

# CENTER FOR RECONSTRUCTIVE URETHRAL SURGERY



**GUIDO BARBAGLI, M.D.**  
**Arezzo - Italy**

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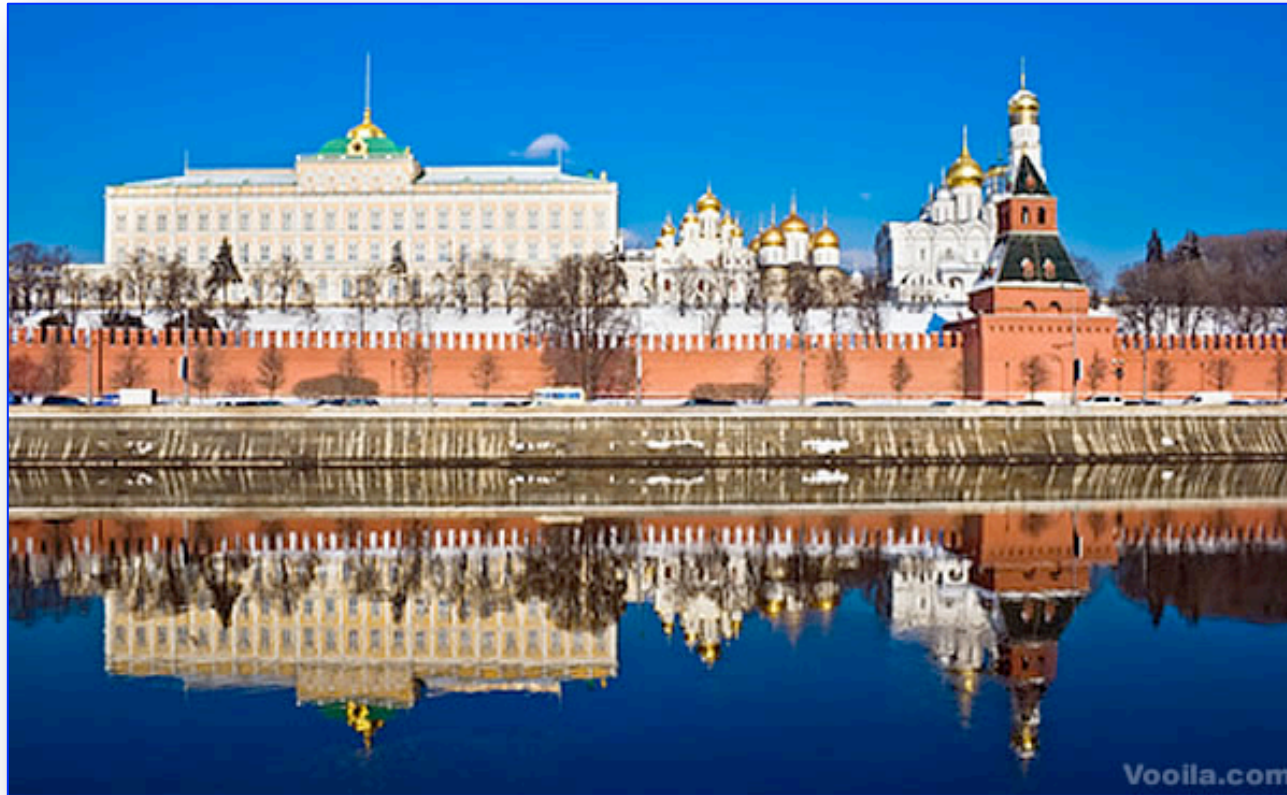
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***ADVANCED EDUCATIONAL COURSE ON:  
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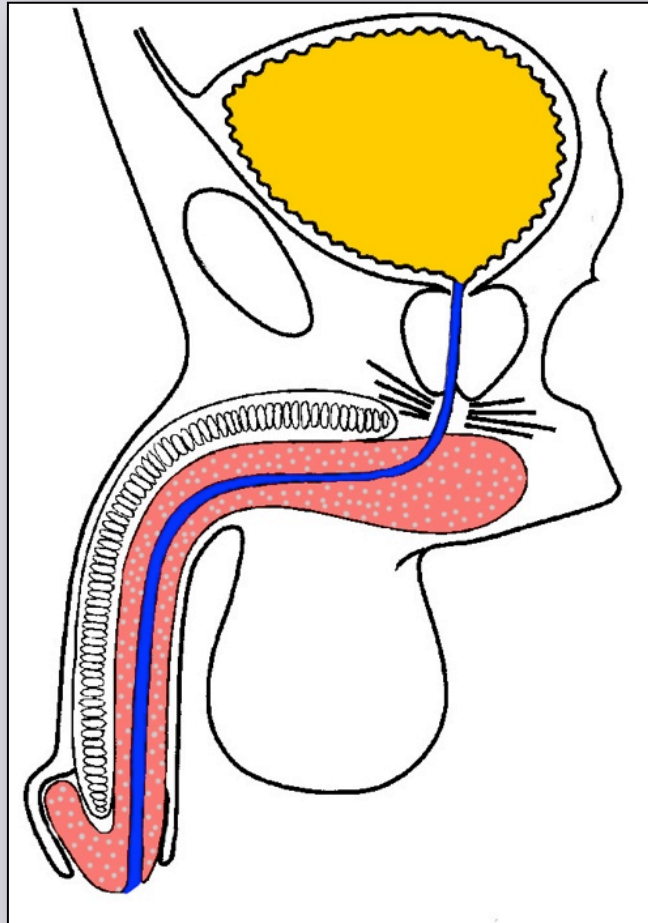


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**June 18 – 19, 2015**

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# Anatomy of male urethra and surgical approaches: concepts and concerns

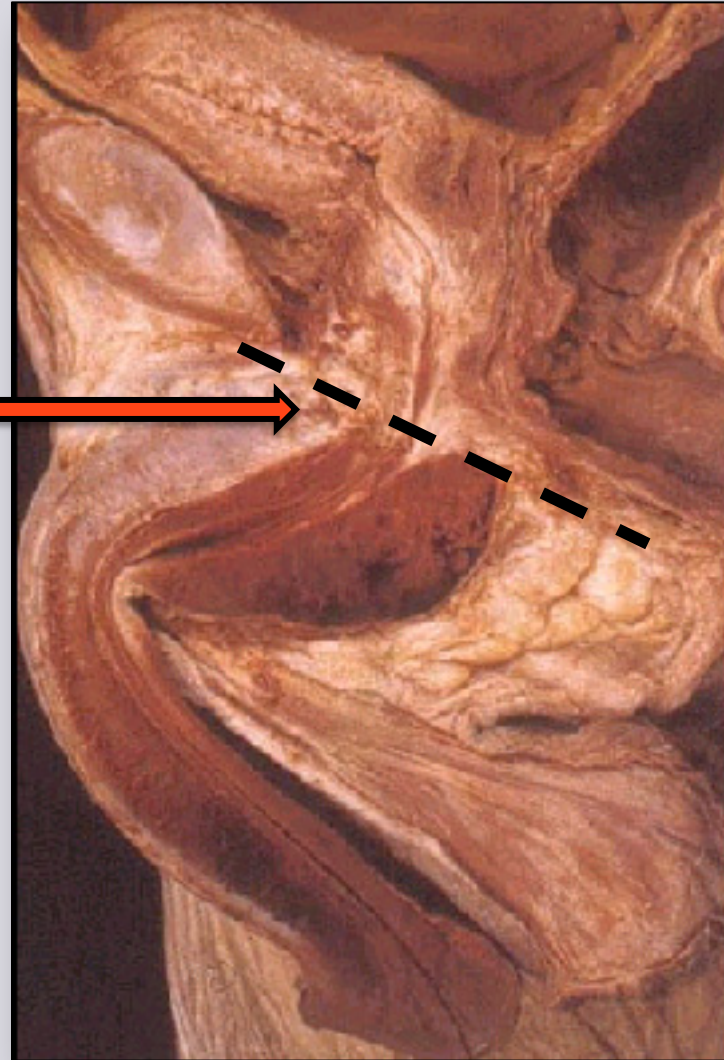




# Male urethra

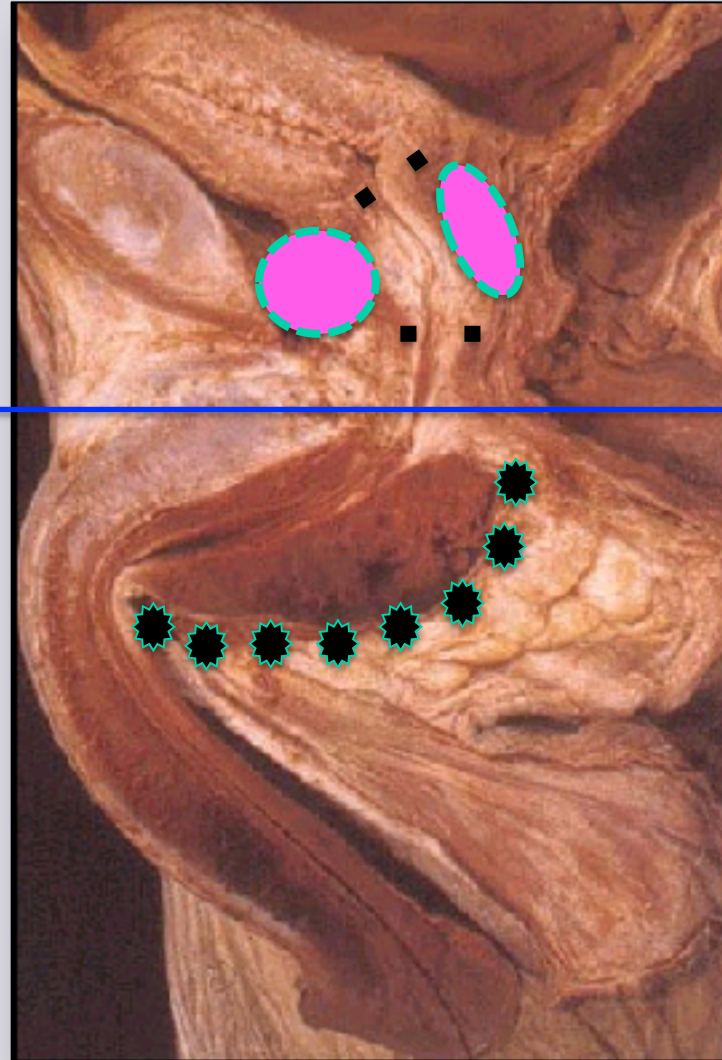
Posterior urethra

Anterior urethra



# Male urethra

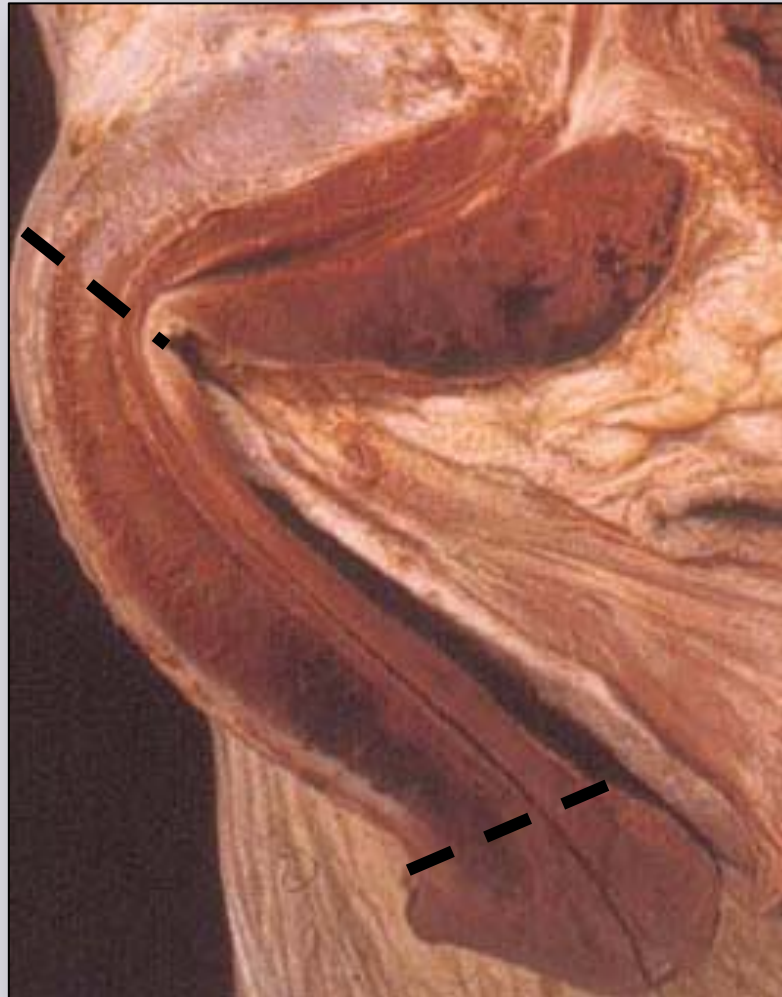
**Posterior:** functional urethra,  
for urinary continence and erectile  
function.



**Anterior:** non-functional urethra,  
excluding the activity of  
bulbo-spongiosum muscles.



# Anterior urethra



**Penile  
urethra**

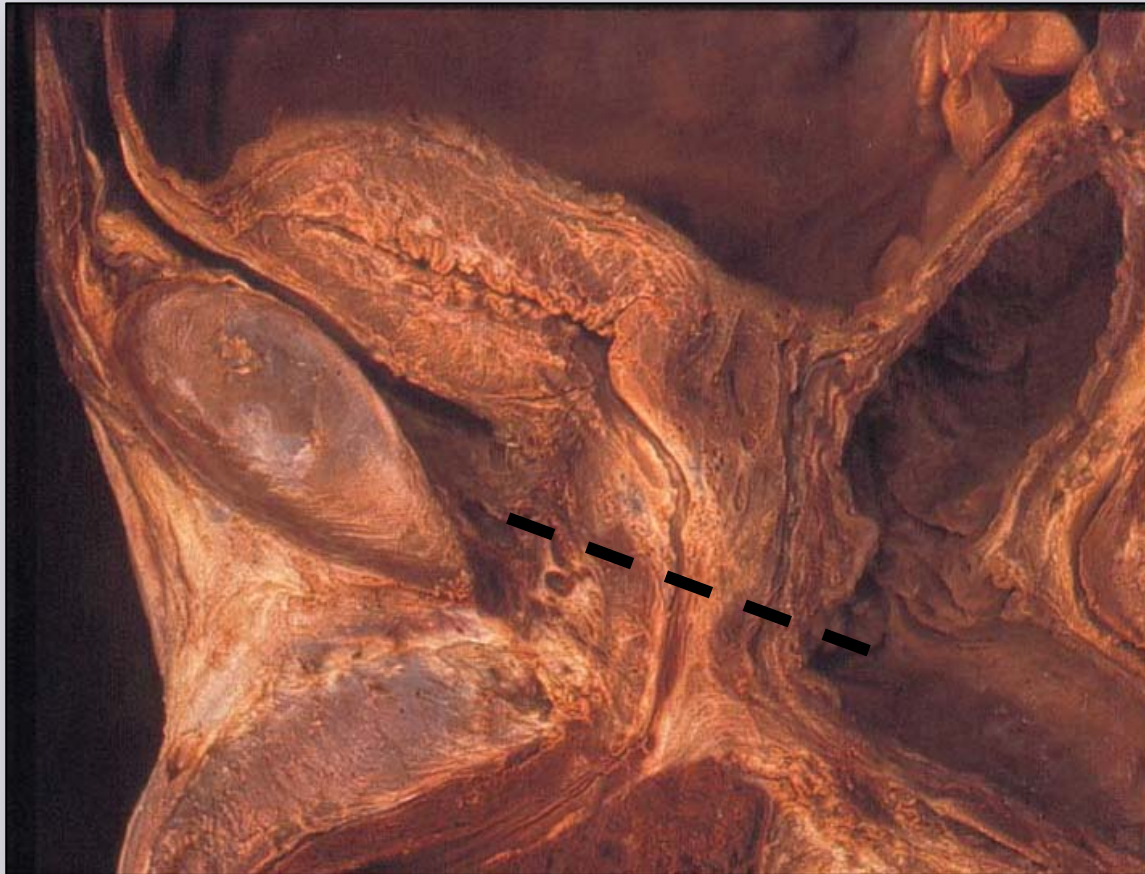
**Bulbar urethra**

**Navicularis  
urethra**

# Posterior urethra

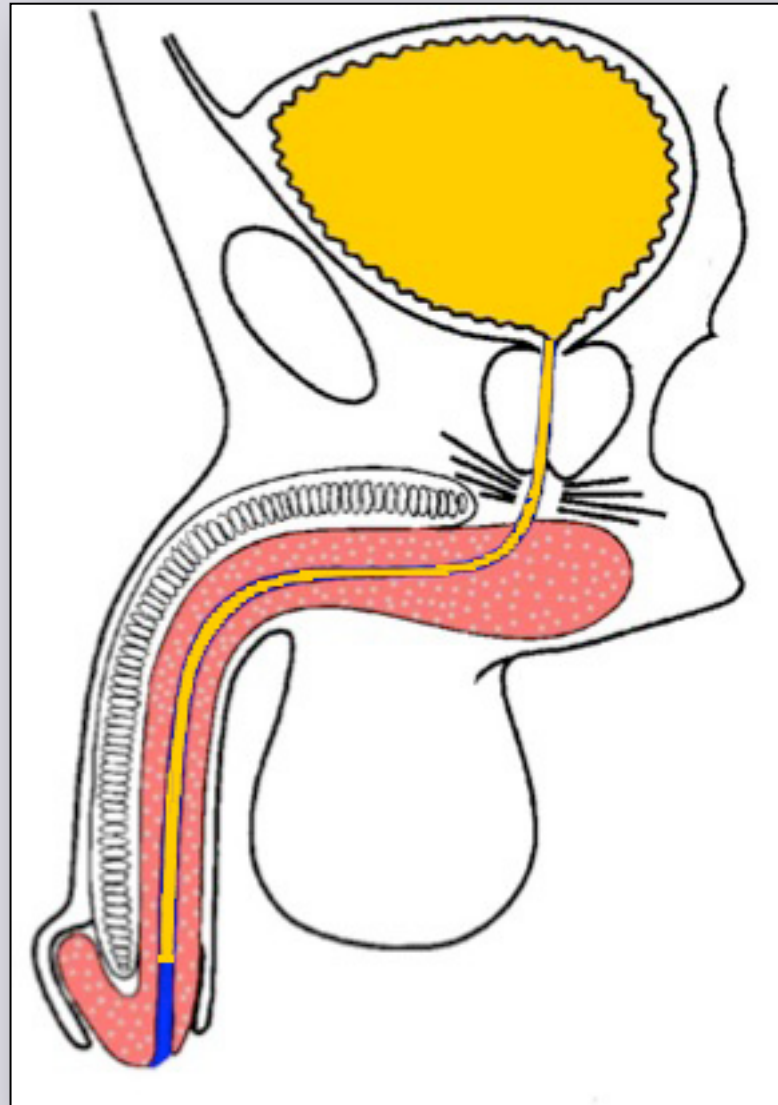
**Prostatic  
urethra**

**Membranous  
urethra**



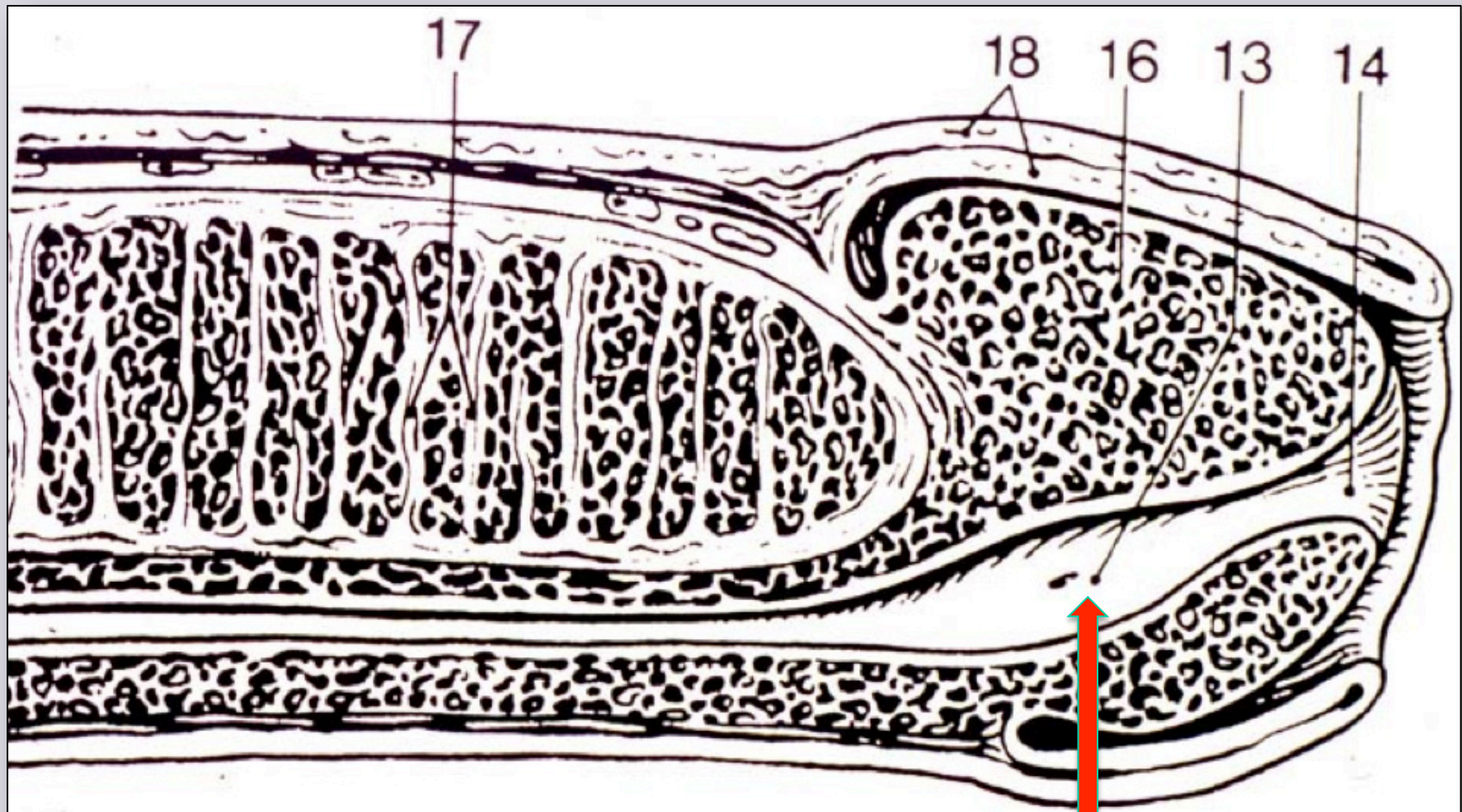


# Navicularis urethra



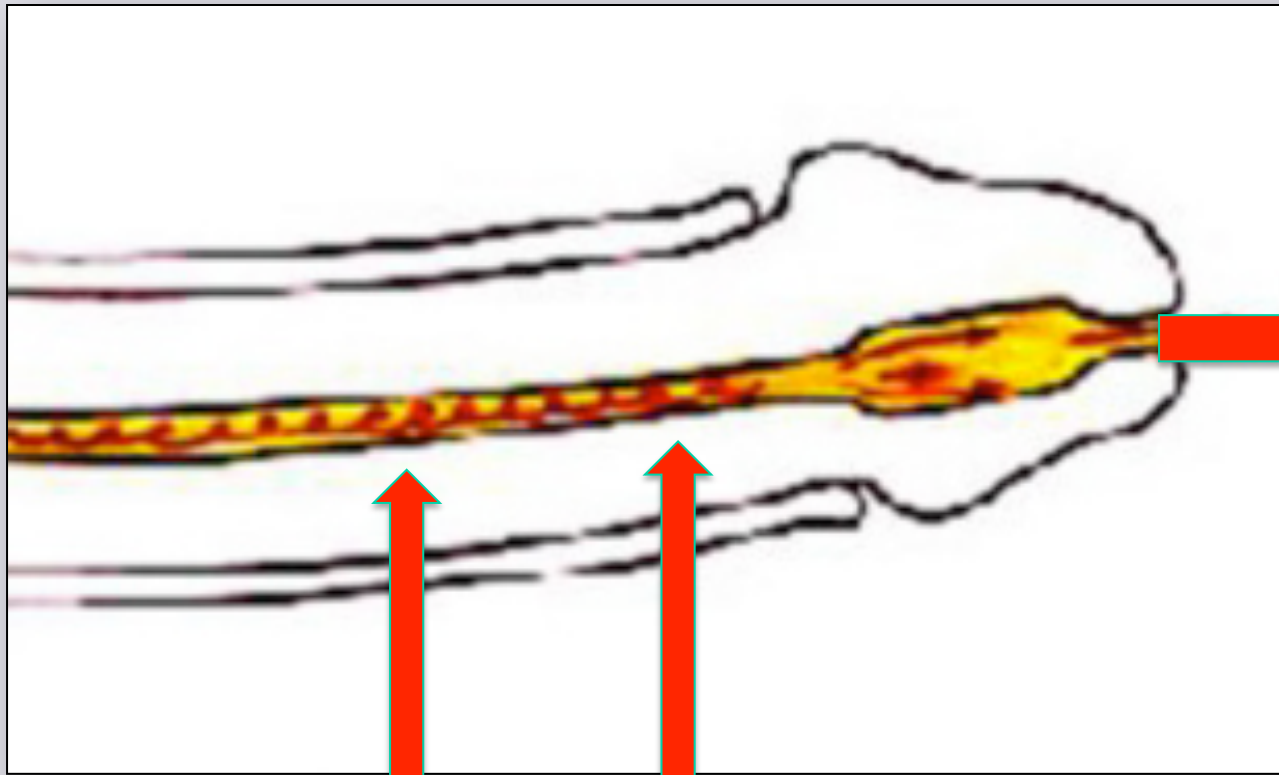
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**Fossa navicularis**





