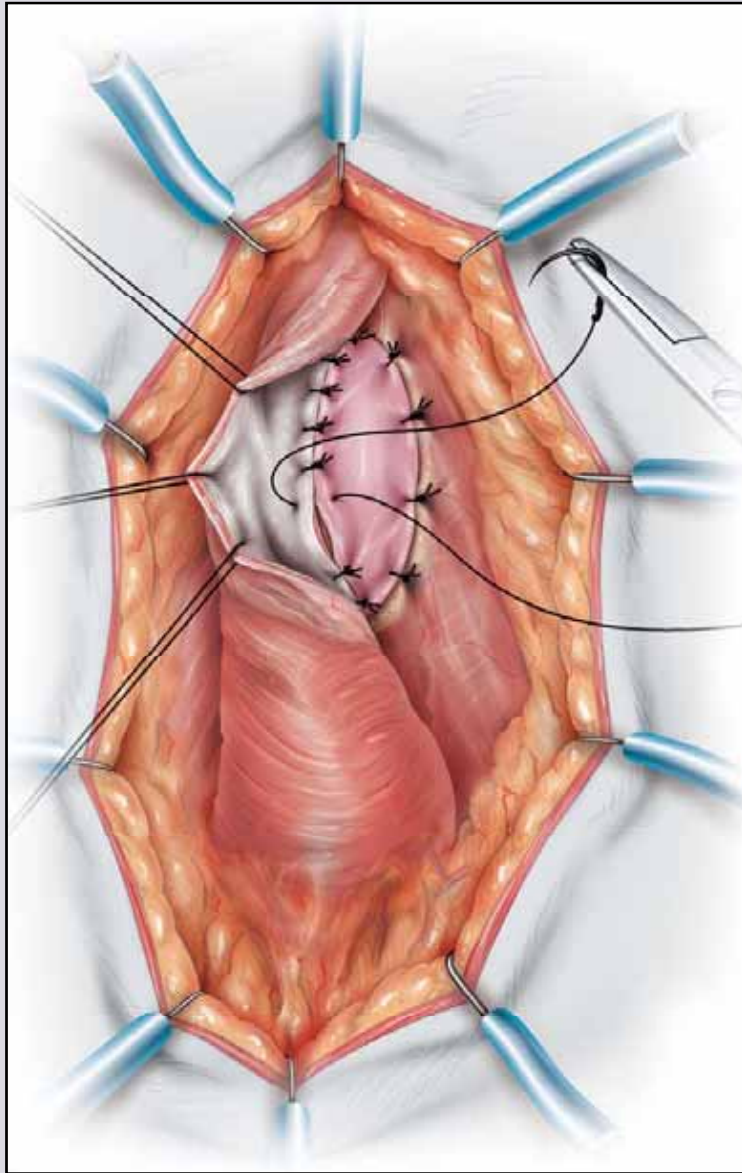
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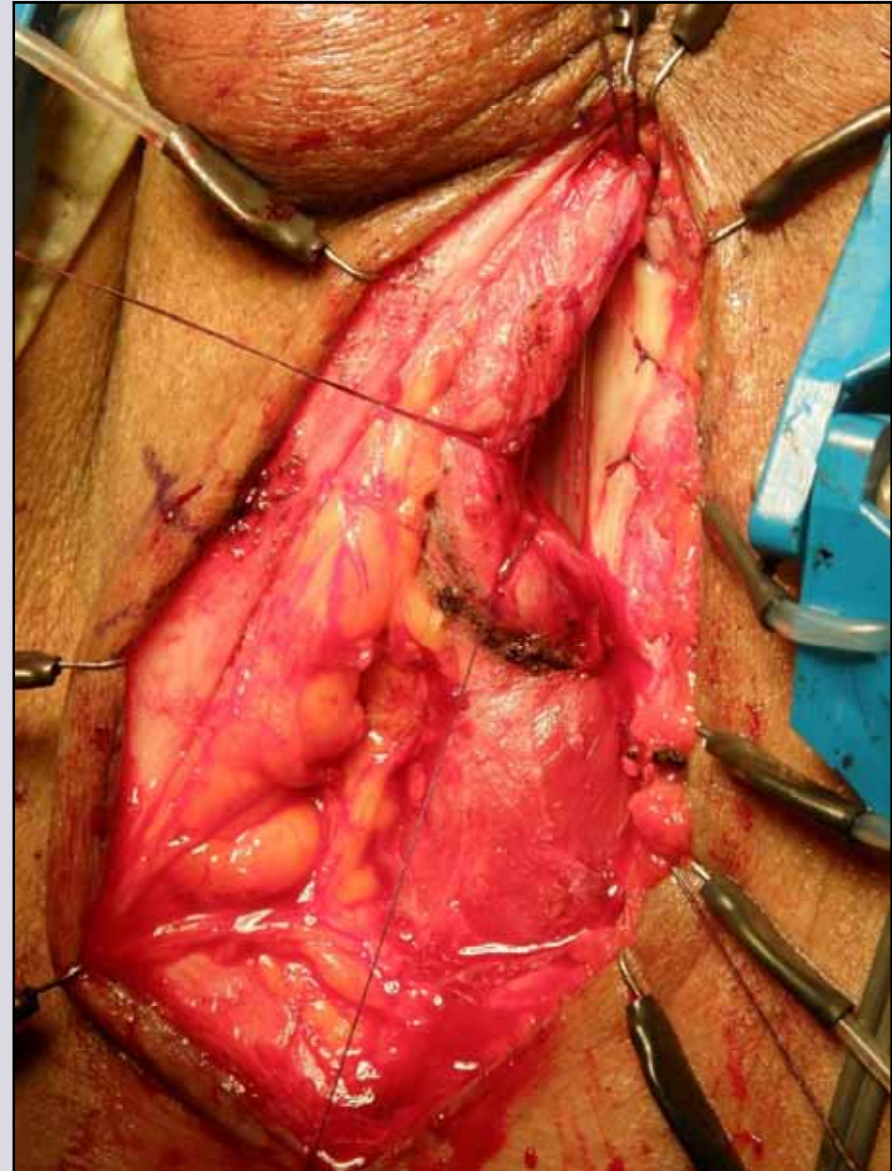