**Laminar and  
unidirectional  
flow**

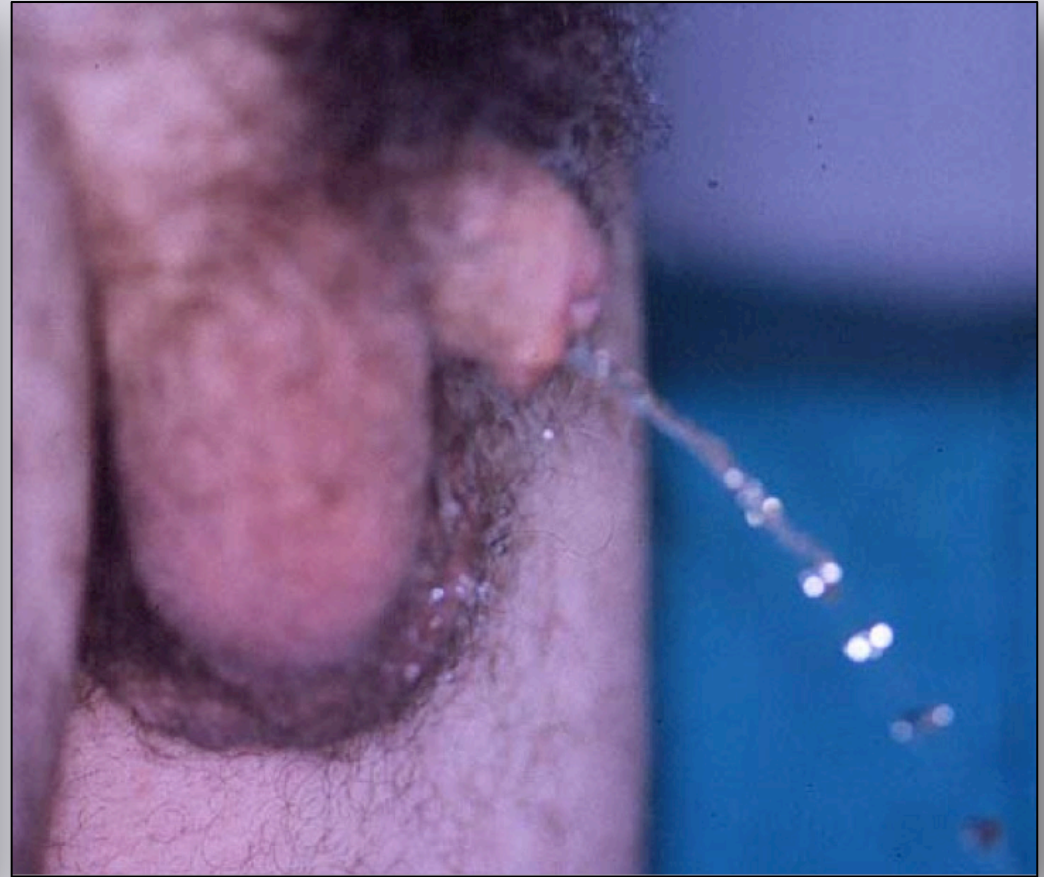
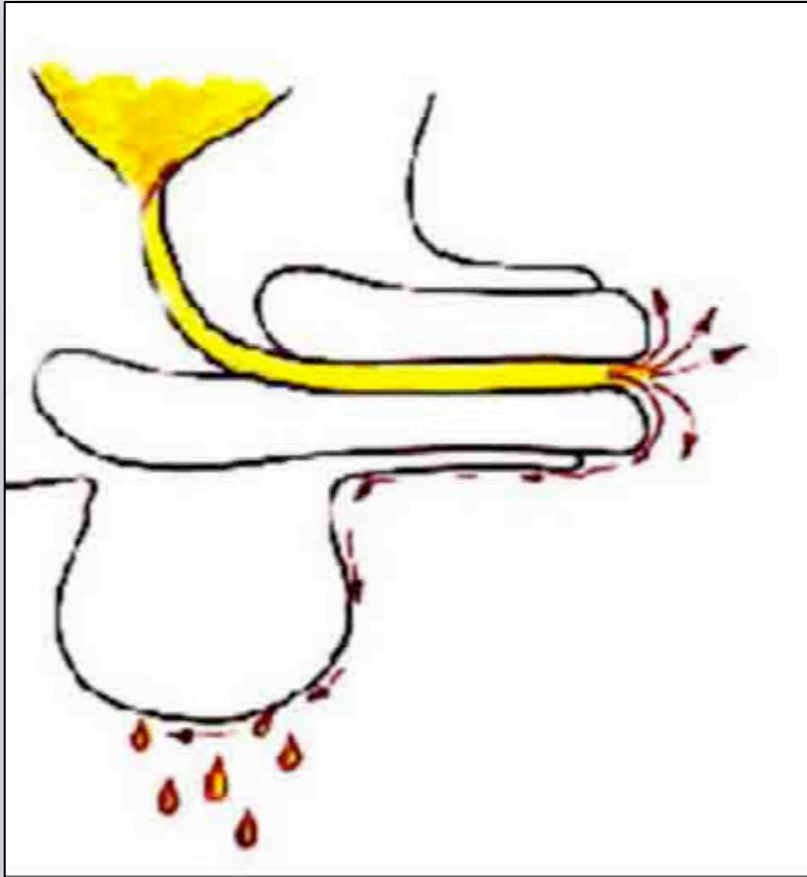
**Turbulent flow**



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**Wet scrotum**

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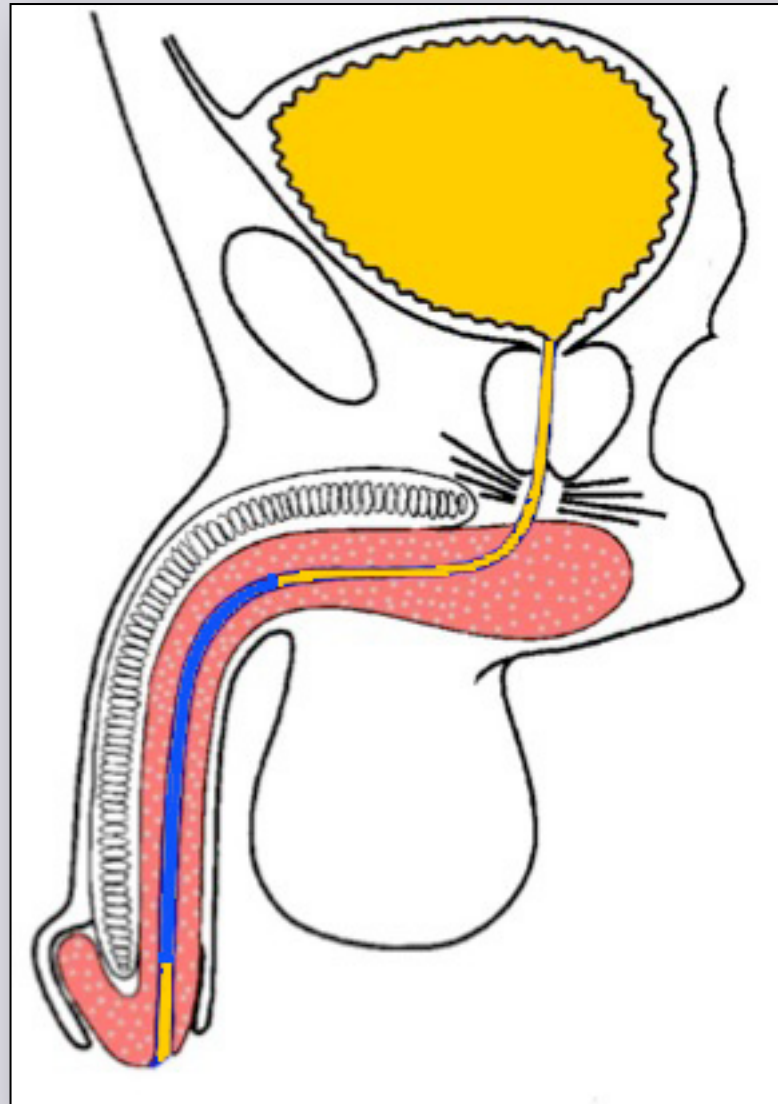
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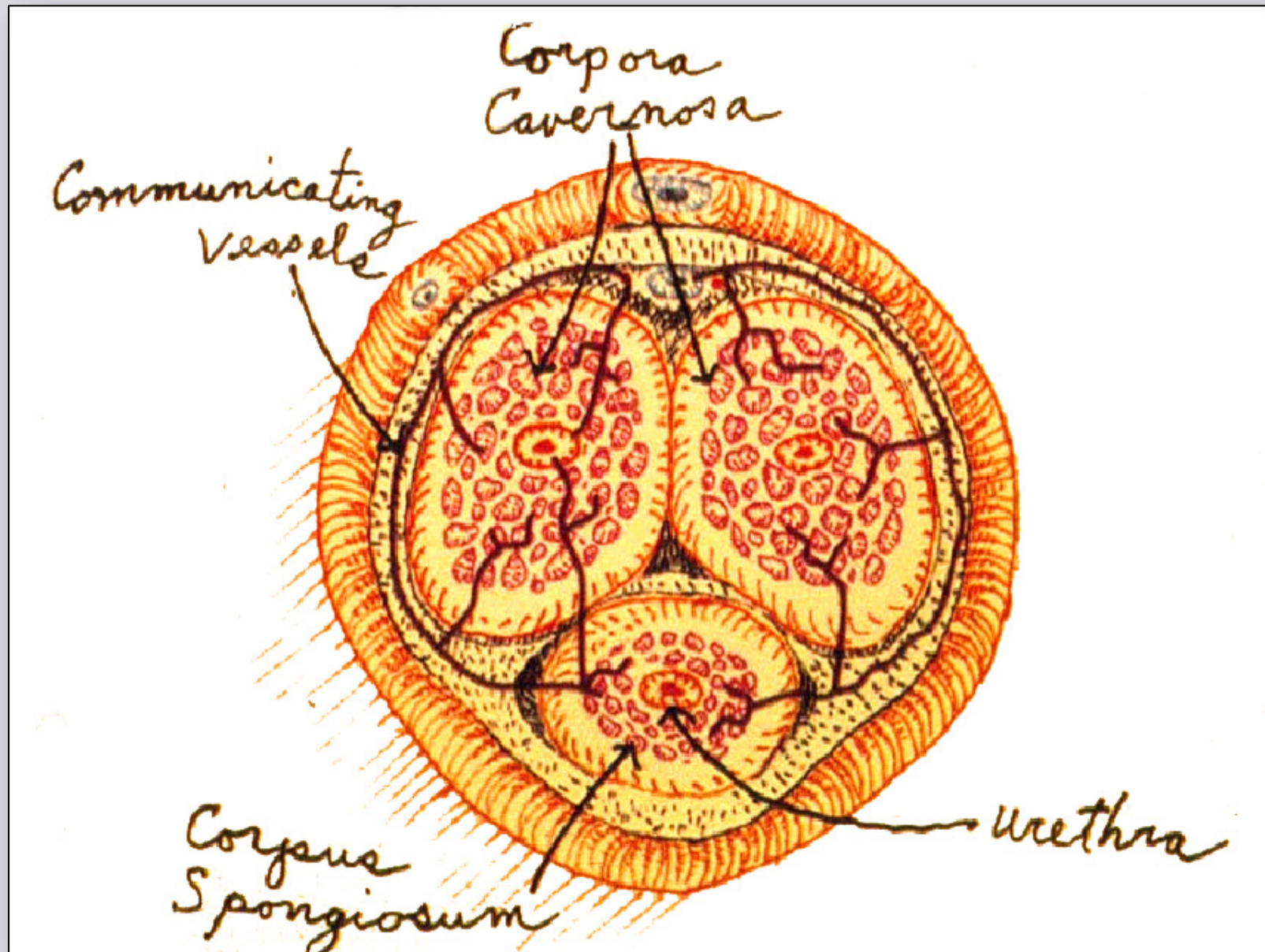
# Penile urethra



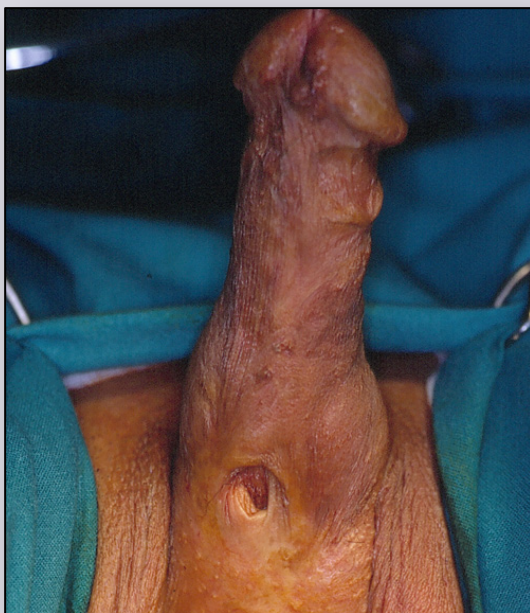
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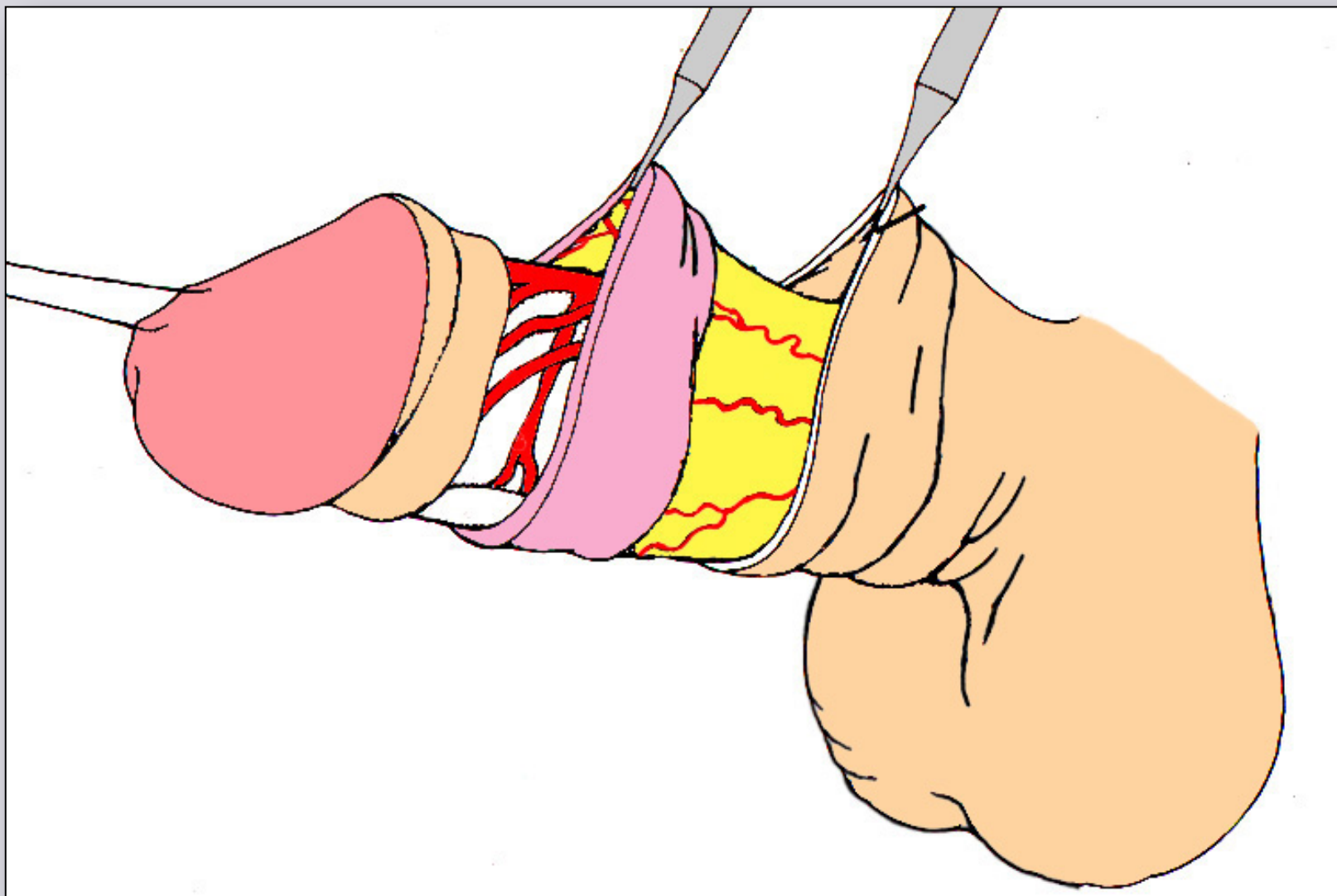




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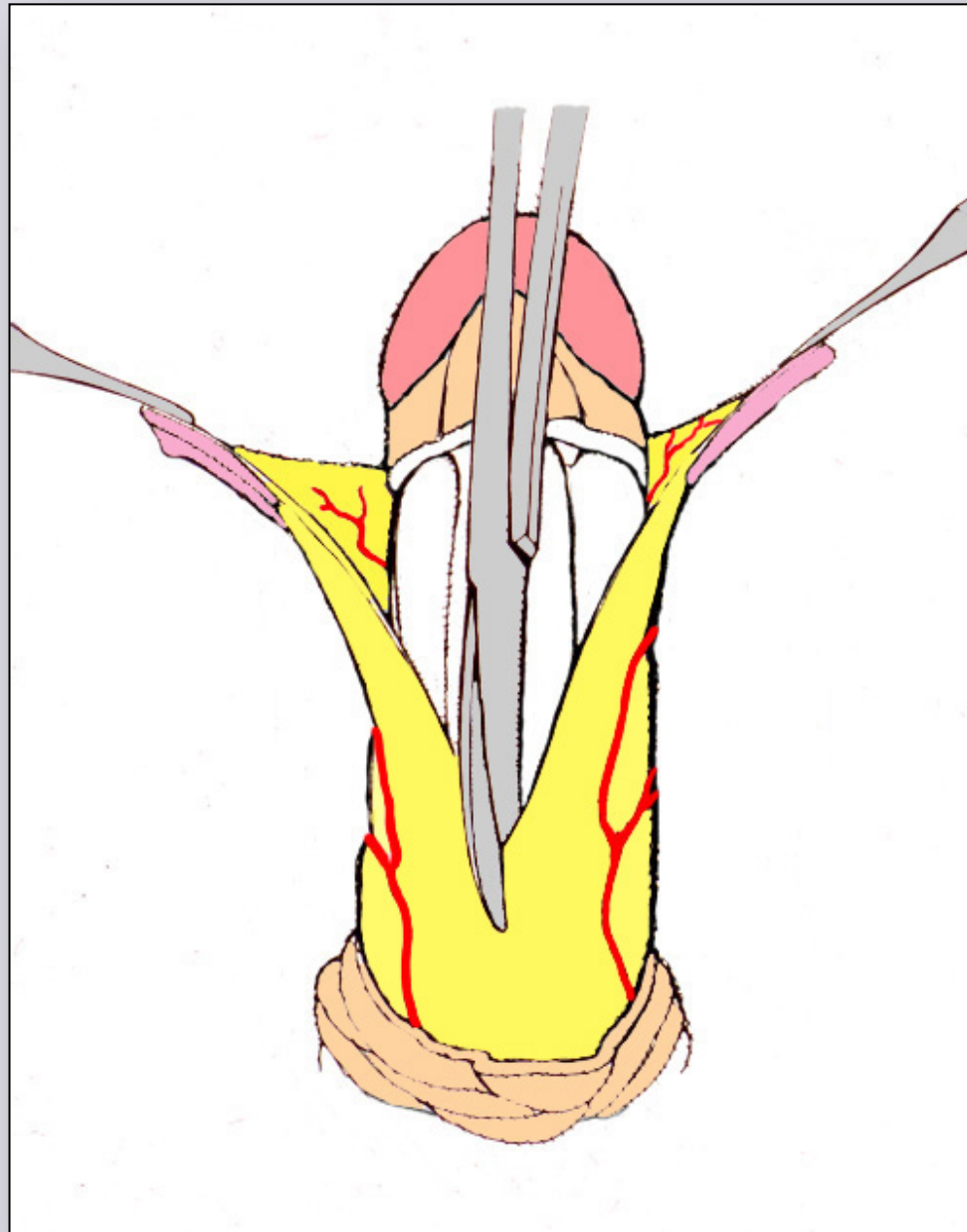
# McAninch's penile skin flap