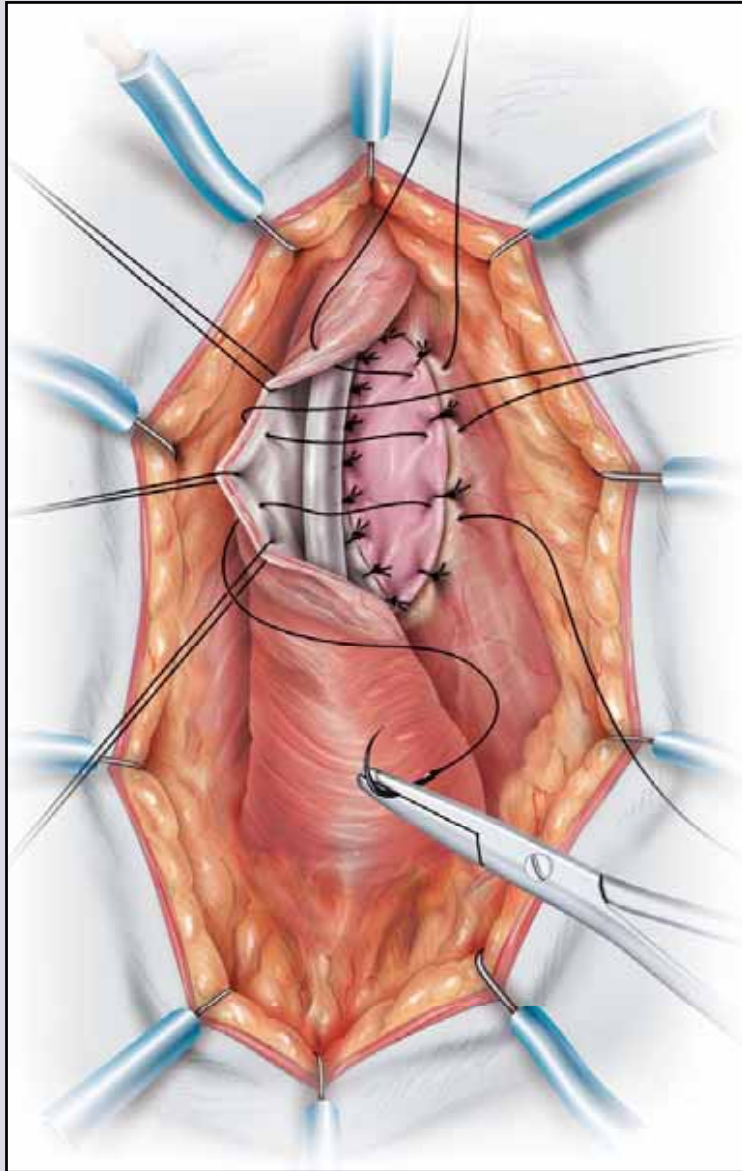
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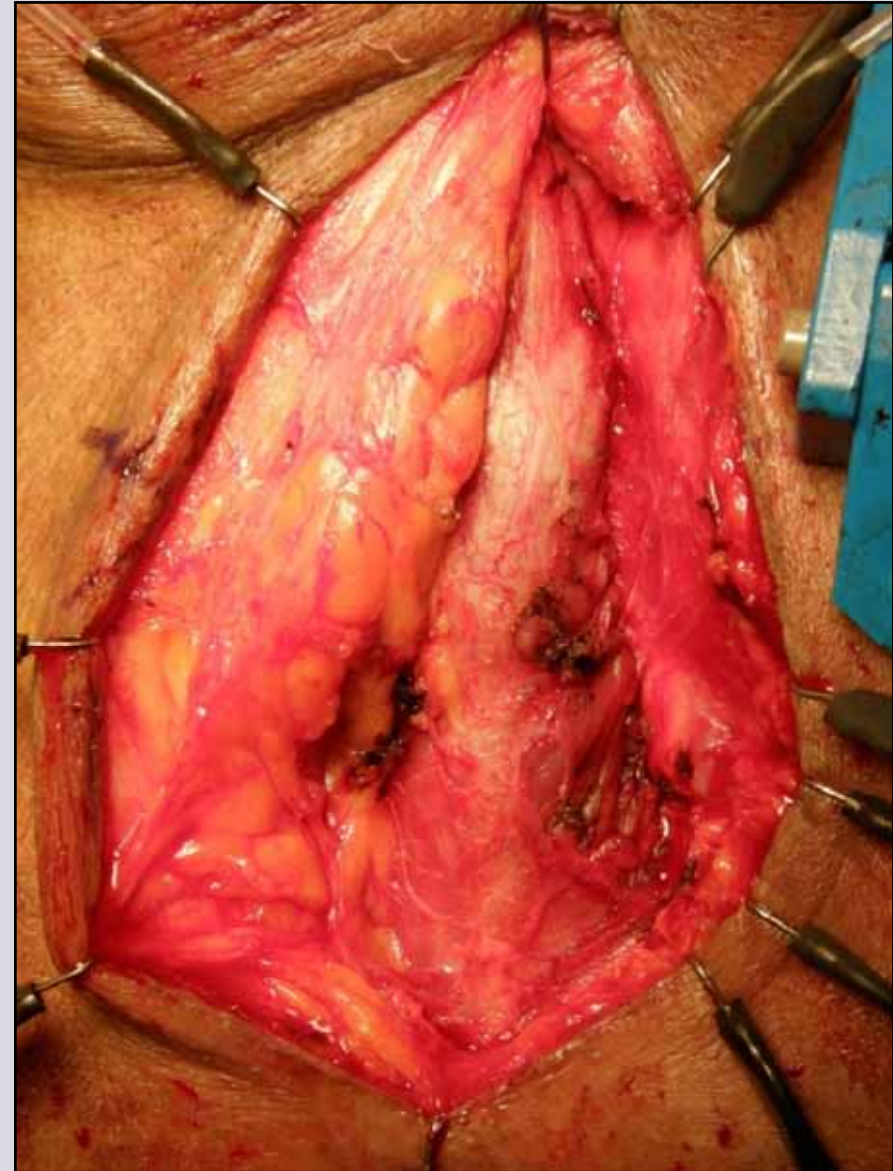
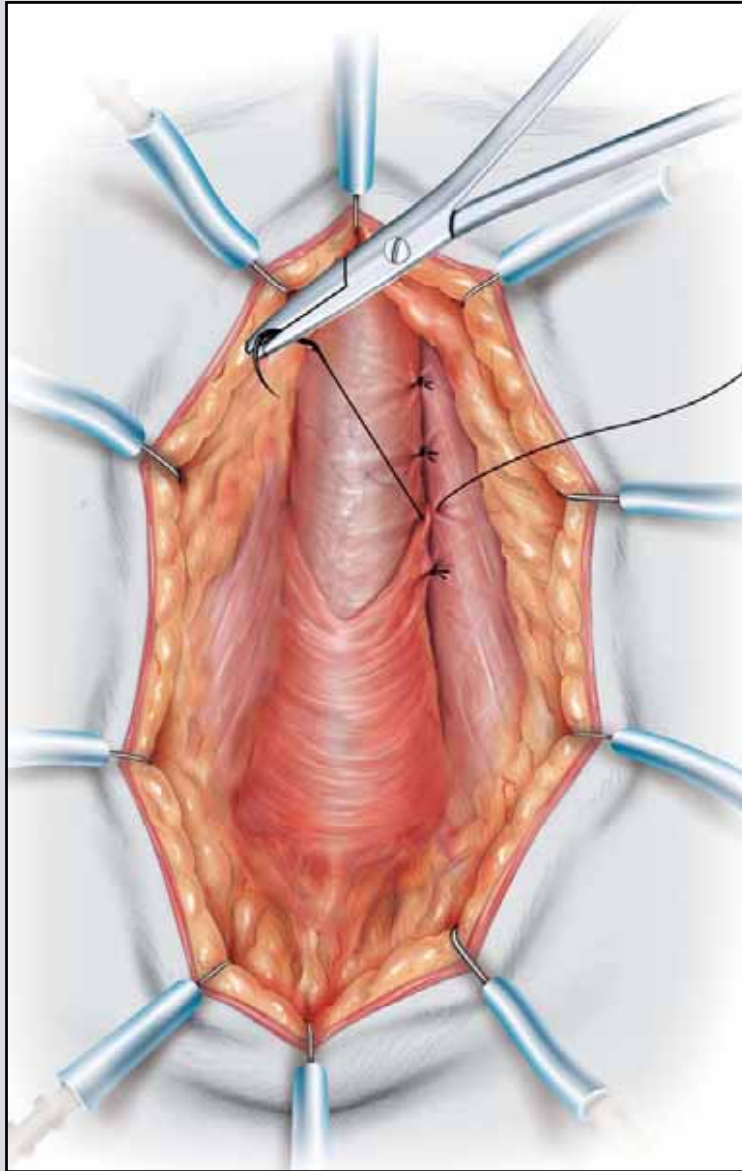
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