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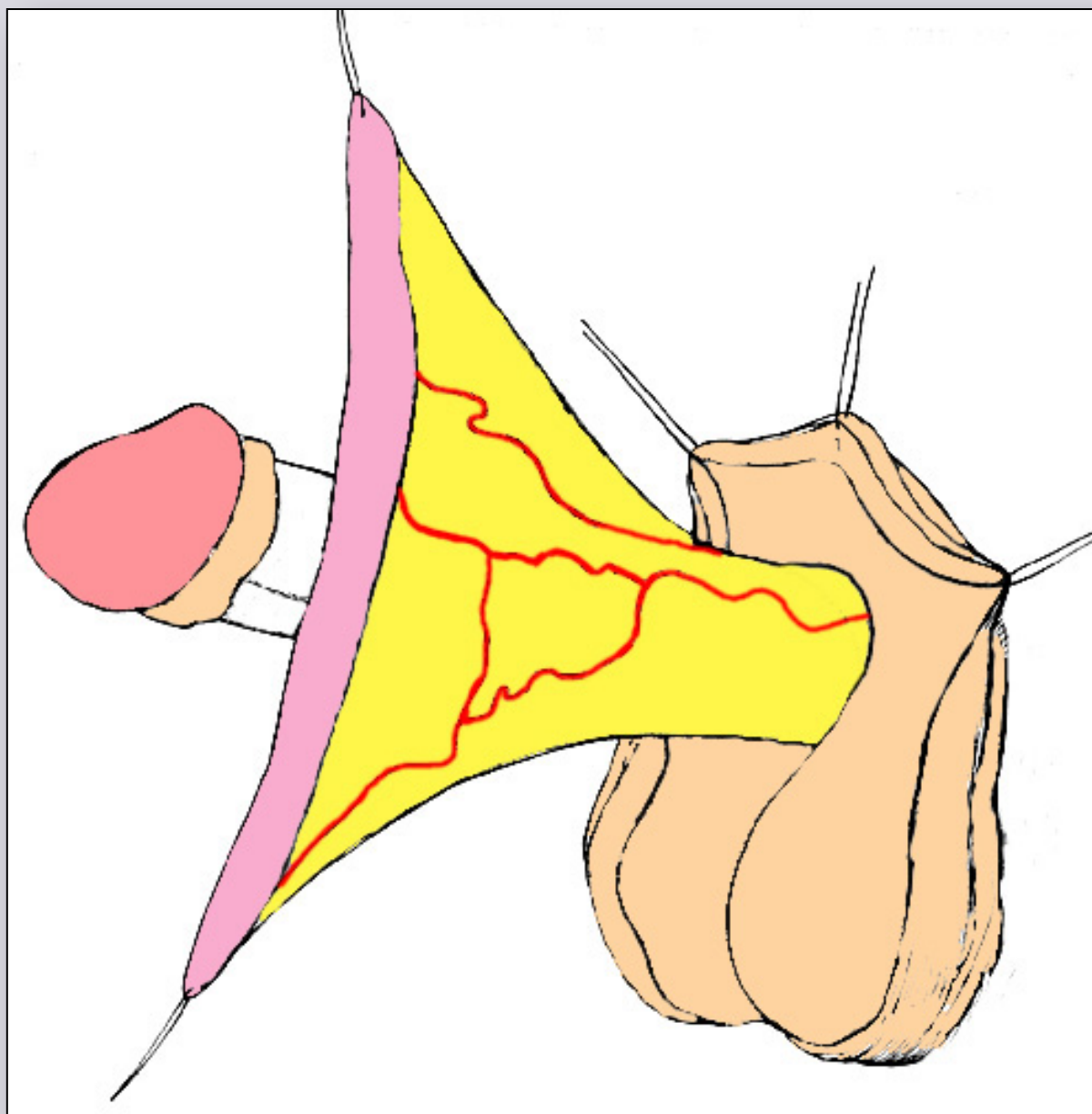
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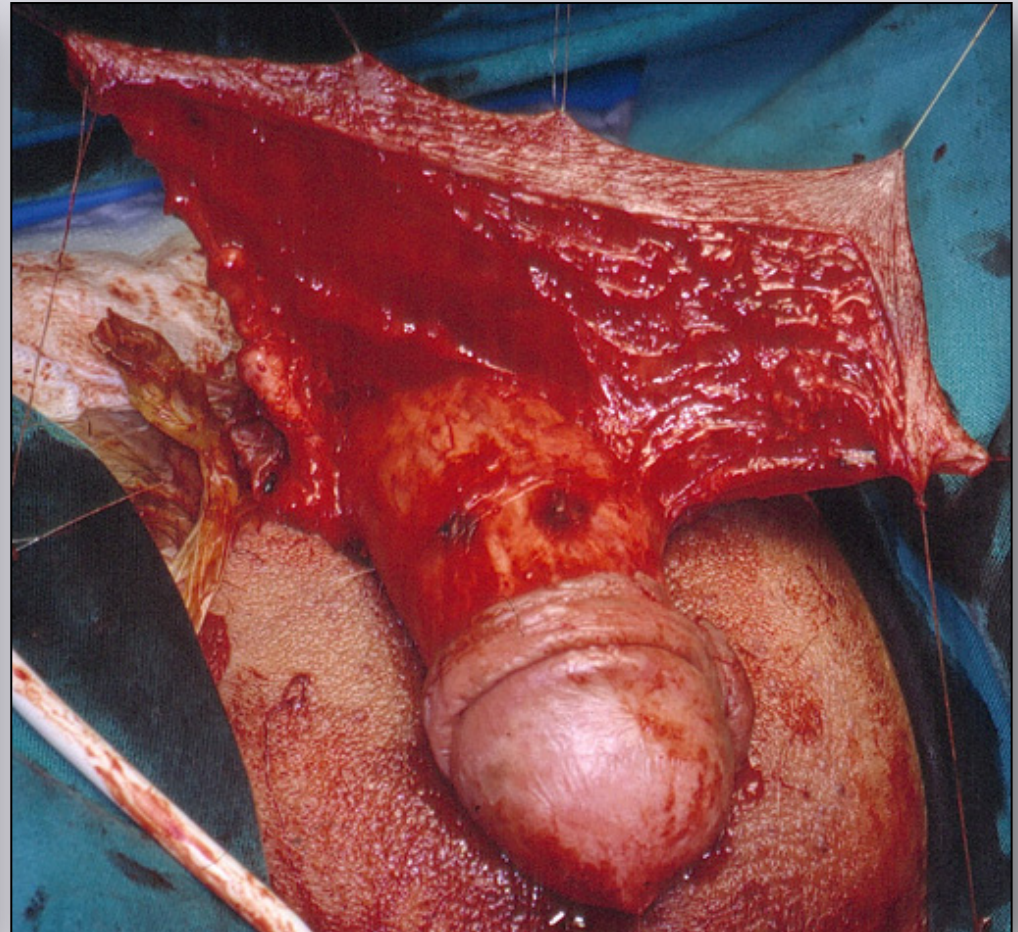
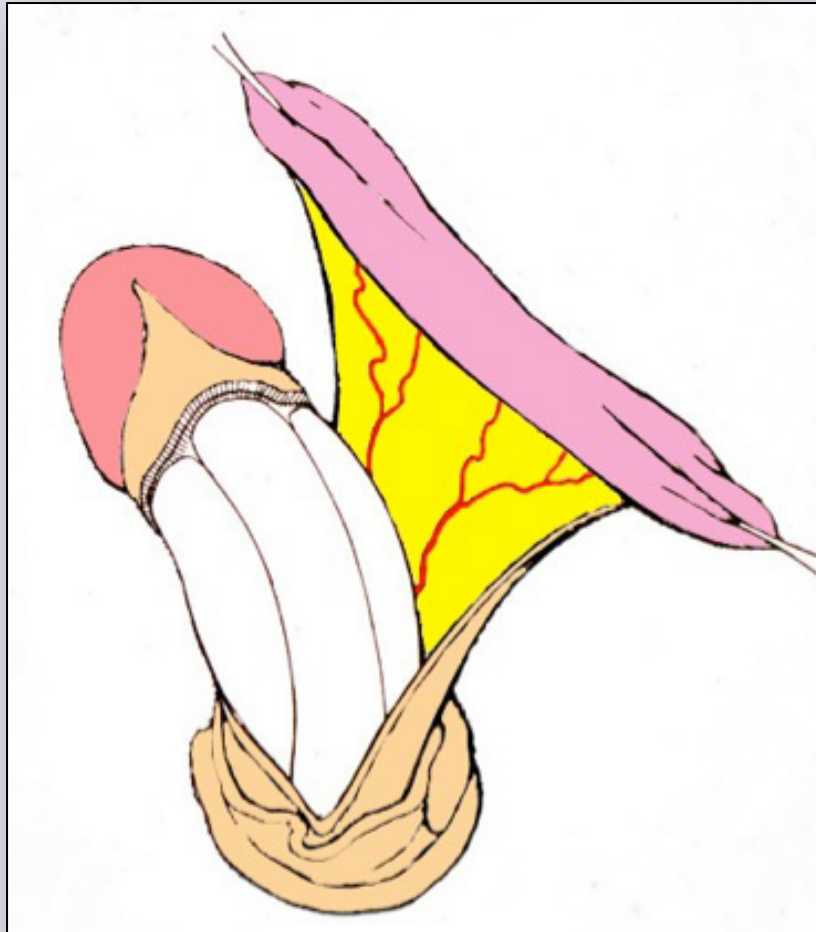
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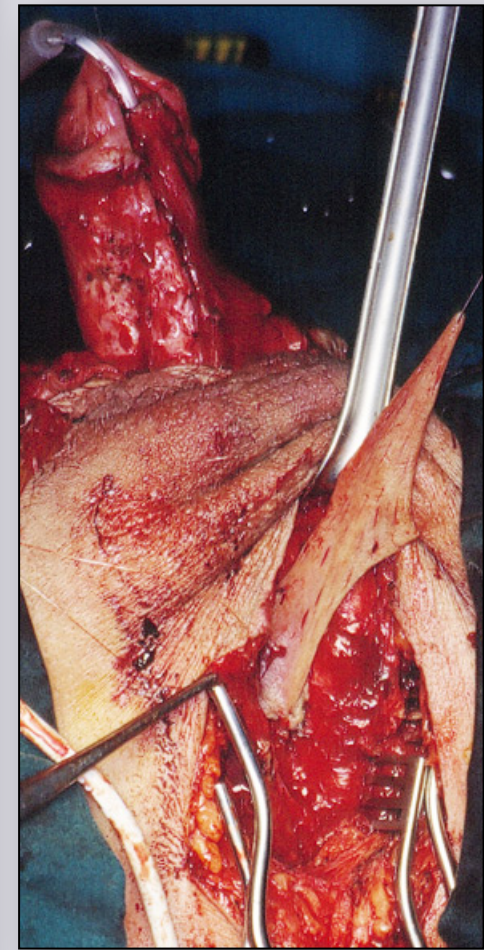
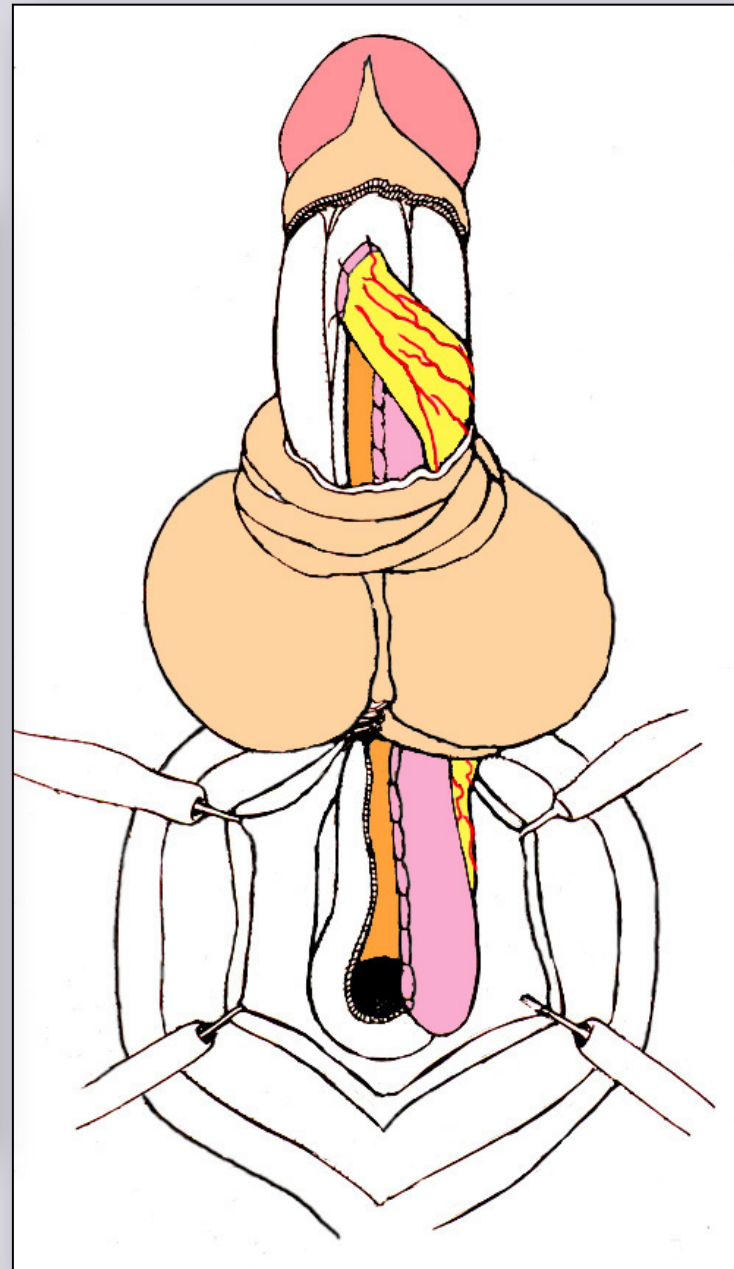
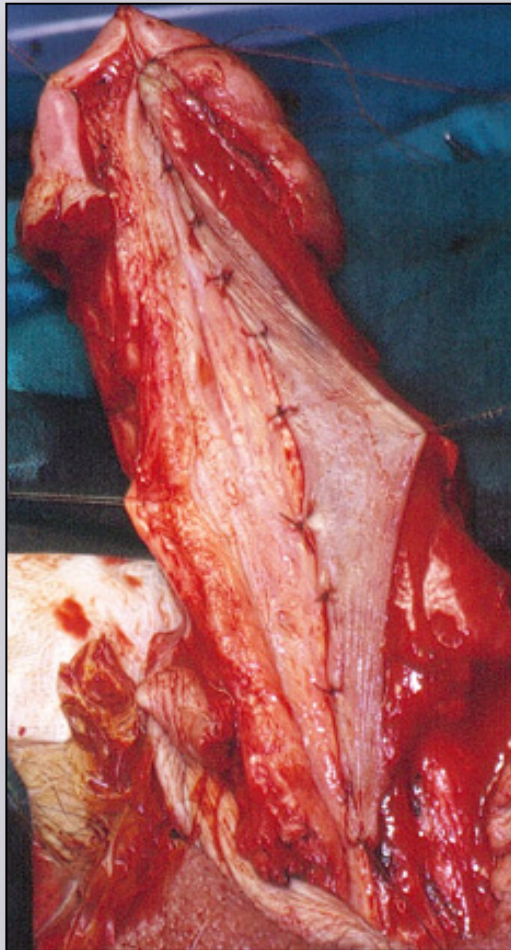
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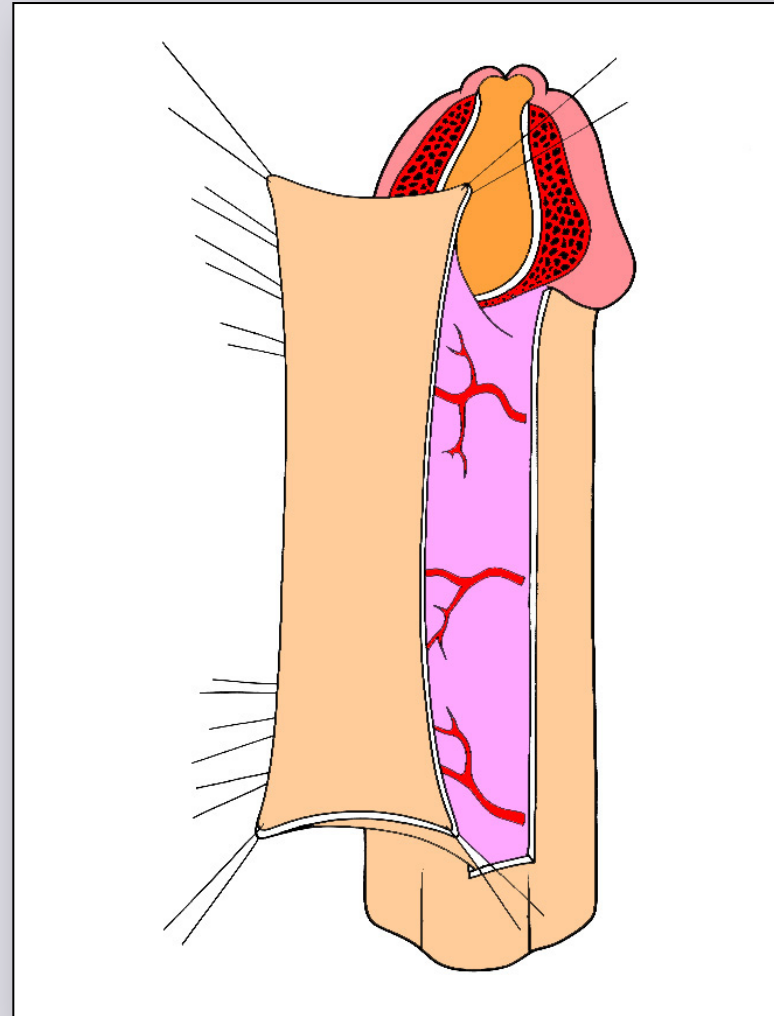
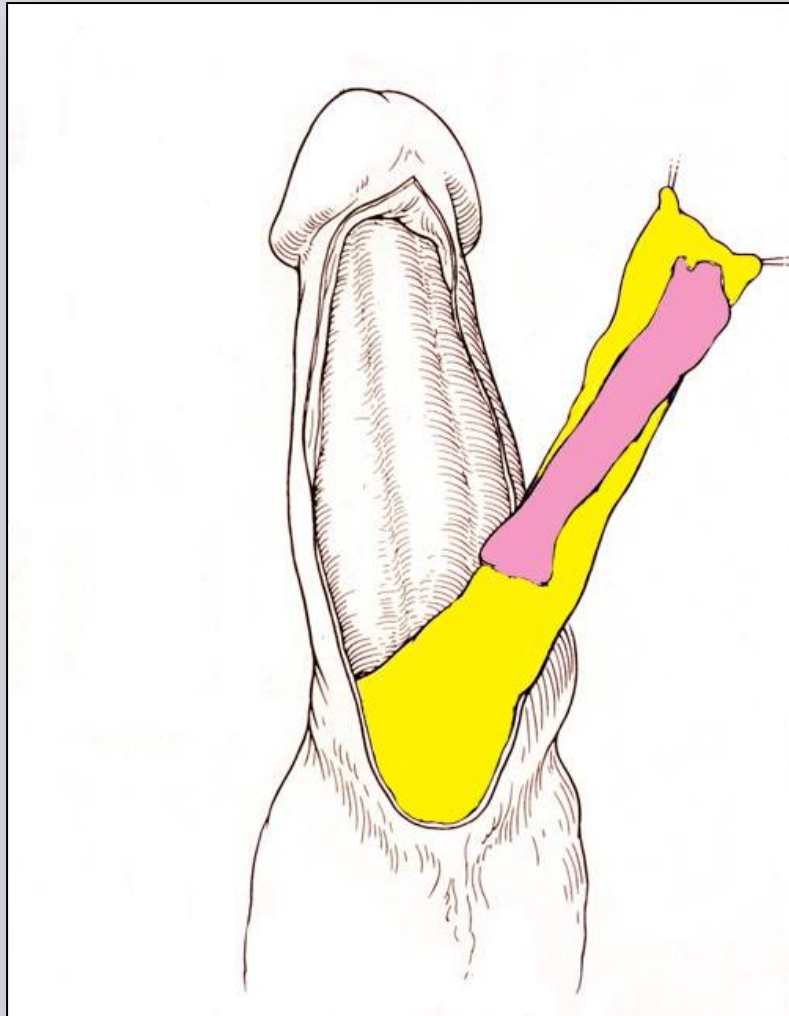


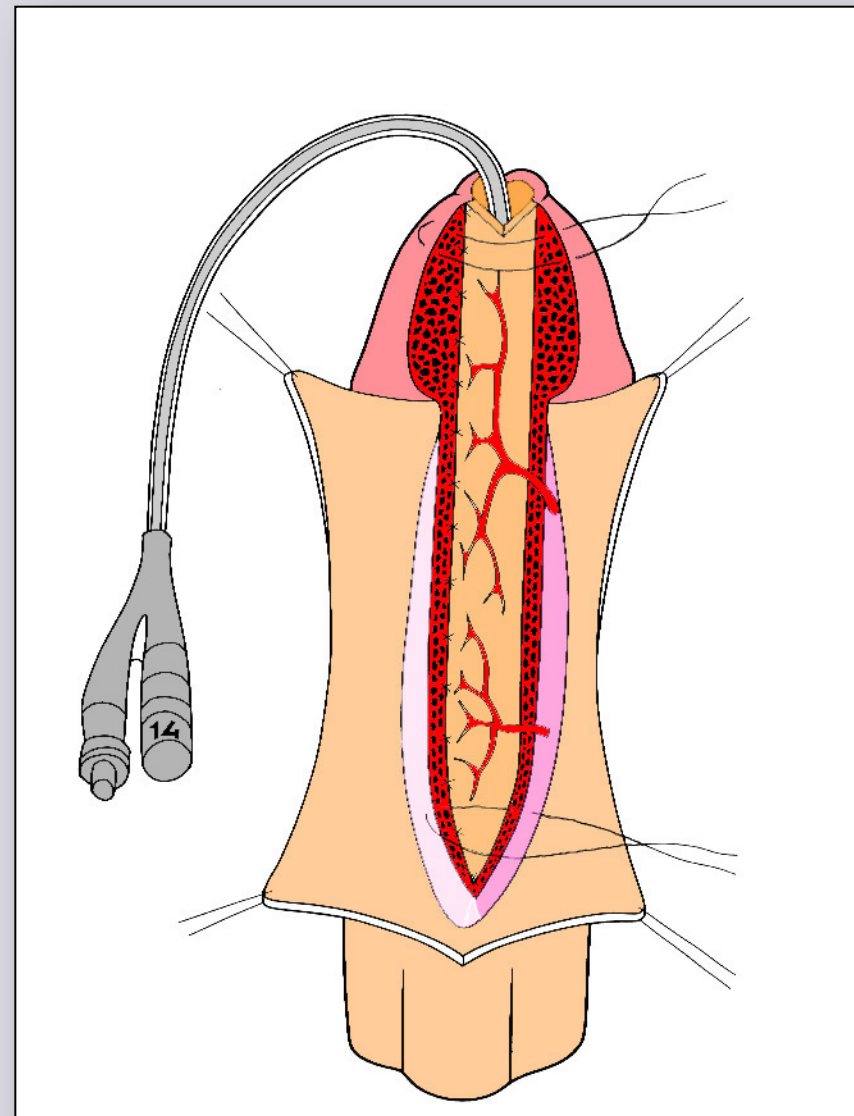
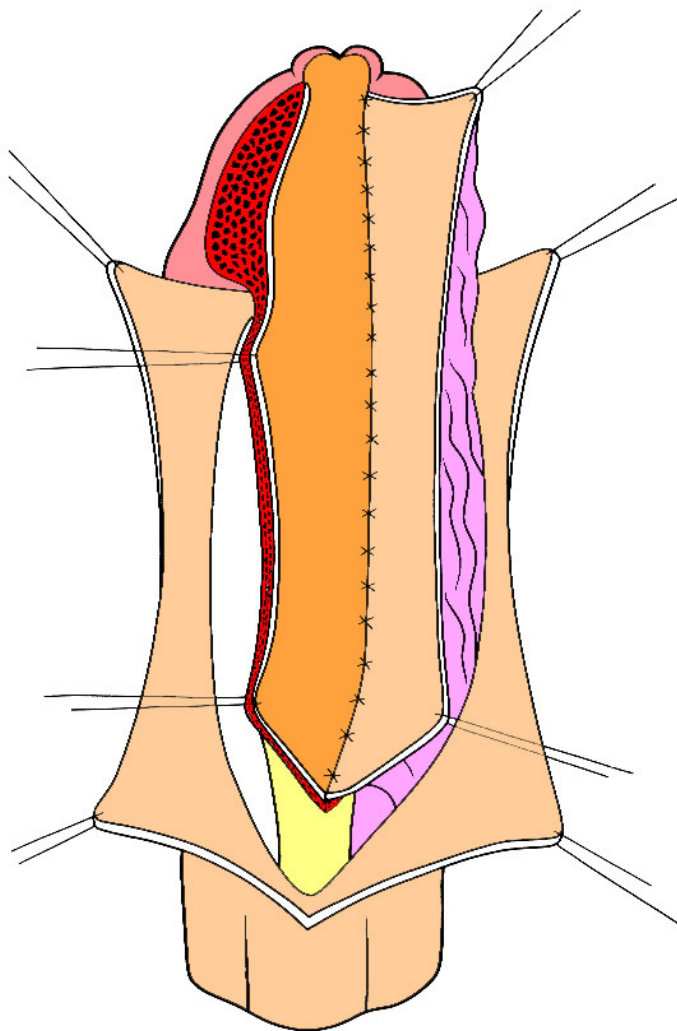