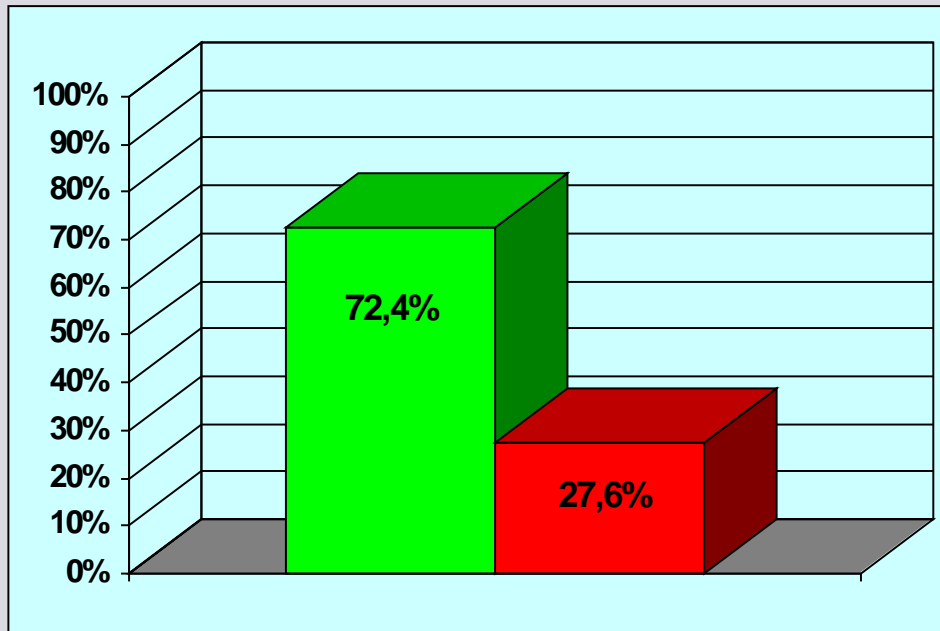
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Oral graft



■ success	21 (72.4%)		
■ failure	8 (27.6%)		
	minimum	maximum	mean
Follow-up (months)	7	158	76
Age (years)	24	77	42

**29
patients**

**Updated
December 31, 2011**

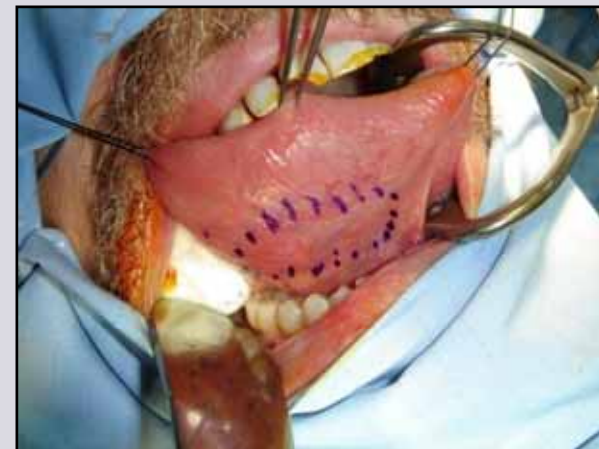
Oral mucosa: harvesting sites



cheek



lip



tongue

NO

Harvesting site from the lip



Negative aesthetic consequences

Unsatisfactory post-operative patient acceptance

Oral mucosa: surgical technique



Two surgical teams work simultaneously



**Appropriate mouth
retractor**



**Only one assistant is needed
to harvest the oral graft**

Advantages of the double team

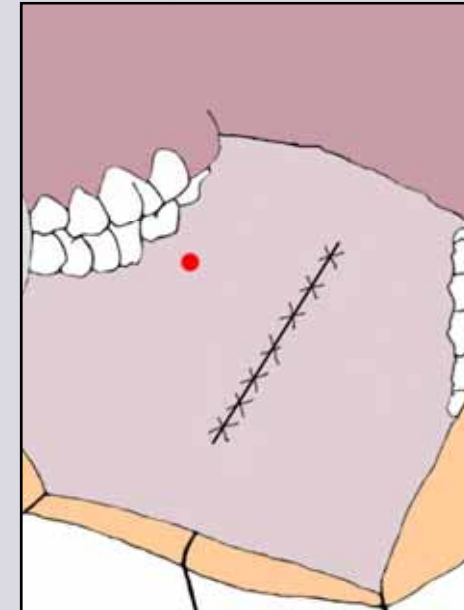
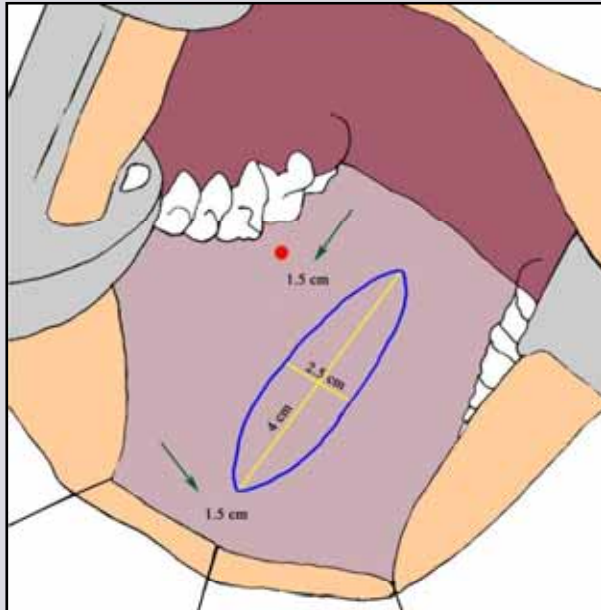
```
graph TD; A[Advantages of the double team] --> B[decrease of surgical time to ~ one hour]; A --> C[decrease of contamination in surgery]; A --> D[provides training opportunity for a young assistant interested in learning urethral surgery];
```