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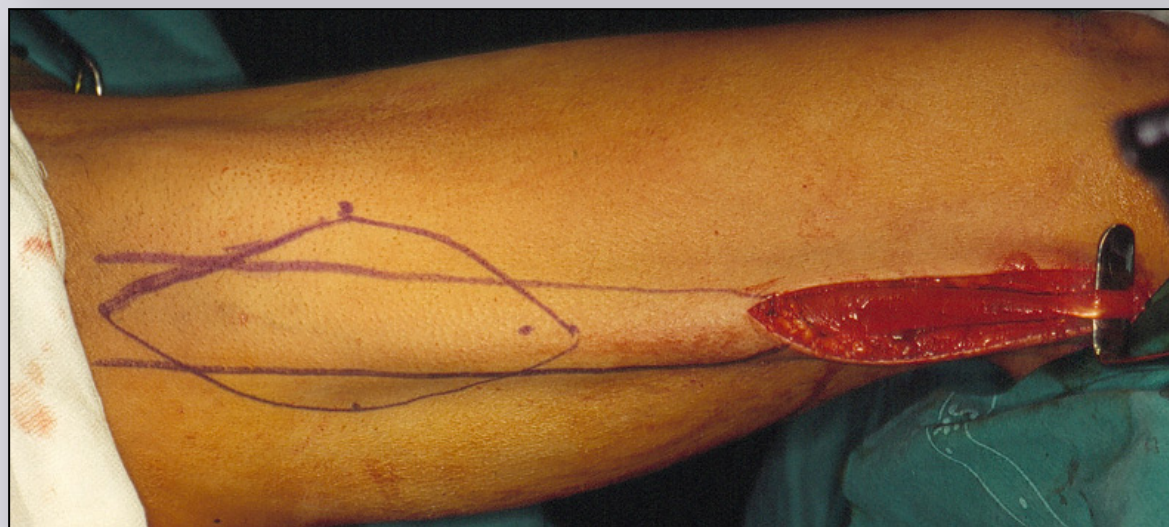
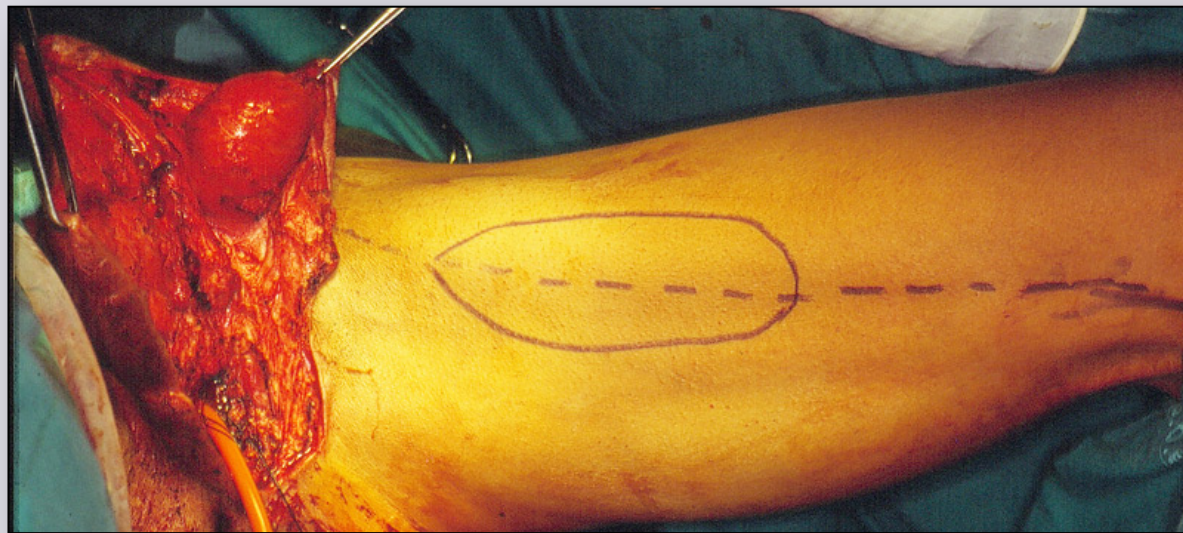
# Jordan's penile skin flap



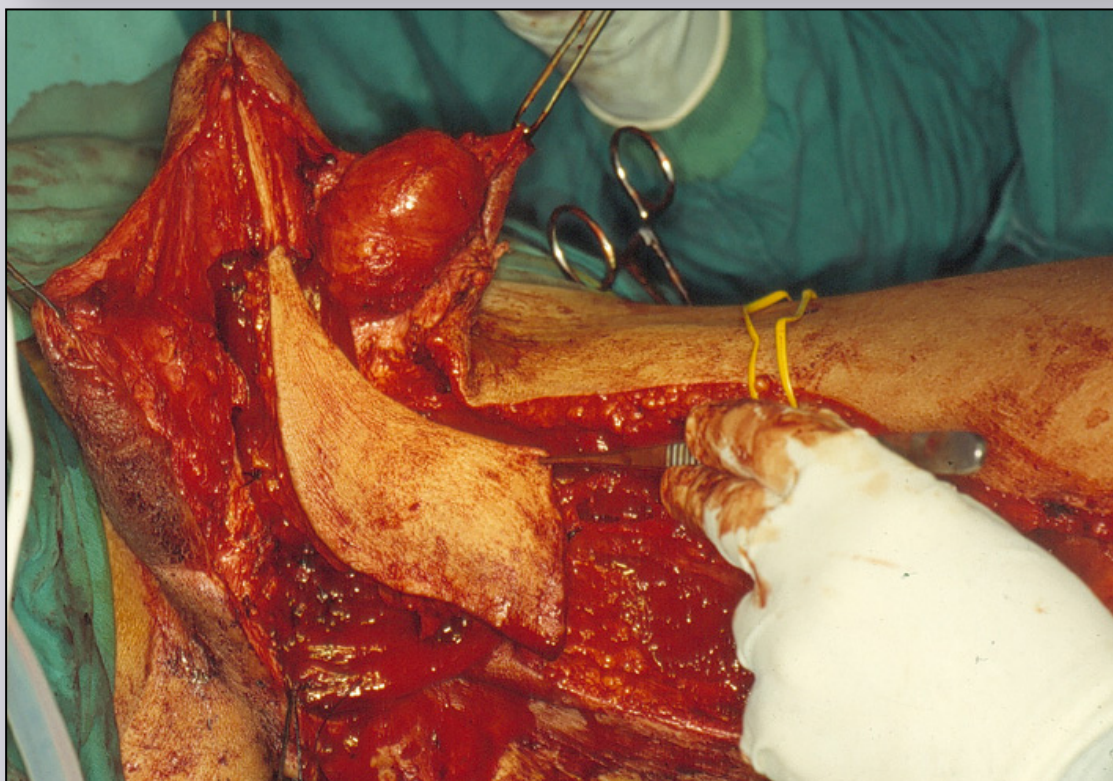
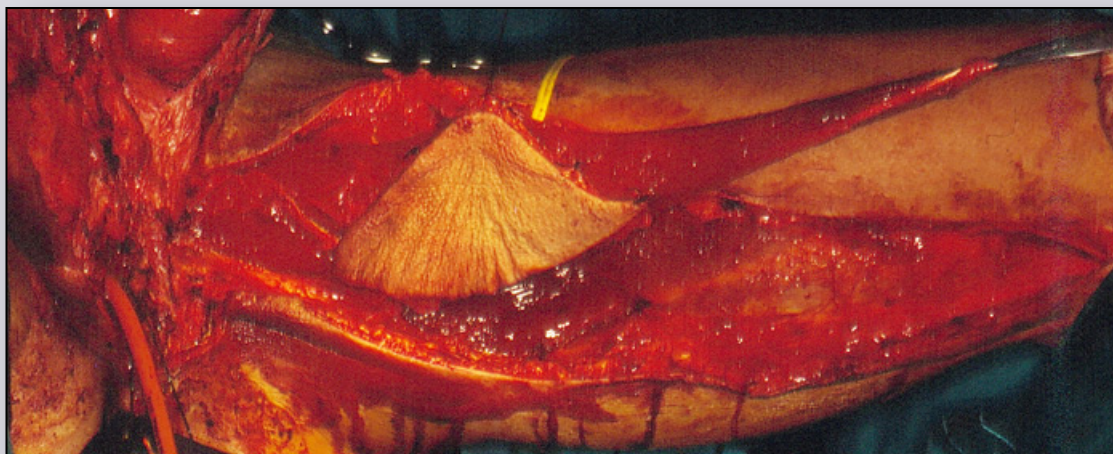




# Zinman's flap



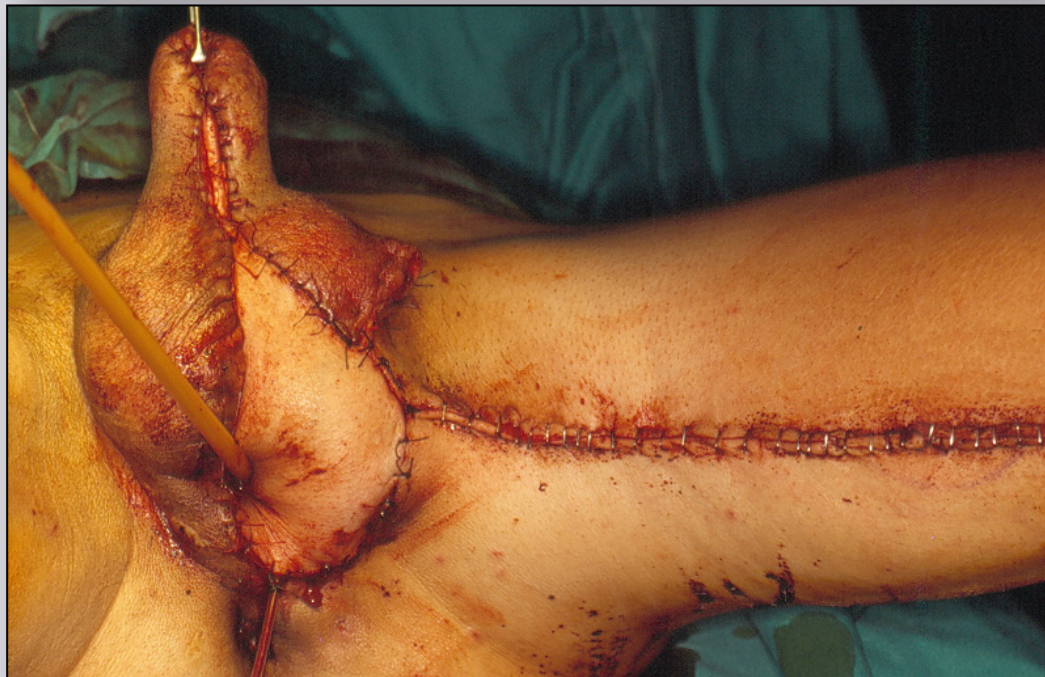
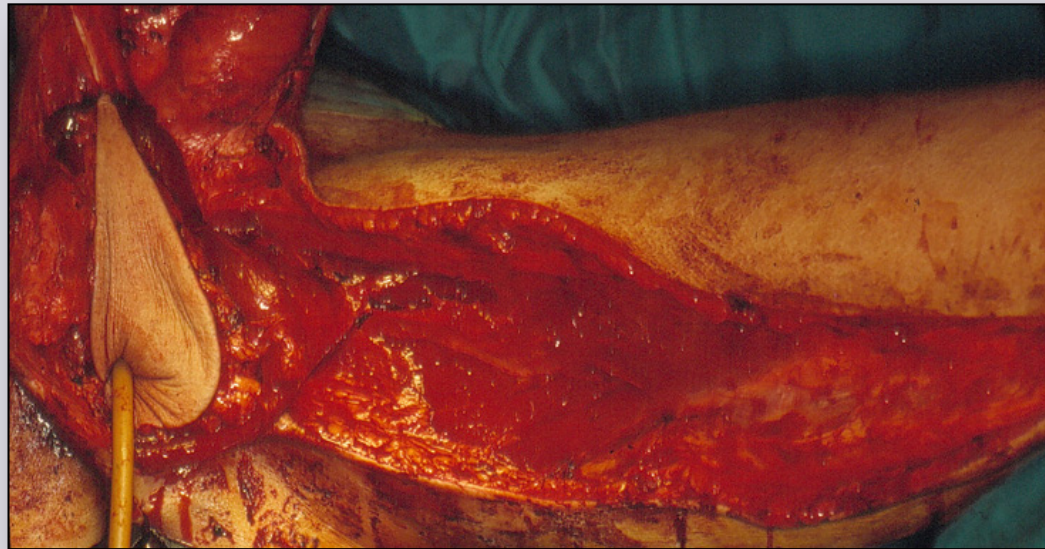




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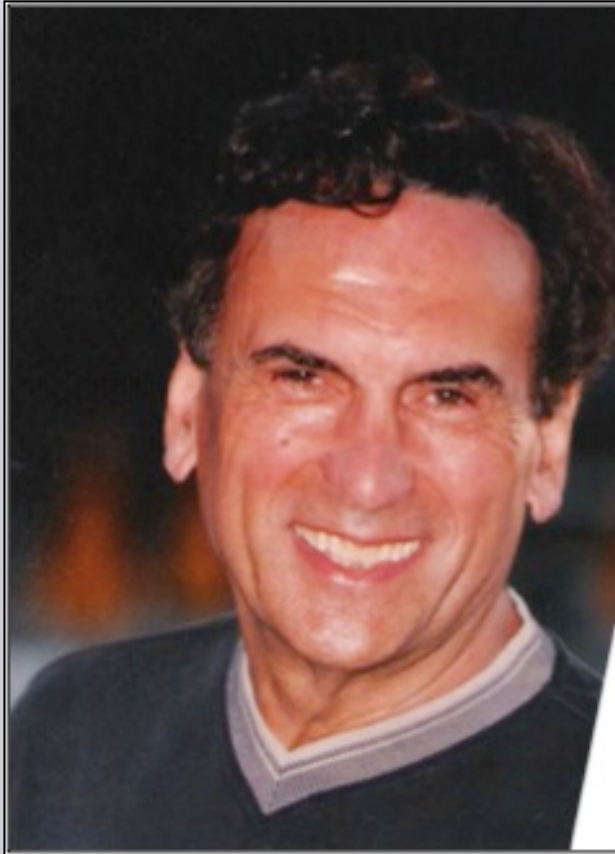
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**Prof. Sava Perovic**



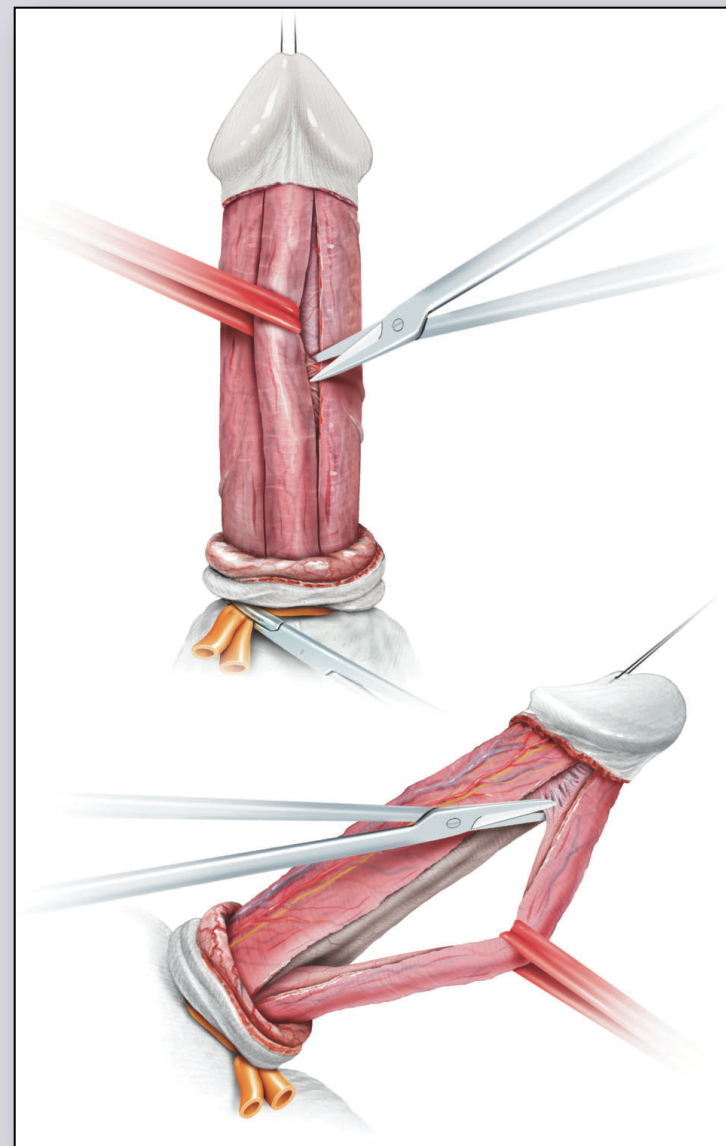
**Dr. Rados Djinovic**

**Foundation Sava Perovic – Belgrade - Serbia**

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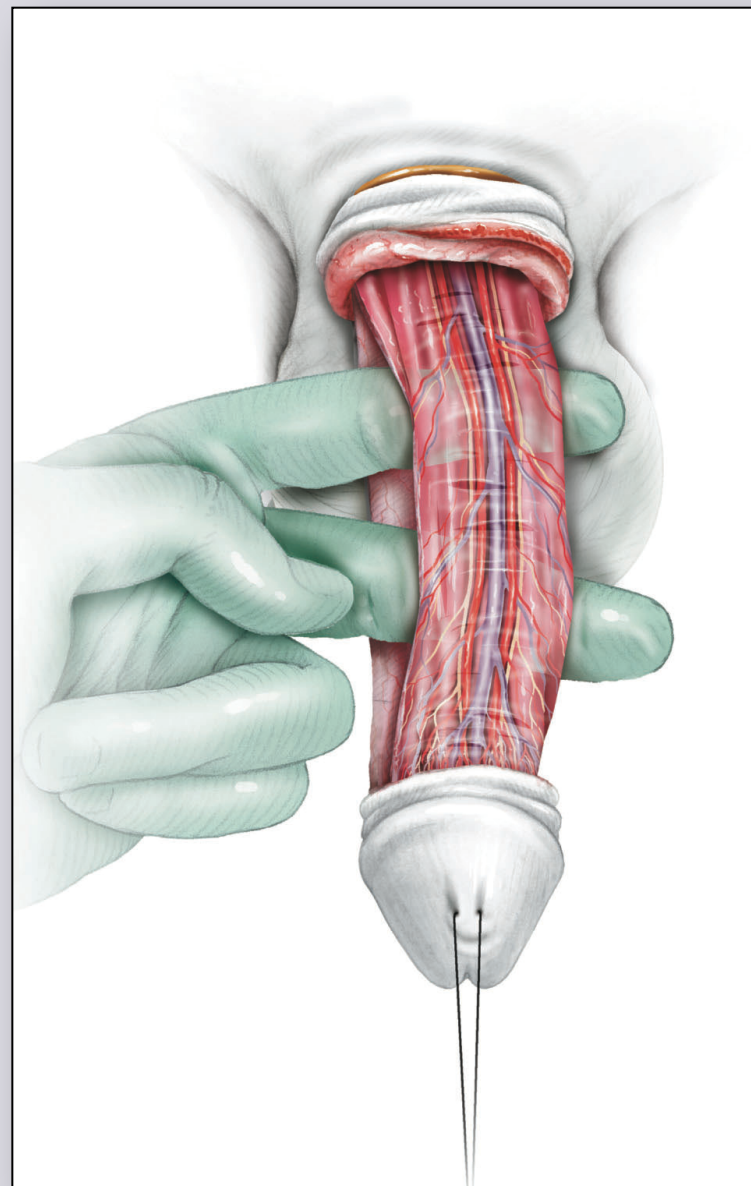
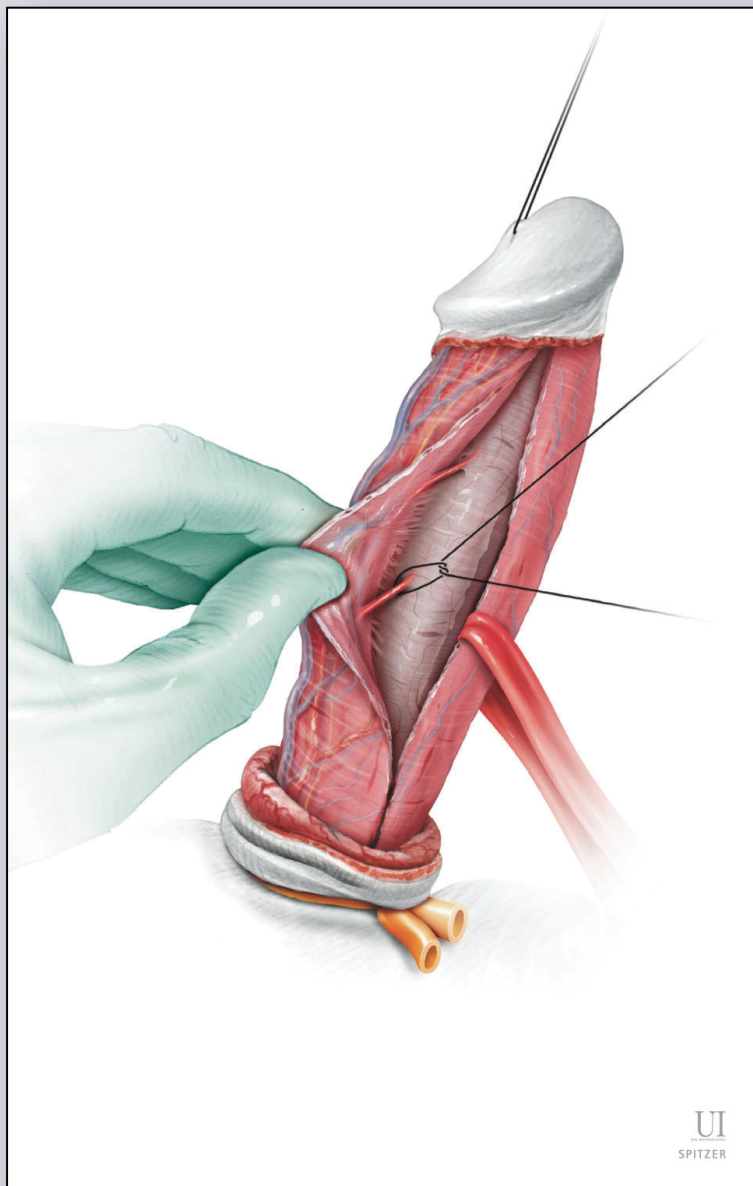




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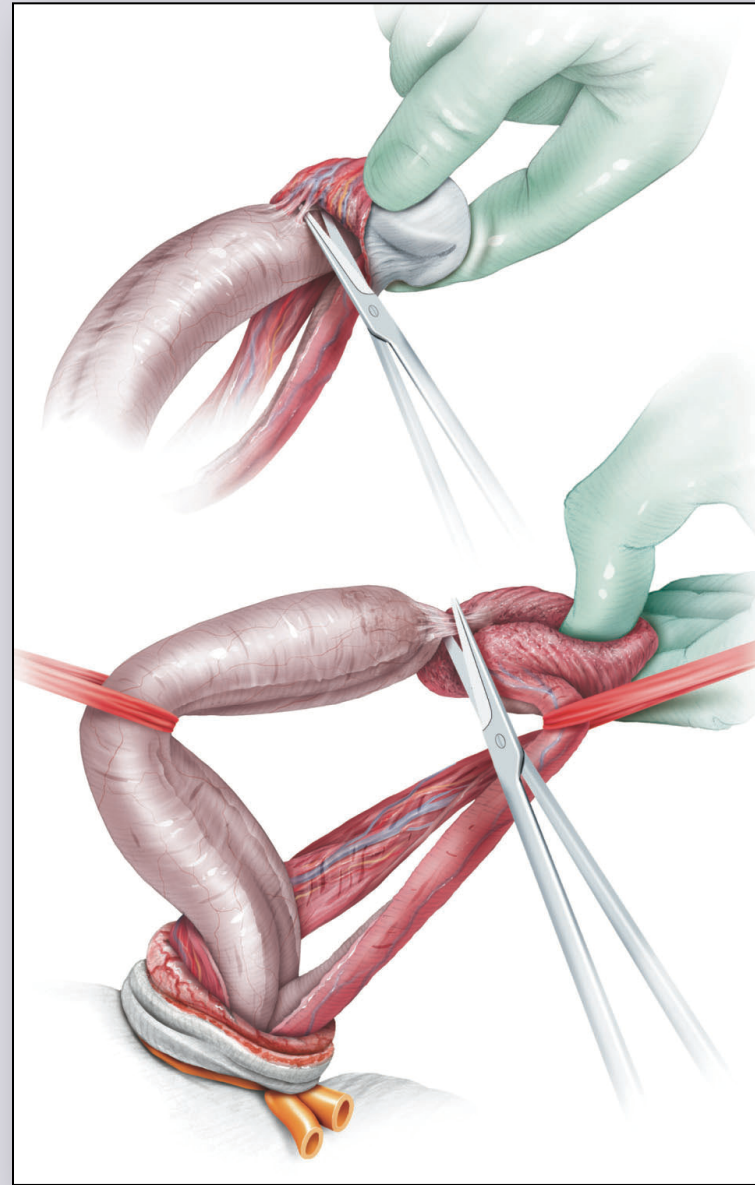
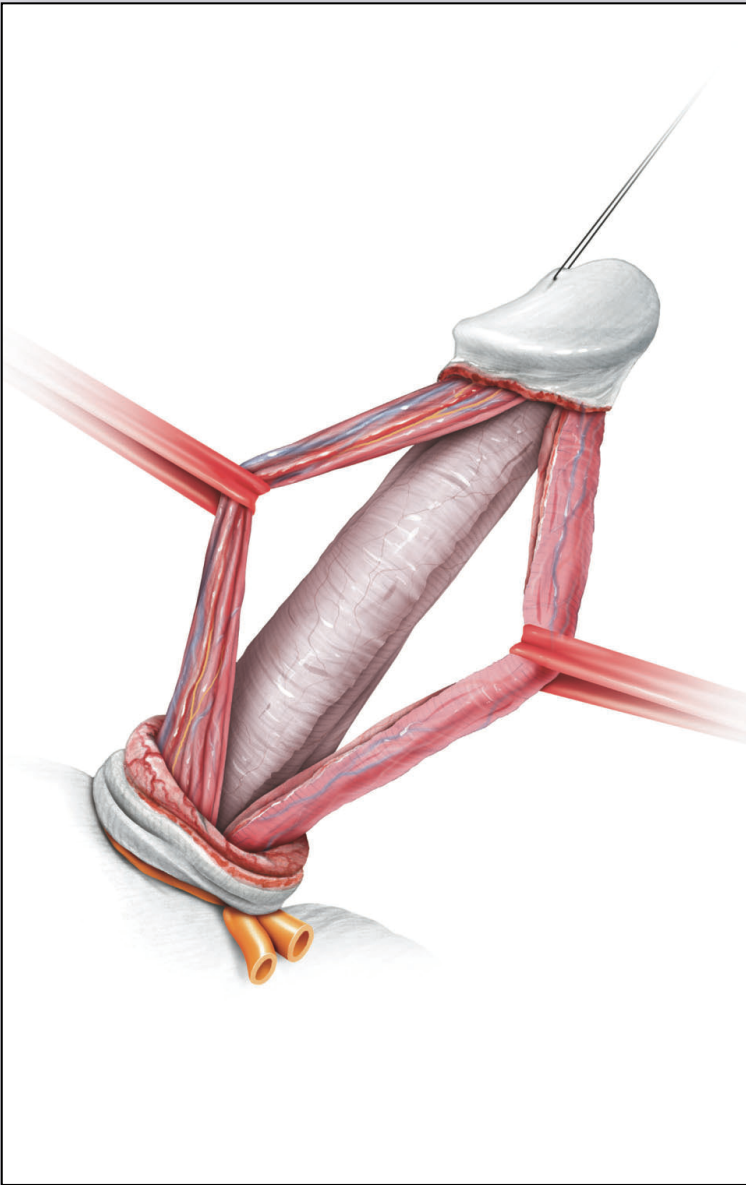
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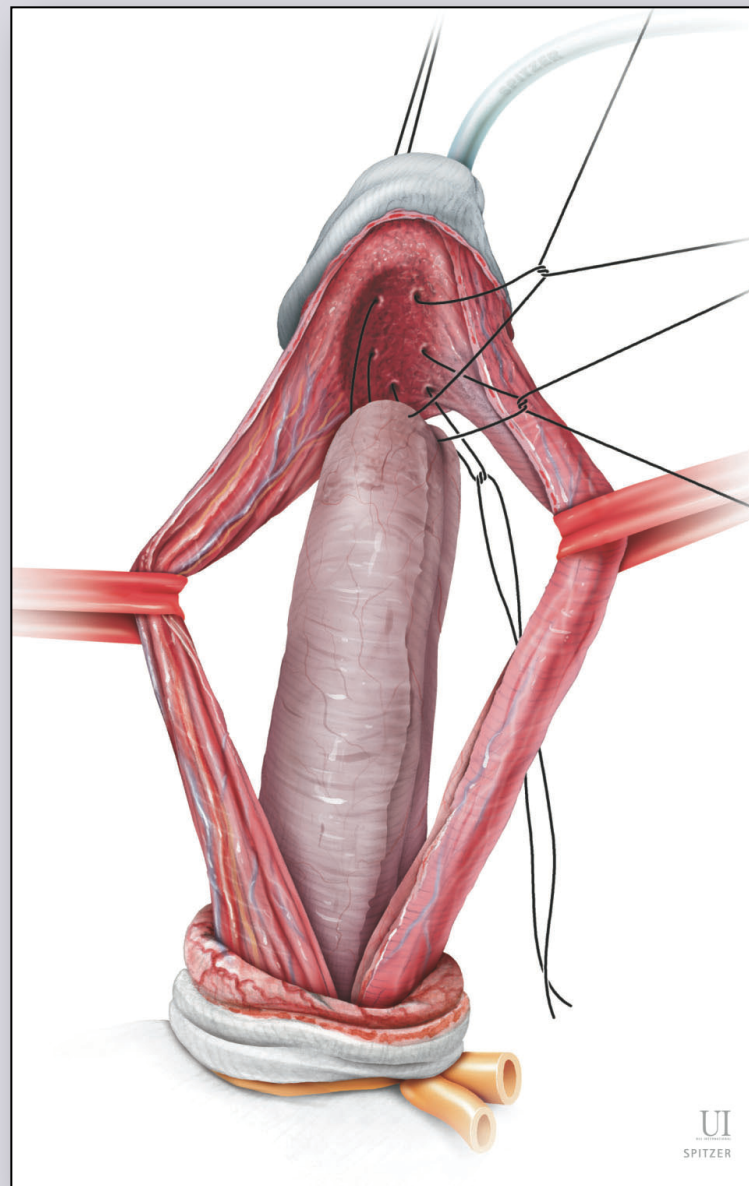
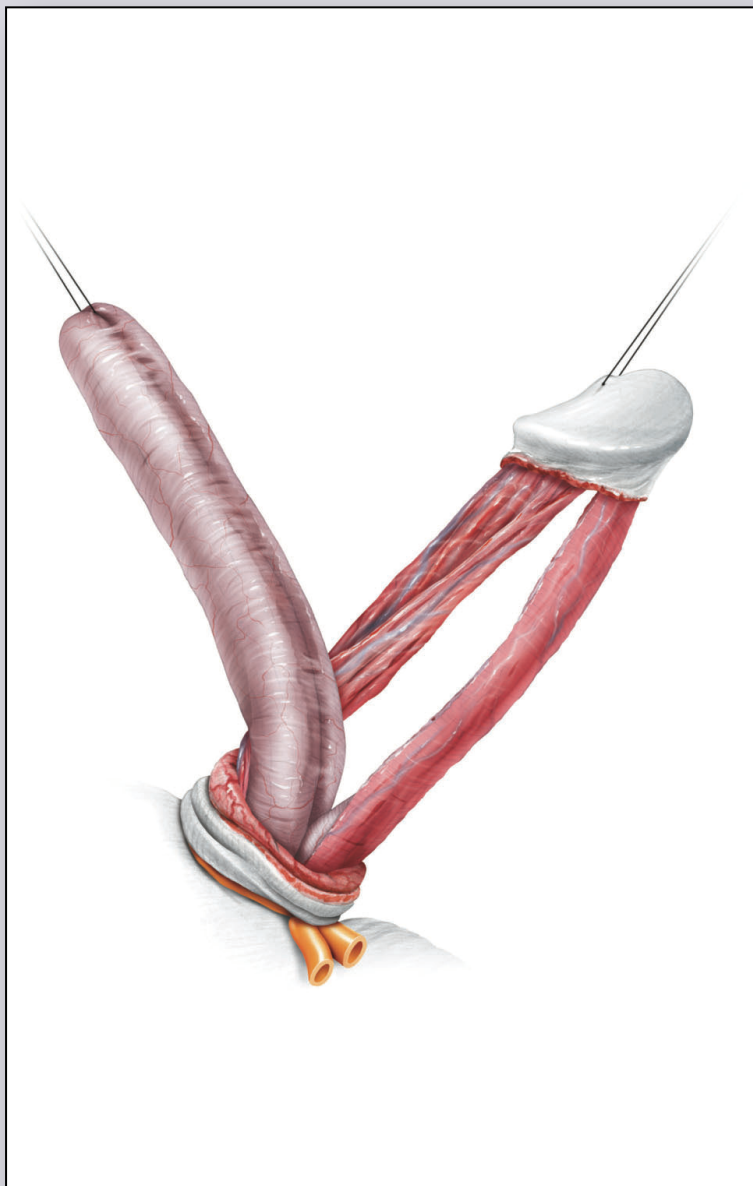
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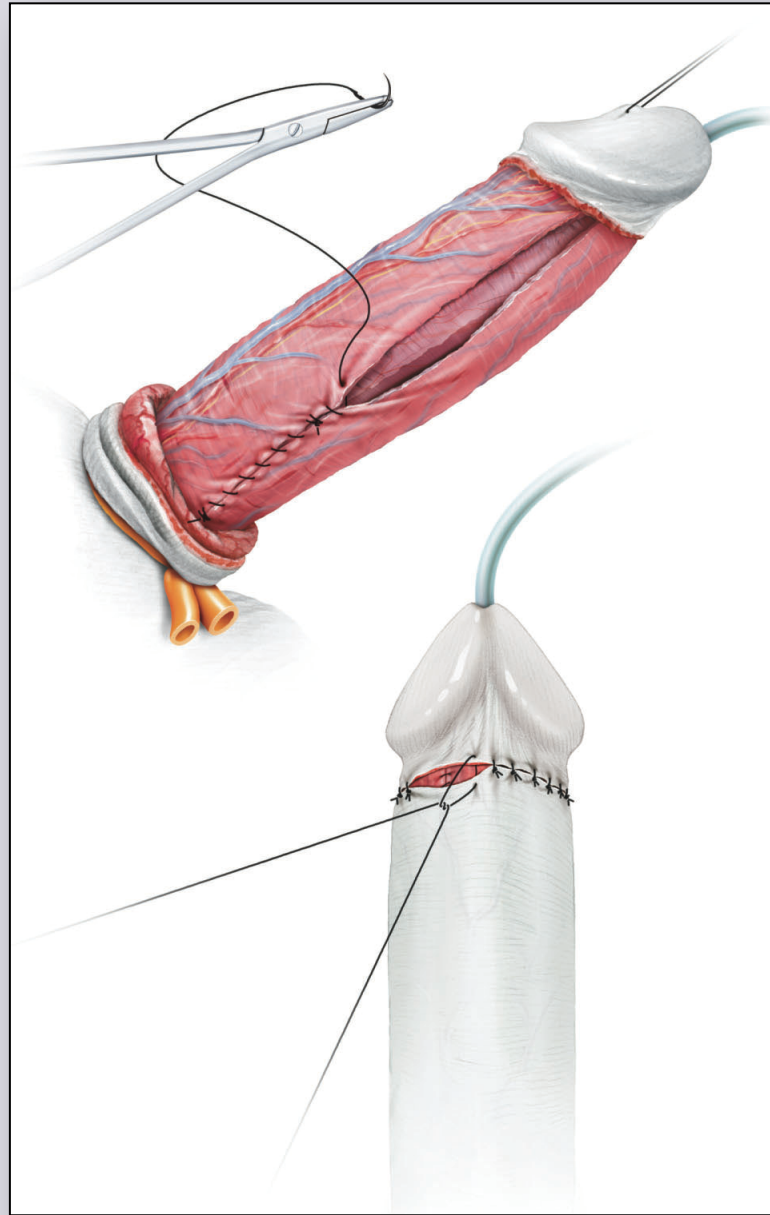
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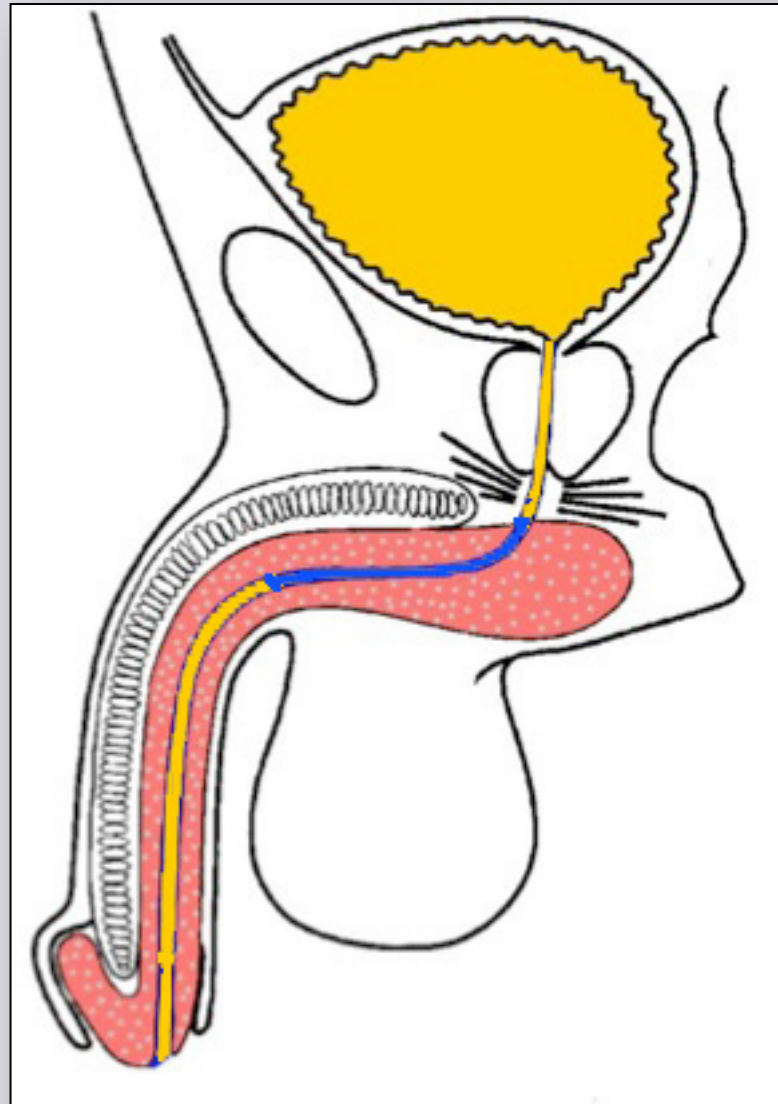




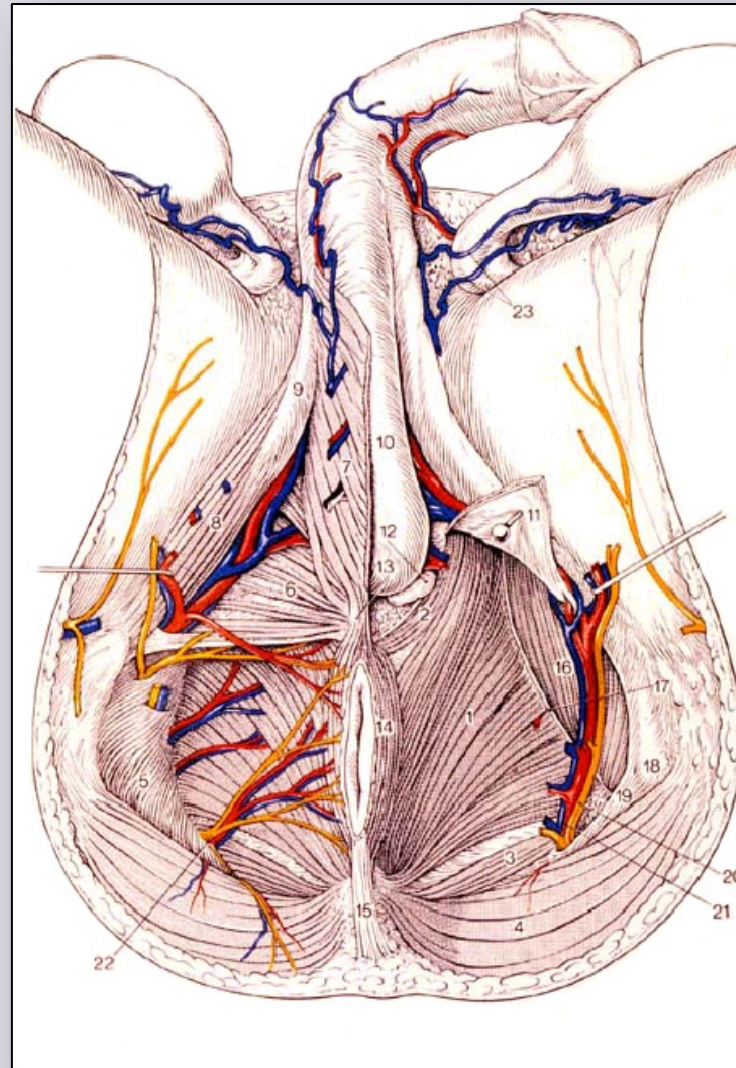
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# Bulbar urethra