**decrease of
surgical time
to ~ one hour**

**decrease of
contamination in
surgery**

**provides training
opportunity for a young
assistant interested in
learning urethral surgery**

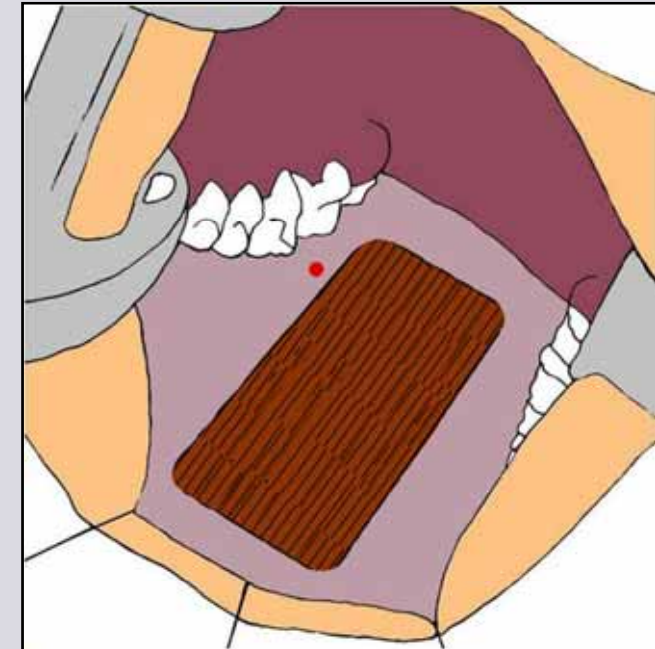
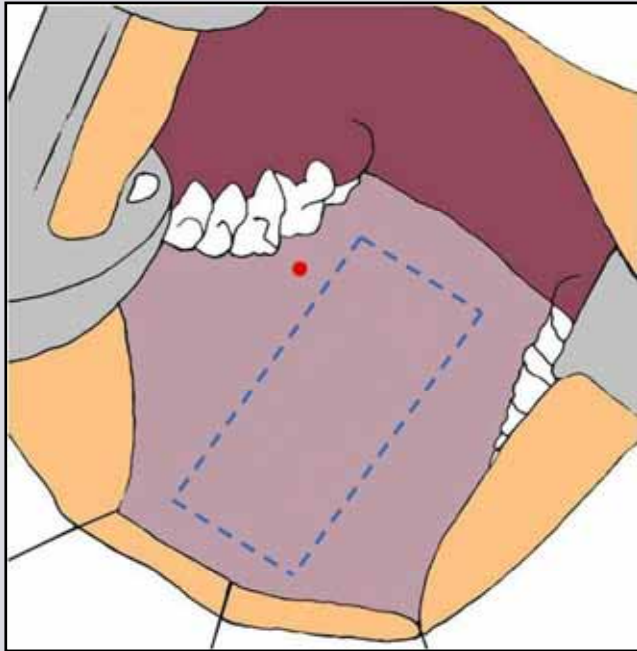
Oral mucosa: surgical technique