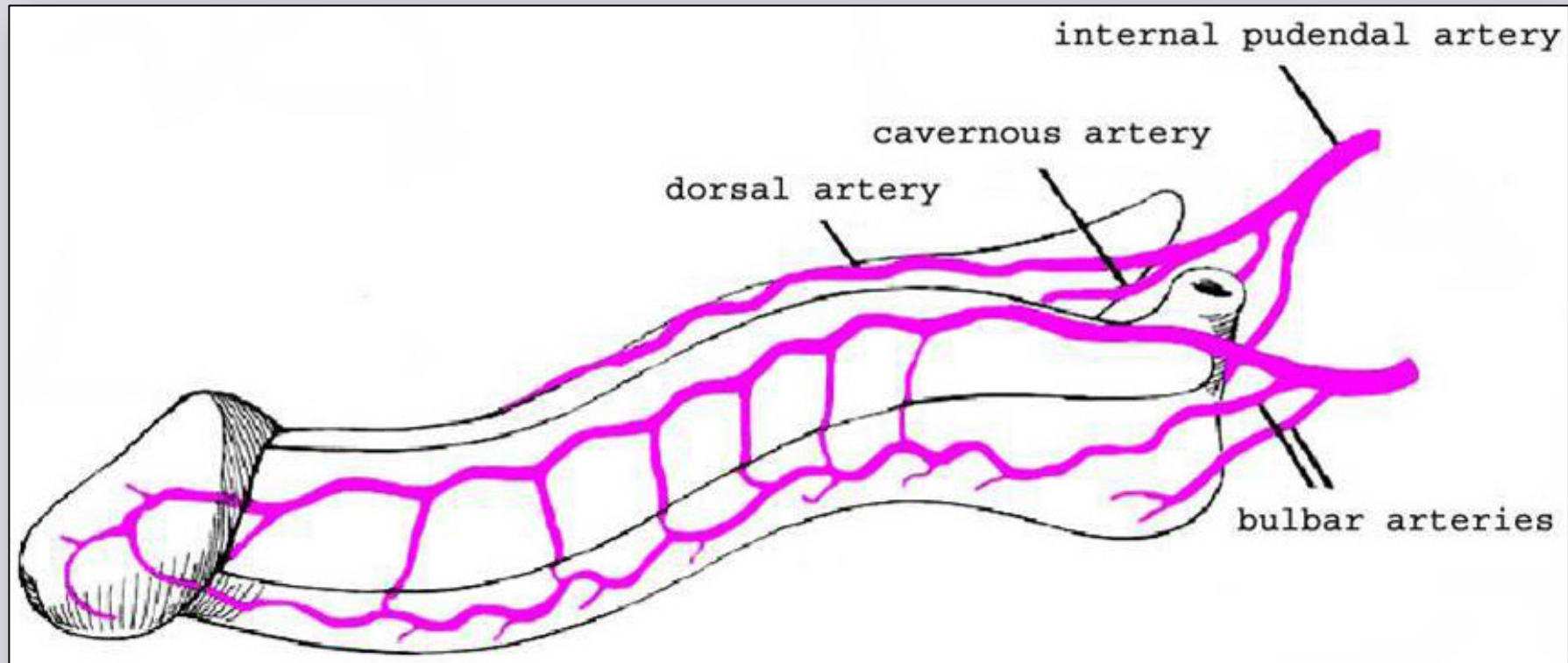


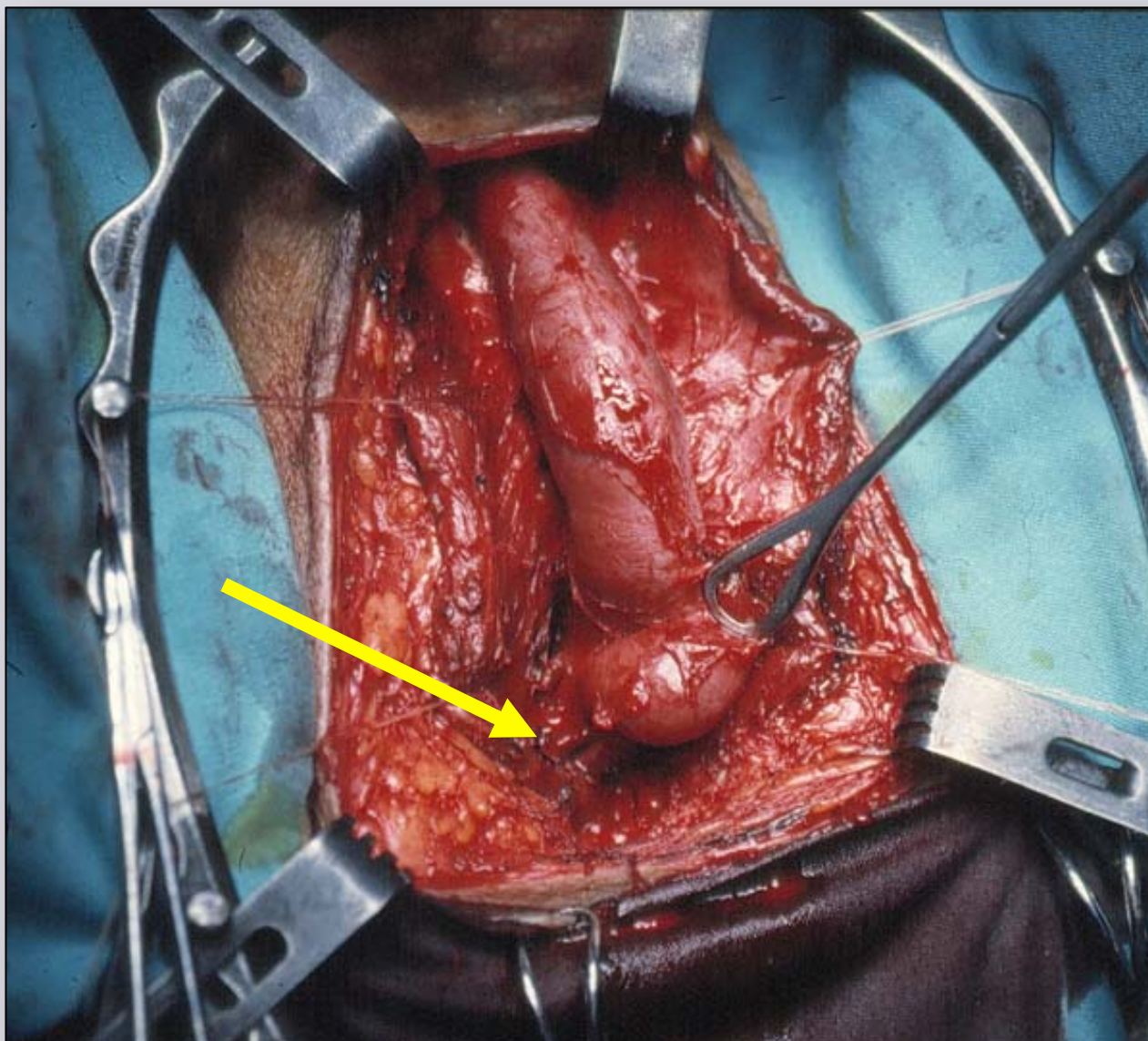
# Arterial supply





# Arterial supply

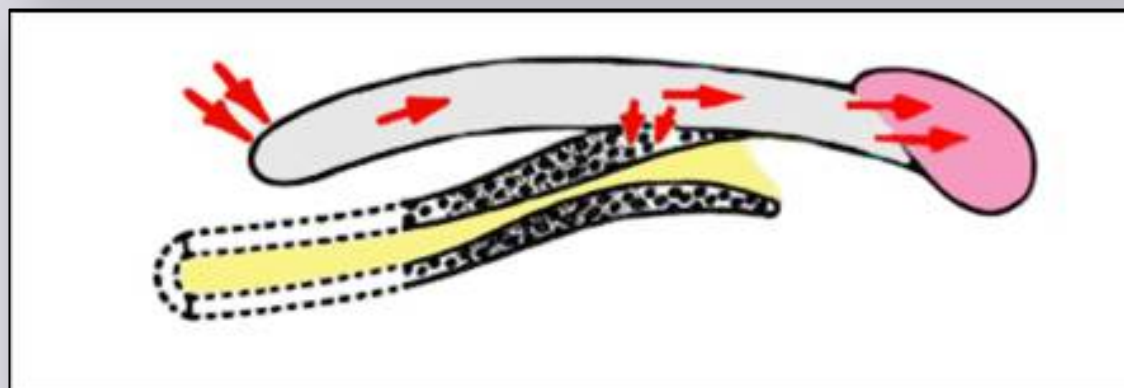
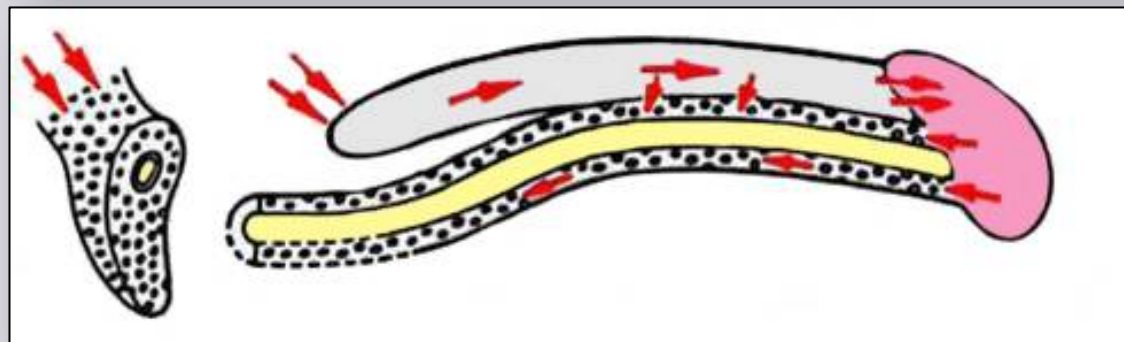
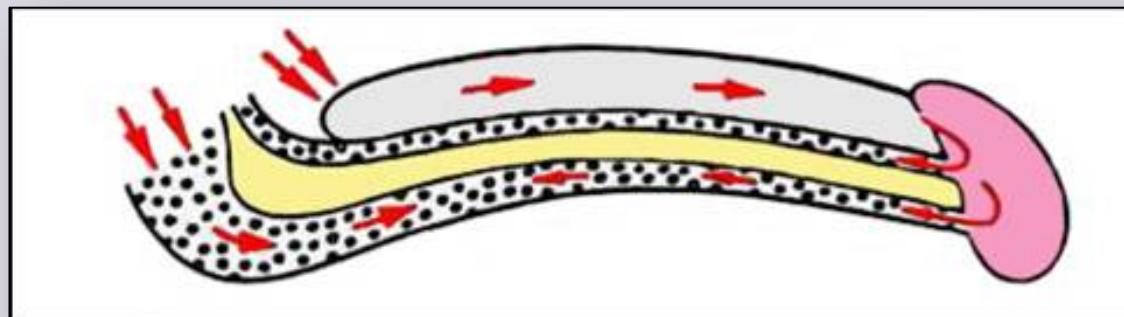




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# Arterial supply

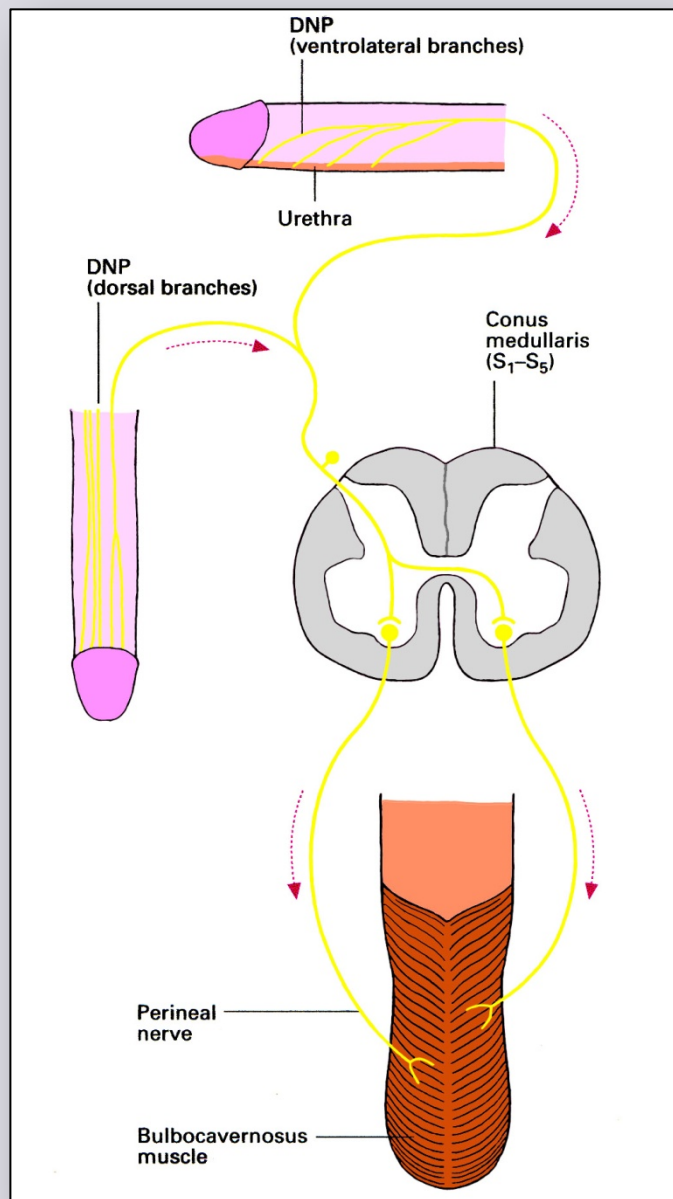




## Arterial supply

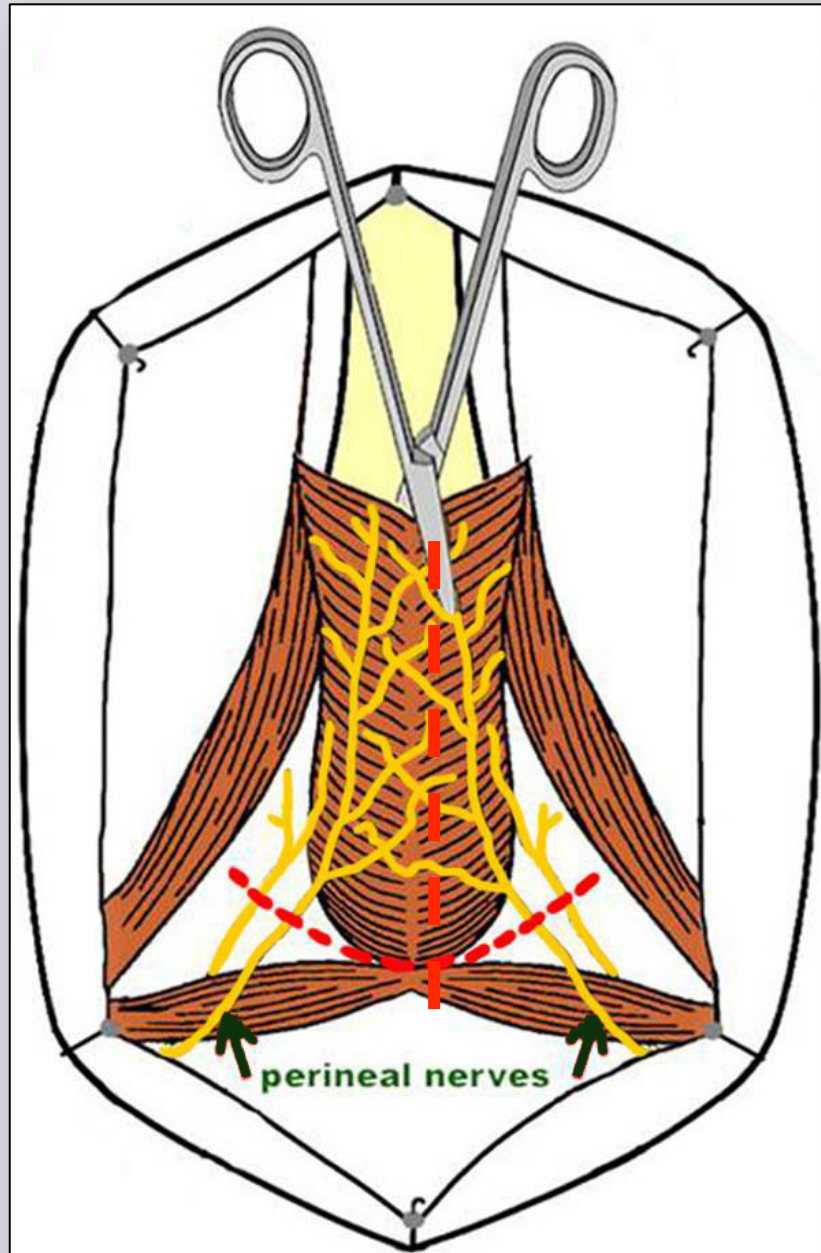


**Vascular necrosis of the bulbar urethra**



**Rhythmic contractions of the bulbo-spongiosum muscles and other perineal muscles expel semen from the urethra and have an important role in expelling urine, avoiding urine sequestration in the large urethral bulb.**

**Yang and Bradley, BJU International 2000; 85:857-863**



**During bulbar urethroplasty, damage to the bulbo-spongiosum muscle and to the perineal nerves may play a role in determining loss of efficient urethral contraction, causing difficulties in expelling semen and urine, and temporary or permanent sexual dysfunction.**



## **Loss of efficient contraction of the bulbo-spongiosum muscles and corpus spongiosum**

- ✓ **decreased force of the ejaculation jet**
- ✓ **loss of the ejaculation jet**
- ✓ **semen sequestration**
- ✓ **infertility**

- ✓ **urine sequestration in the urethral bulb**
- ✓ **post-voiding dribbling**

# **AVOIDING ERECTILE DYSFUNCTION IN URETHRAL SURGERY**

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**Is Erectile Dysfunction a real issue  
after open urethroplasty?**



**How can you avoid it?**



# Epidemiology

- The difficulty of accurately defining erectile dysfunction before and after open reconstructive surgery led to lack of information about epidemiology.

# Epidemiology

## Sexual Function/Infertility

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### The Effect of Bulbar Urethroplasty on Erectile Function

**Jennifer T. Anger,\* Neil D. Sherman and George D. Webster**

*From the Department of Urology, University of California-Los Angeles (JTA), Los Angeles, California, Division of Urology, University of Medicine and Dentistry of New Jersey (NDS), New Brunswick, New Jersey, and Division of Urology, Duke University Medical Center (GDW), Durham, North Carolina*

**J Urol 2007; 178: 10090**

# Epidemiology

## CONCLUSIONS

We report on men undergoing 4 variations of bulbar urethroplasty and we found that such surgery had an insignificant effect on EF. Surgical complexity with long stricture excision and the use of a buccal graft did not influence outcome. Our data suggest that increasing age and preoperative erectile dysfunction may adversely affect postoperative outcome.

J Urol 2007; 178: 10090



# Epidemiology

## **Long-Term Followup of Bulbar End-to-End Anastomosis: A Retrospective Analysis of 153 Patients in a Single Center Experience**

**Guido Barbagli, Michele De Angelis, Giuseppe Romano and Massimo Lazzeri\***

*From the Center for Urethral Reconstructive Surgery (GB), Unità Operativa Urologia, Ospedale San Donato (MDA, GR), Arezzo, and Department of Urology, Santa Chiara-Firenze, Florence (ML), Italy*

**J Urol 2007; 178: 2470**

# Epidemiology

**153 patients who underwent bulbar end-to-end anastomosis.**

**Average age: 39 years (range 14-78).**

**Average follow-up: 68 months (range 12-218).**

**J Urol 2007; 178: 2470**

## Epidemiology

*Out of 153 patients, 60 patients (39,22%) were investigated by nonvalidated telephone questionnaire administered by a neutral person who was not part of the hospital staff.*

*Age 20 – 50 years, no diabetes or vascular diseases, no previous open urethroplasty, no further surgery after the end-to-end.*

*5 questions to investigate modifications in ejaculation.*

*7 questions to investigate the presence of neurovascular penile disorders.*

*2 questions to evaluate final patient satisfaction of dissatisfaction following surgery.*

**J Urol 2007; 178: 2470**



## Epidemiology

*Out of 60 patients:*

*12 (20%) experienced decreased ejaculation force.*

*2 (3.3%) ejaculation was possible only by manually compressing the perineum at the level of the urethral bulb.*

*1 (1.6%) had a cold glans during erection.*

*7 (11.6%) had a glans that was neither full nor swollen during erection.*

*11 (18.3%) had decreased sensitivity of the glans or distal penile shaft.*

*No patient complain penile chordee or impotence.*

*Out of 60 patients, 2 (3.3%) declared that they were dissatisfied with the outcome of surgery.*

**J Urol 2007; 178: 2470**

# Epidemiology

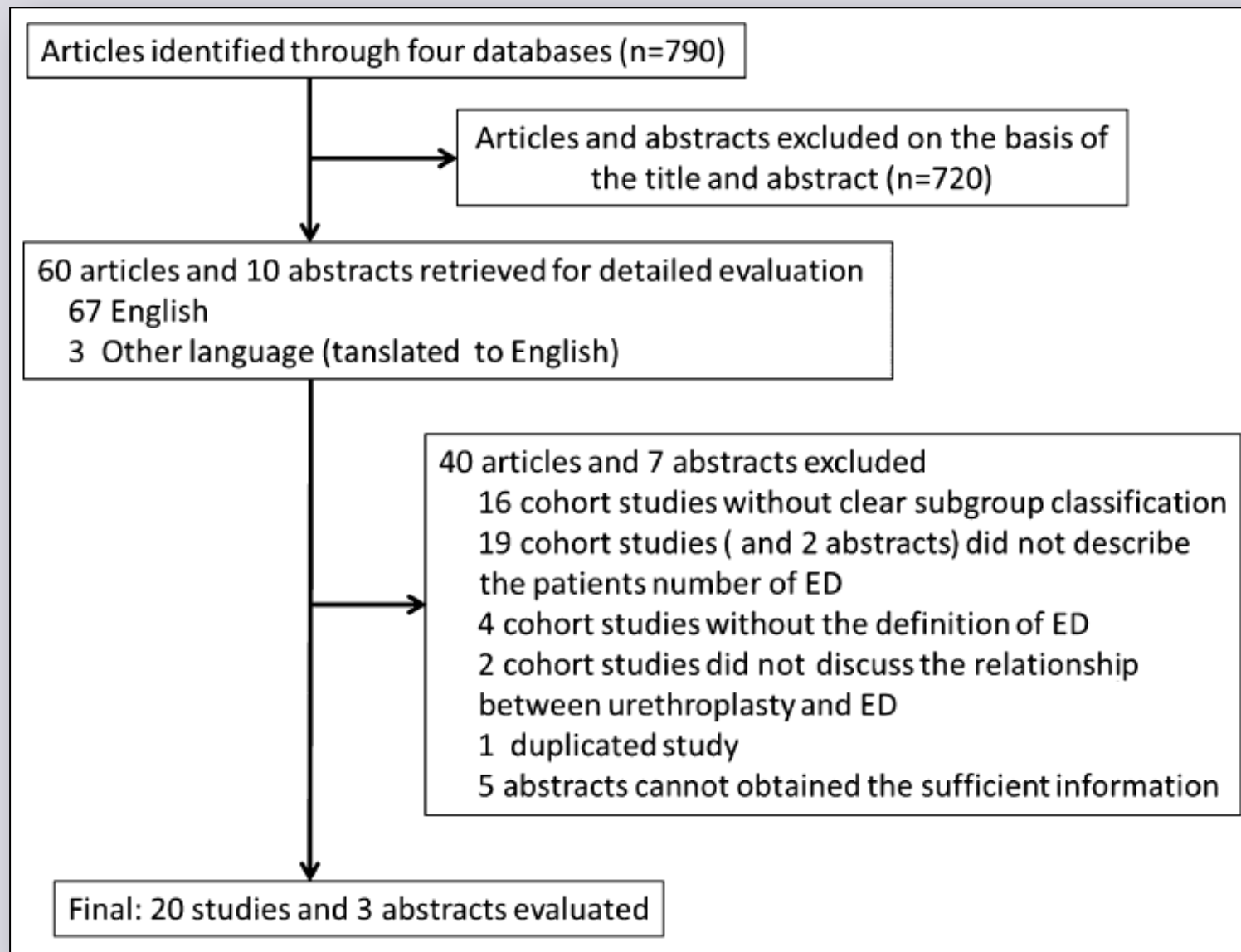
## The Relationship Between Erectile Dysfunction and Open Urethroplasty: A Systematic Review and Meta-Analysis

Chao Feng, MD, PhD,\* Yue-Min Xu, MD, PhD,\* Guido Barbagli, MD, PhD,<sup>†</sup>  
Massimo Lazzeri, MD, PhD,<sup>†</sup> Chen-ye Tang, MD,\* Qiang Fu, MD, PhD,\* and Ying-Long Sa, MD\*

\*The Department of Urology, Affiliated Sixth People's Hospital, Shanghai Jiaotong University, Shanghai, China;

<sup>†</sup>The Center for Reconstructive Urethral Surgery, Arezzo, Italy

**J Sex Med 2013; 10: 2060**



**J Sex Med 2013; 10: 2060**



# Conclusions

**Comparison of incidence of ED before vs. after  
bulbar urethroplasty.**

**Out of 20 studies included in the analysis only 5 studies,  
eligible for metanalysis, reported data on erectile function  
before and after open urethroplasty.**

**No statistical difference was found in the incidence of ED  
pre and post operation.**

**J Sex Med 2013; 10: 2060**

# Conclusions

## Comparison of different type of **bulbar urethroplasty**.

**Patients who underwent bulbar graft urethroplasty showed less incidence (16.67%) of ED compared to patients who underwent anastomotic transecting urethroplasty (36.54%).**

**J Sex Med 2013; 10: 2060**

# Conclusions

**Comparison of incidence of ED before vs. after  
posterior urethroplasty.**

**Out of 20 studies included in the analysis only 6 studies,  
eligible for metaanalysis, reported data on erectile function  
before and after open urethroplasty.**

**The incidence of ED before the operation was significantly  
higher than after the operation.**

**J Sex Med 2013; 10: 2060**





# Non-transecting anastomotic bulbar urethroplasty: a preliminary report

Daniela E. Andrich and Anthony R. Mundy

*Institute of Urology, London, UK*

Accepted for publication 21 April 2011

**Br J Urol Int 2011; 109:1090-1094**

## REVIEW



# Bulbar urethroplasty: transecting vs. nontransecting techniques

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*Guido Barbagli<sup>a</sup>, Salvatore Sansalone<sup>b</sup>, Giuseppe Romano<sup>a</sup>, and Massimo Lazzeri<sup>c</sup>*

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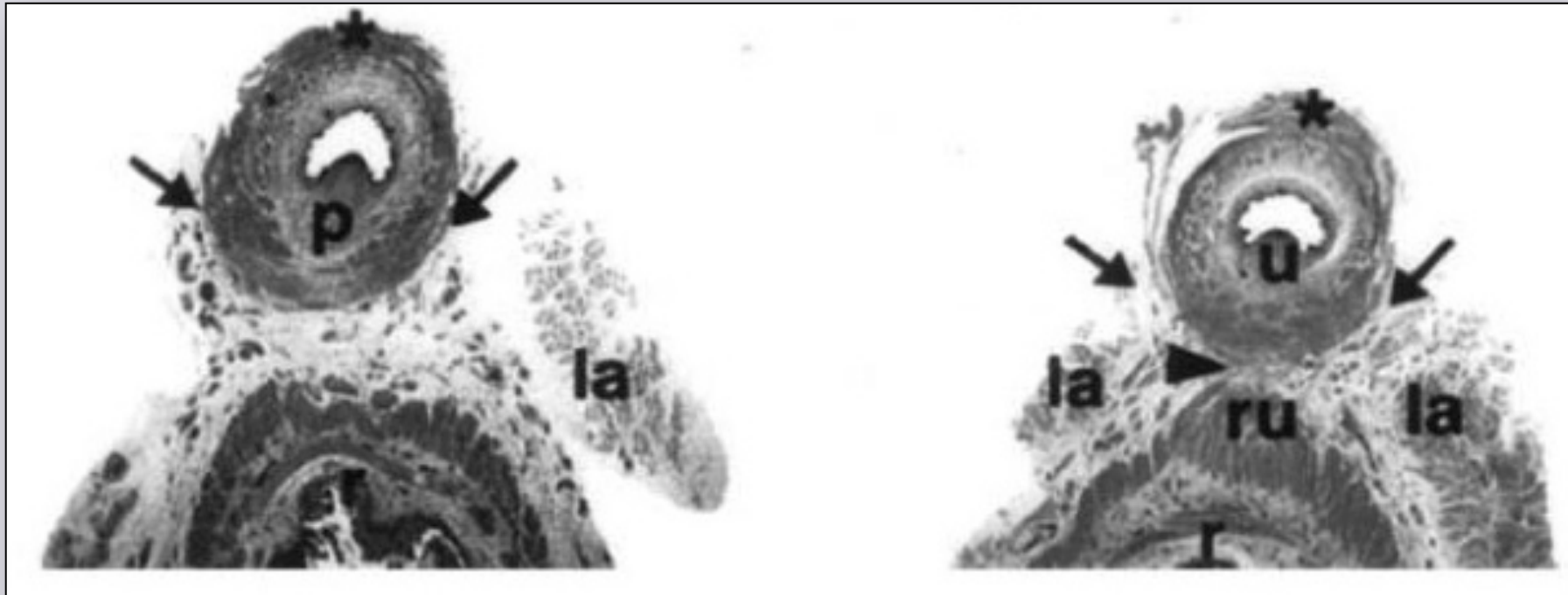
**Curr Opin Urol Int 2012; 22:474-477**

# Erectile dysfunction in urethral surgery

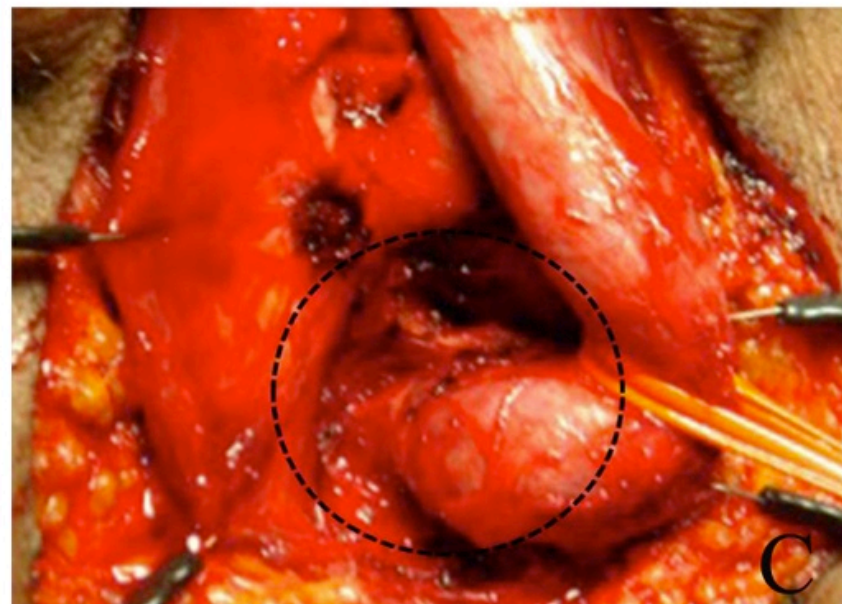
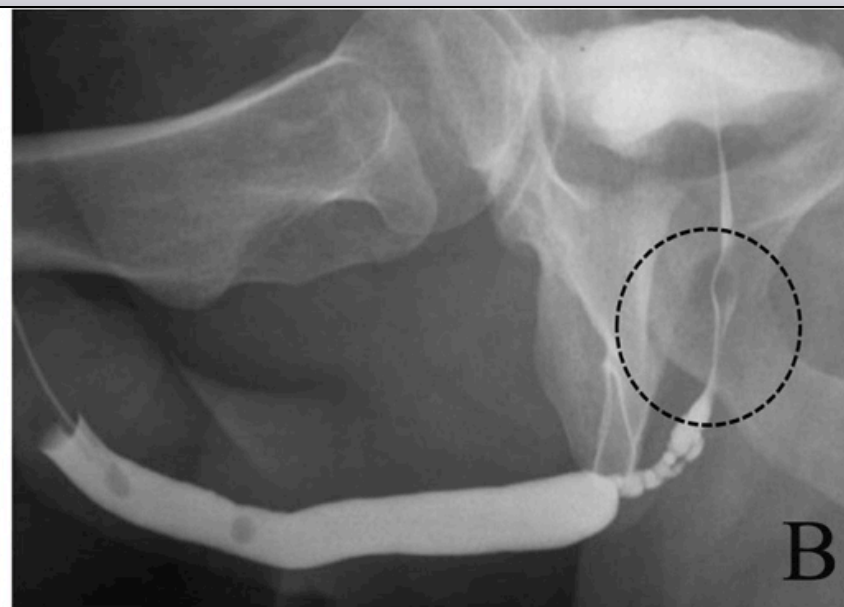
**How can you avoid it?**

# Anatomy

- Neurovascular bundles run along the posterior urethra



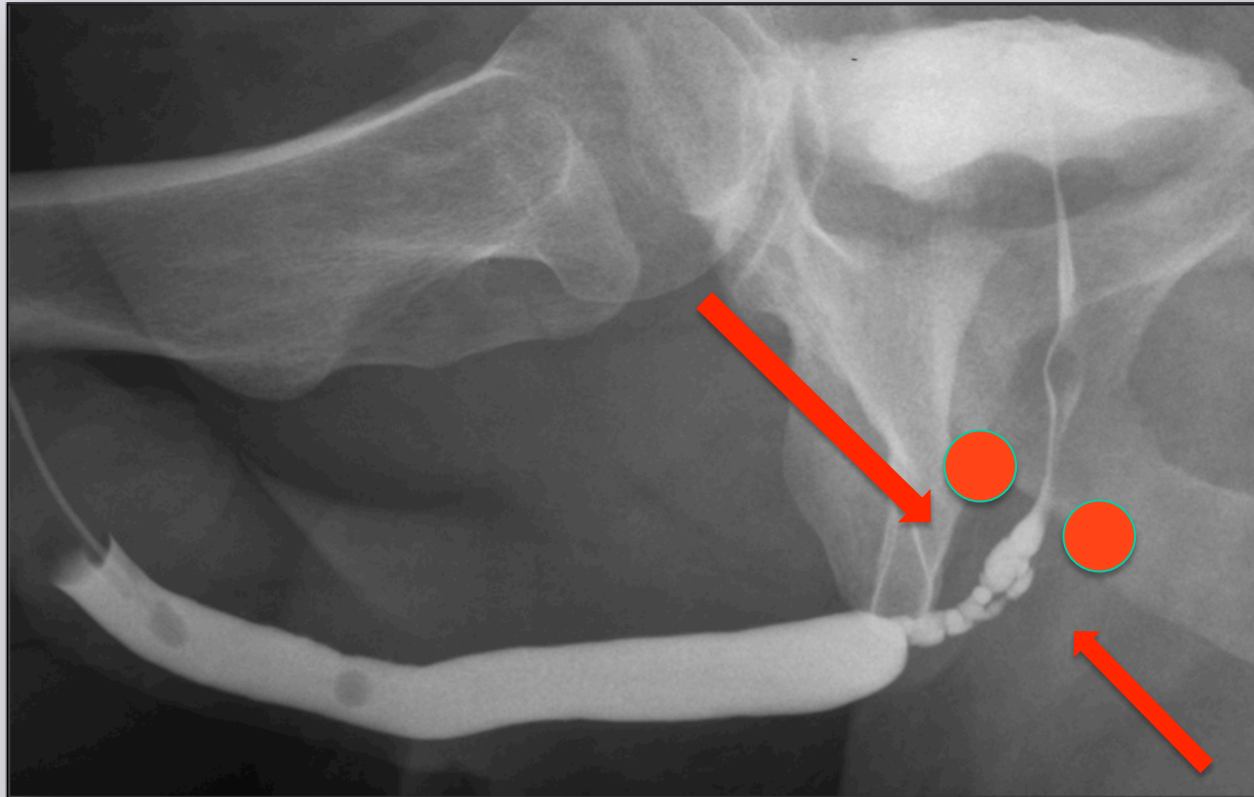




e-mail: [info@urethralcenter.it](mailto:info@urethralcenter.it)

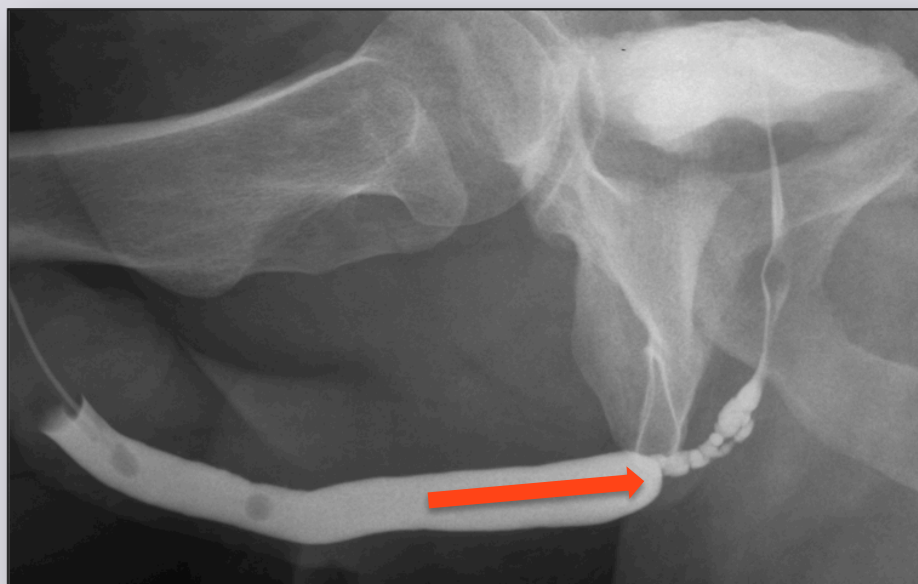
Websites: [www.uretra.it](http://www.uretra.it)  
[www.urethralcenter.it](http://www.urethralcenter.it)

# Bulbar urethroplasty

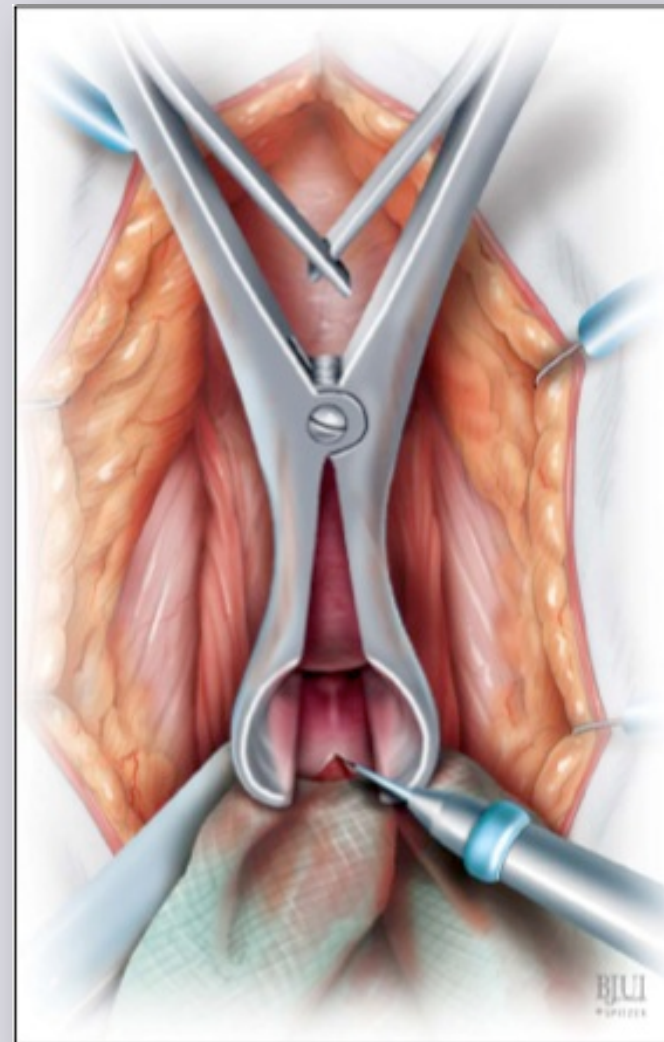


**Working around urethra may damage  
innervation and blood supply**

# To avoid erectile dysfunction

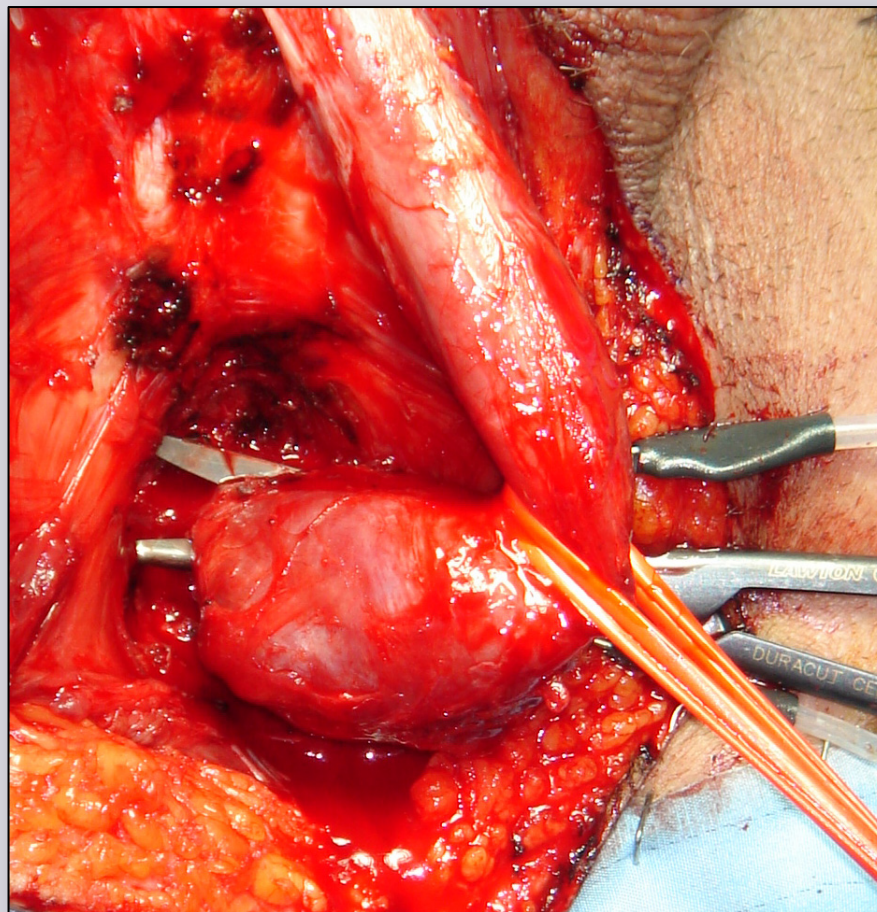


**Work inside the urethra and  
not around the urethra**



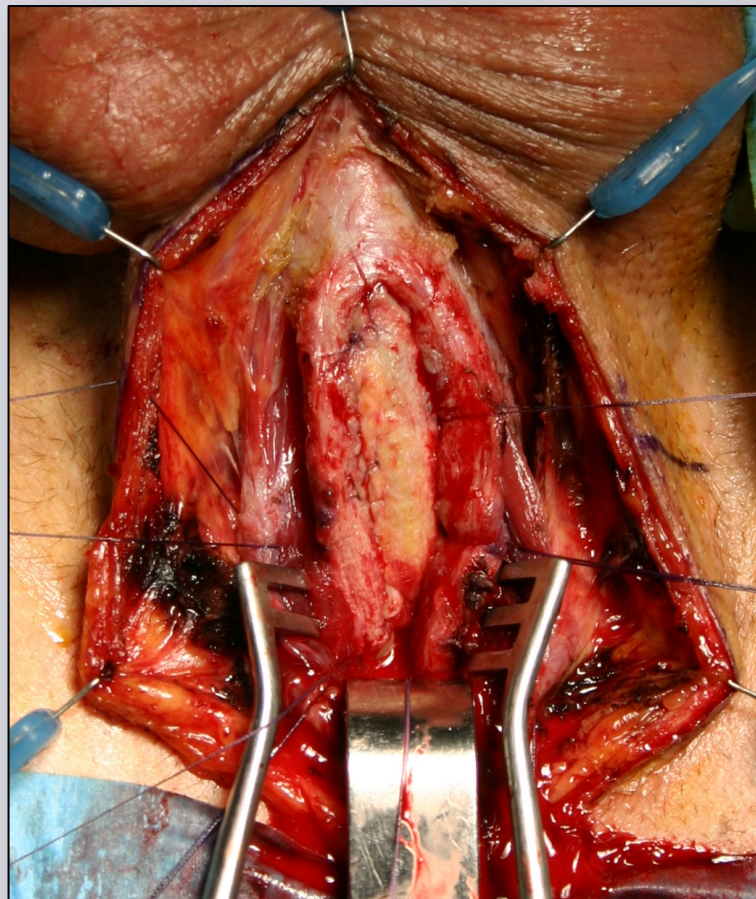


# To avoid erectile dysfunction



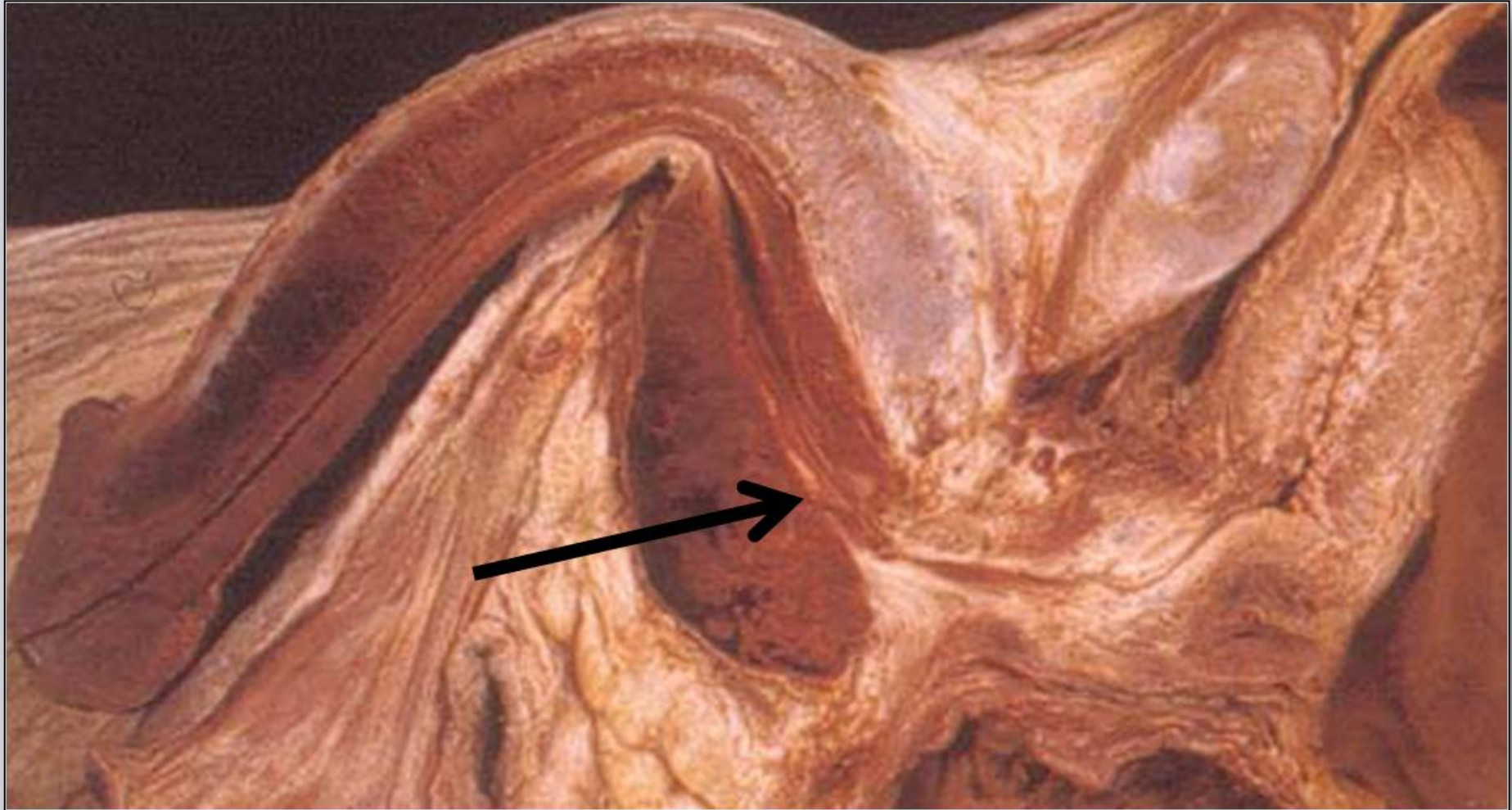
**Dissection and/or urethral transection may cause ED**