closure

One-stage techniques: ovoidal graft shape

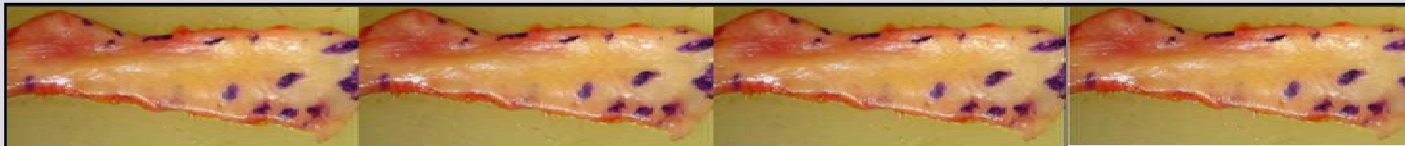
Oral mucosa: surgical technique



Staged techniques: rectangular graft shape

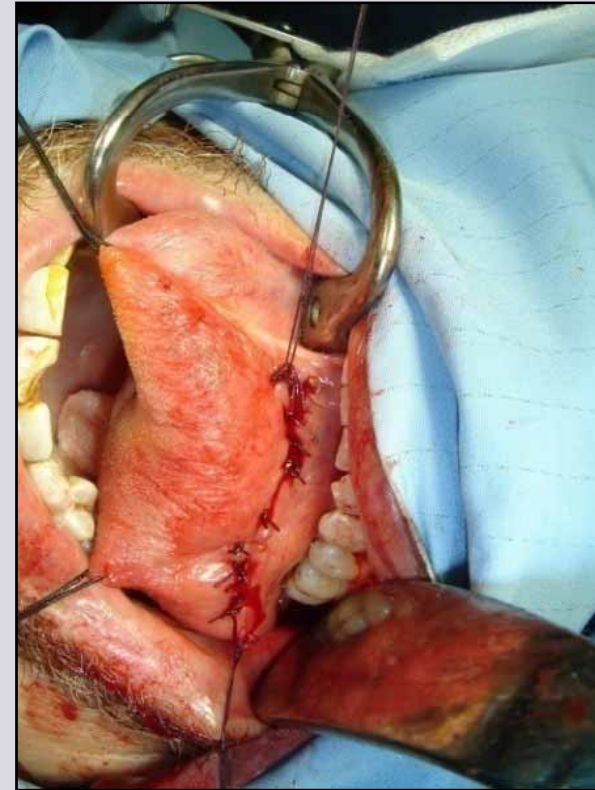
Oral mucosal grafts

right cheek	5 x 2.5 cm
left cheek	5 x 2.5 cm
tongue	4 x 2.5 cm
	4 x 2.5 cm



18 cm x 2.5 cm

Harvesting site



Oral mucosa → **concealed**

Harvesting site



Skin → **visible to the naked eye**

aesthetic consequences → **psychological sequelae**

Oral mucosa: biological characteristics

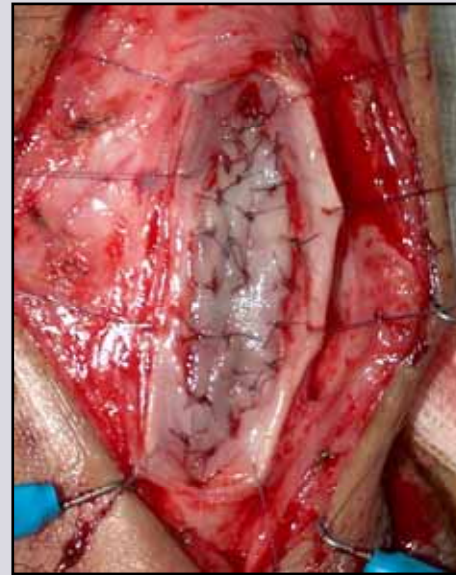
Easy to adapt for any type of urethroplasty



One-stage



Two-stage



Inlay



Onlay



Conclusions

In the era of robotic surgery, it is also time to change urethral surgery!

- ❖ **Increase the use of minimally invasive techniques in urethroplasty, reducing the incidence of complications and improving patient quality of life.**
- ❖ **Increase the use of appropriate questionnaires to better evaluate the outcome of urethroplasty.**



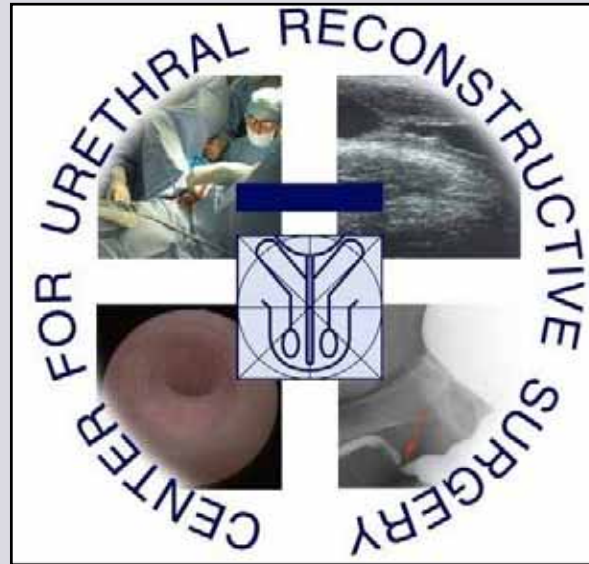
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Next month, this lecture will be fully available on our website

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