# To avoid erectile dysfunction



**Whenever possible use grafting rather than transecting technique**



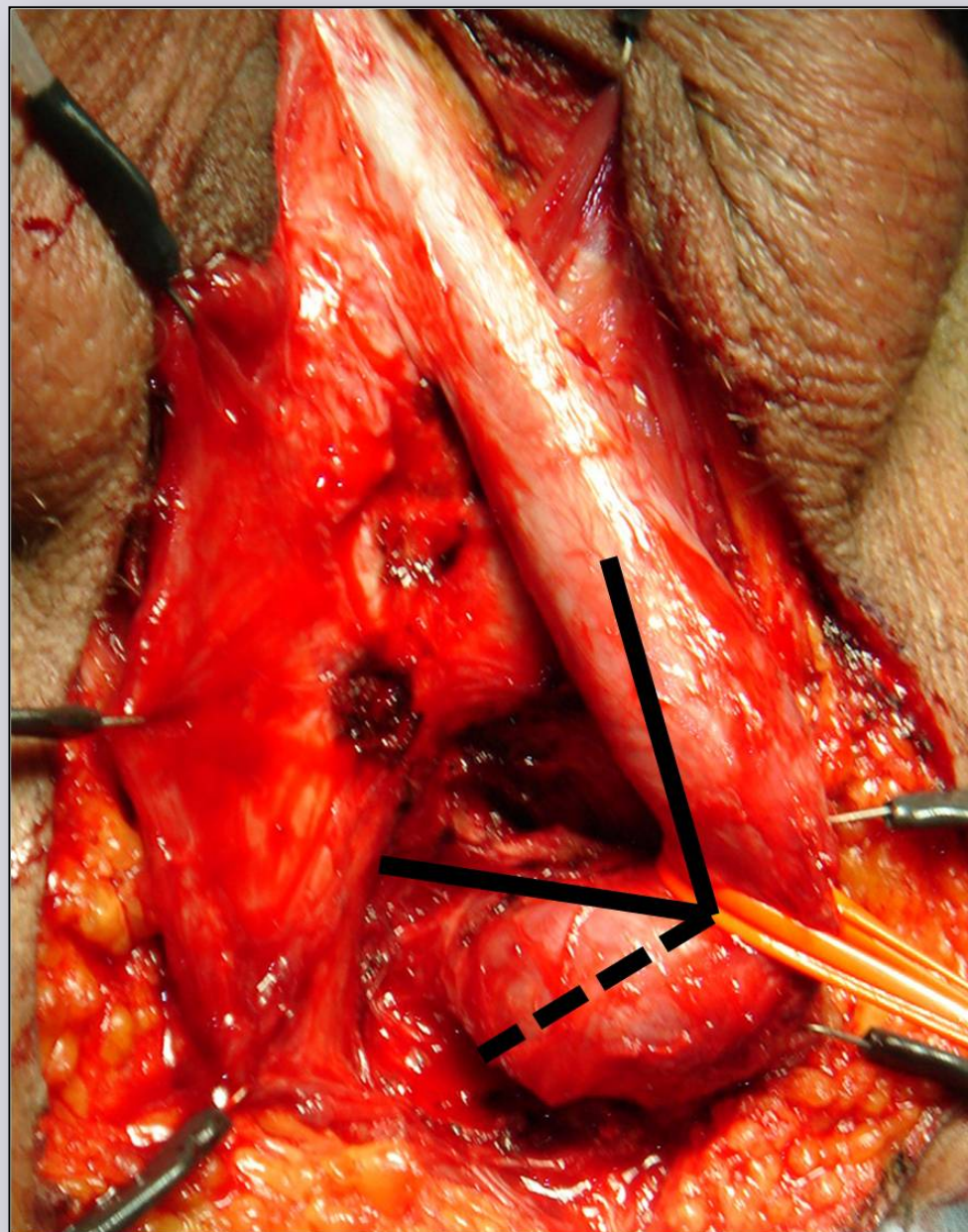


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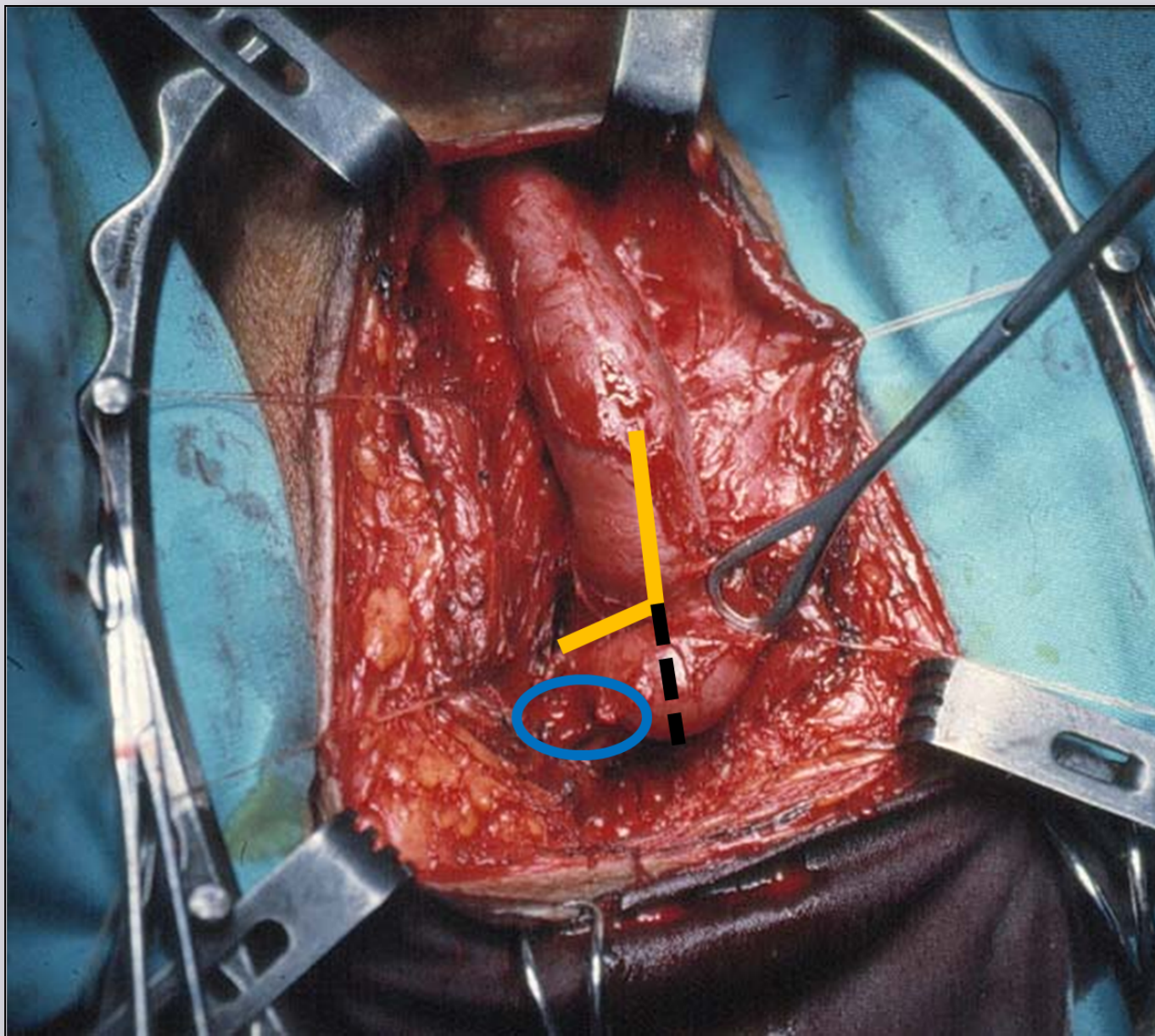
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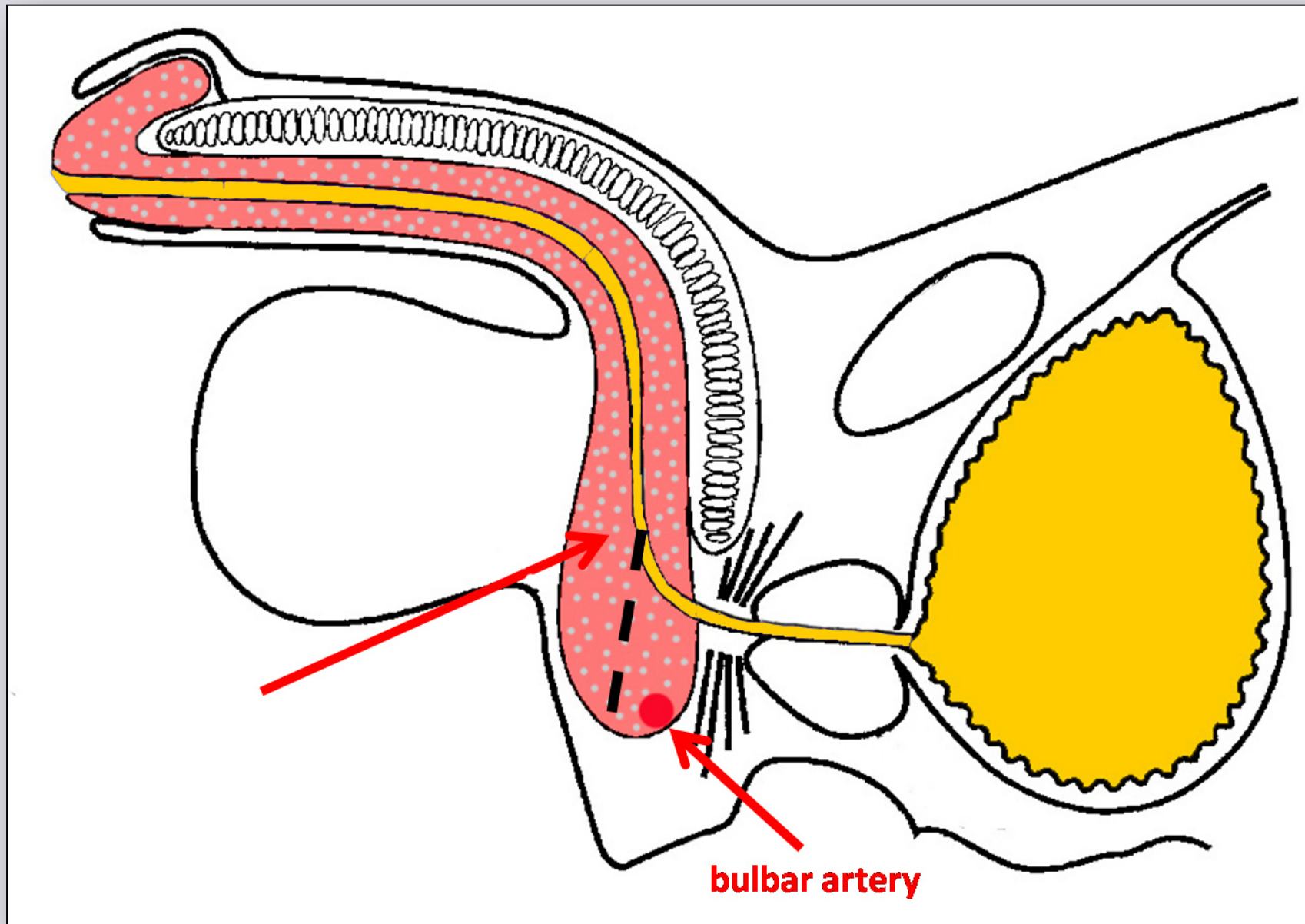
Websites: [www.uretra.it](http://www.uretra.it)  
[www.urethralcenter.it](http://www.urethralcenter.it)



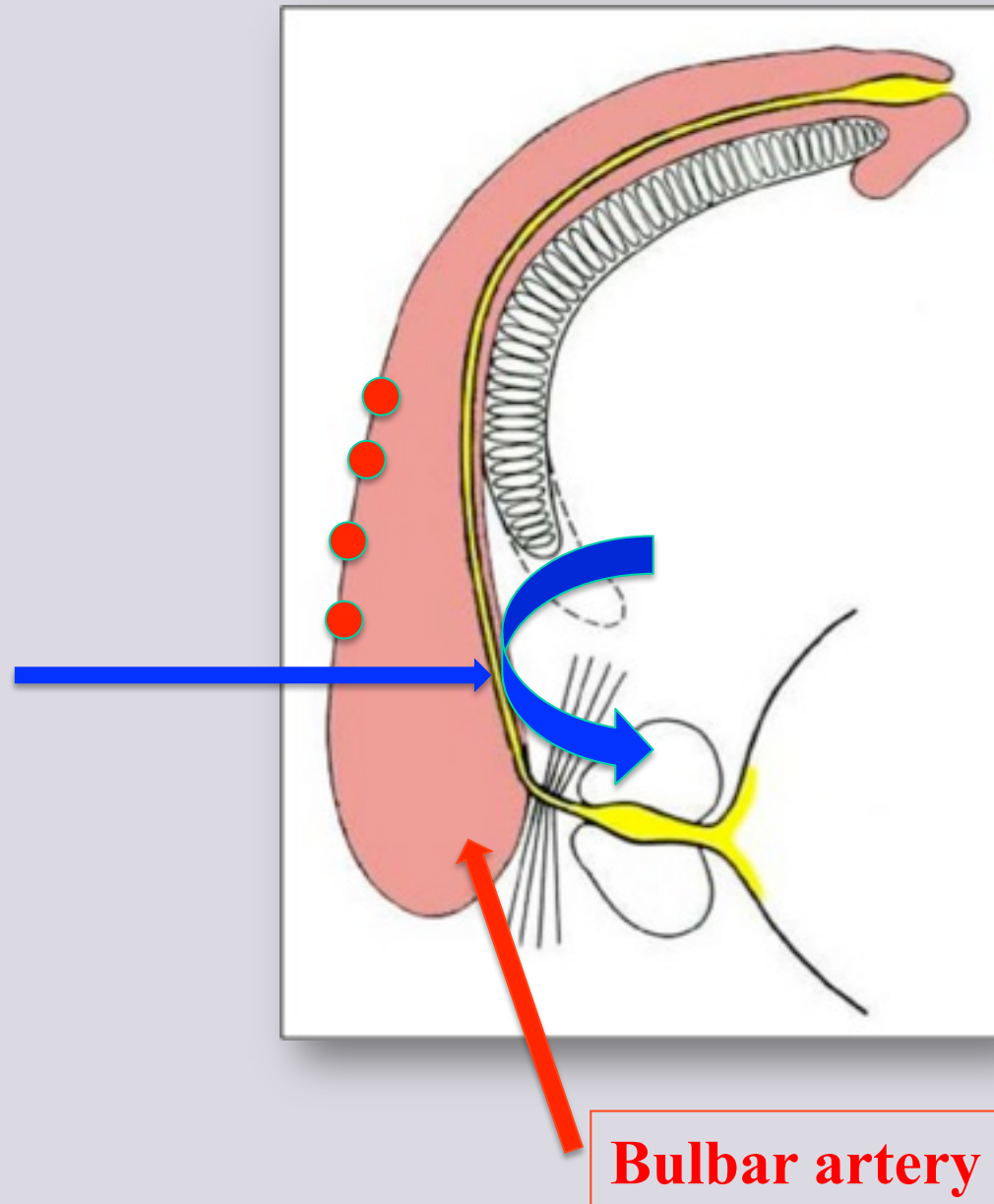
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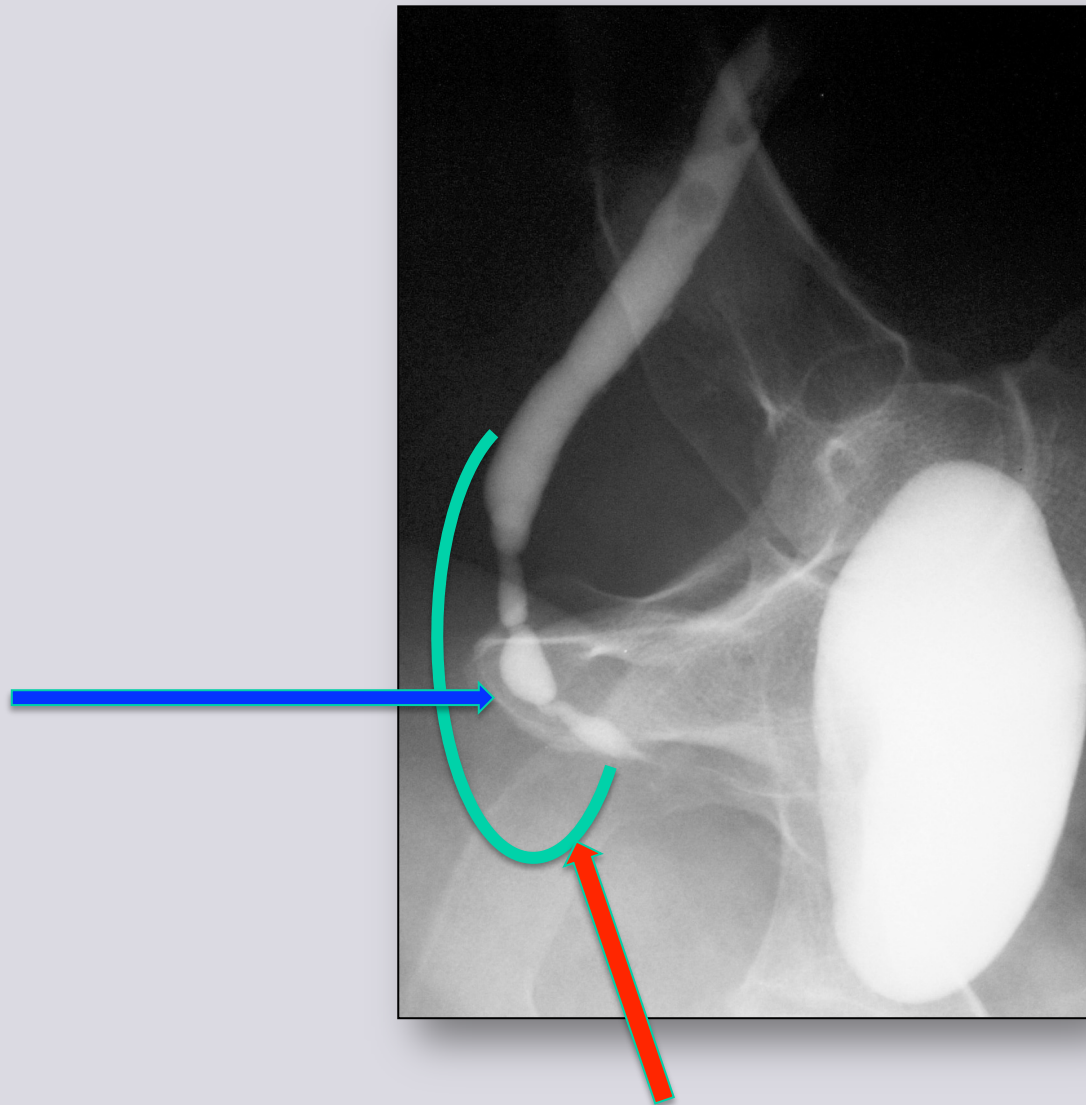
Websites: [www.uretra.it](http://www.uretra.it)  
[www.urethralcenter.it](http://www.urethralcenter.it)



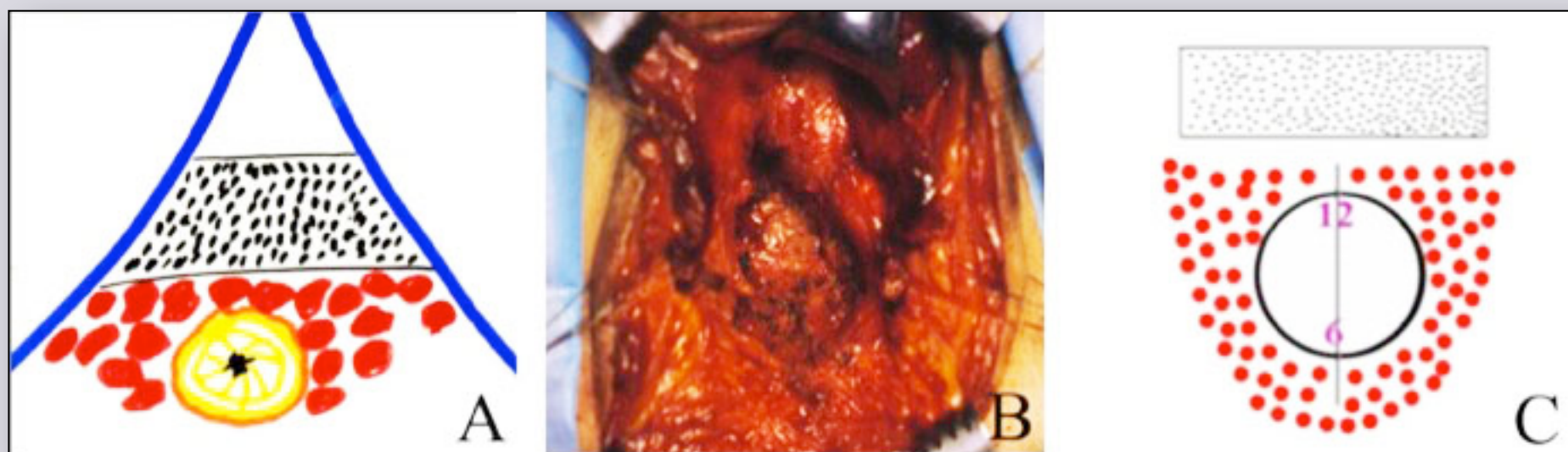








**Bulbar artery**





## Conclusions

**Sexual dysfunction may occur after open urethroplasty.**



**Knowledge of anatomy and physiology and adequate surgical strategies as well, may avoid it.**



**Register now !**

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