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# **23<sup>rd</sup> ANNUAL EAU CONGRESS**

## **EAU – CAU Session**

**Joint session of the European Association of  
Urology (EAU) and the Confederação  
Americana de Urologia (CAU)**

**26 – 29 March 2008**

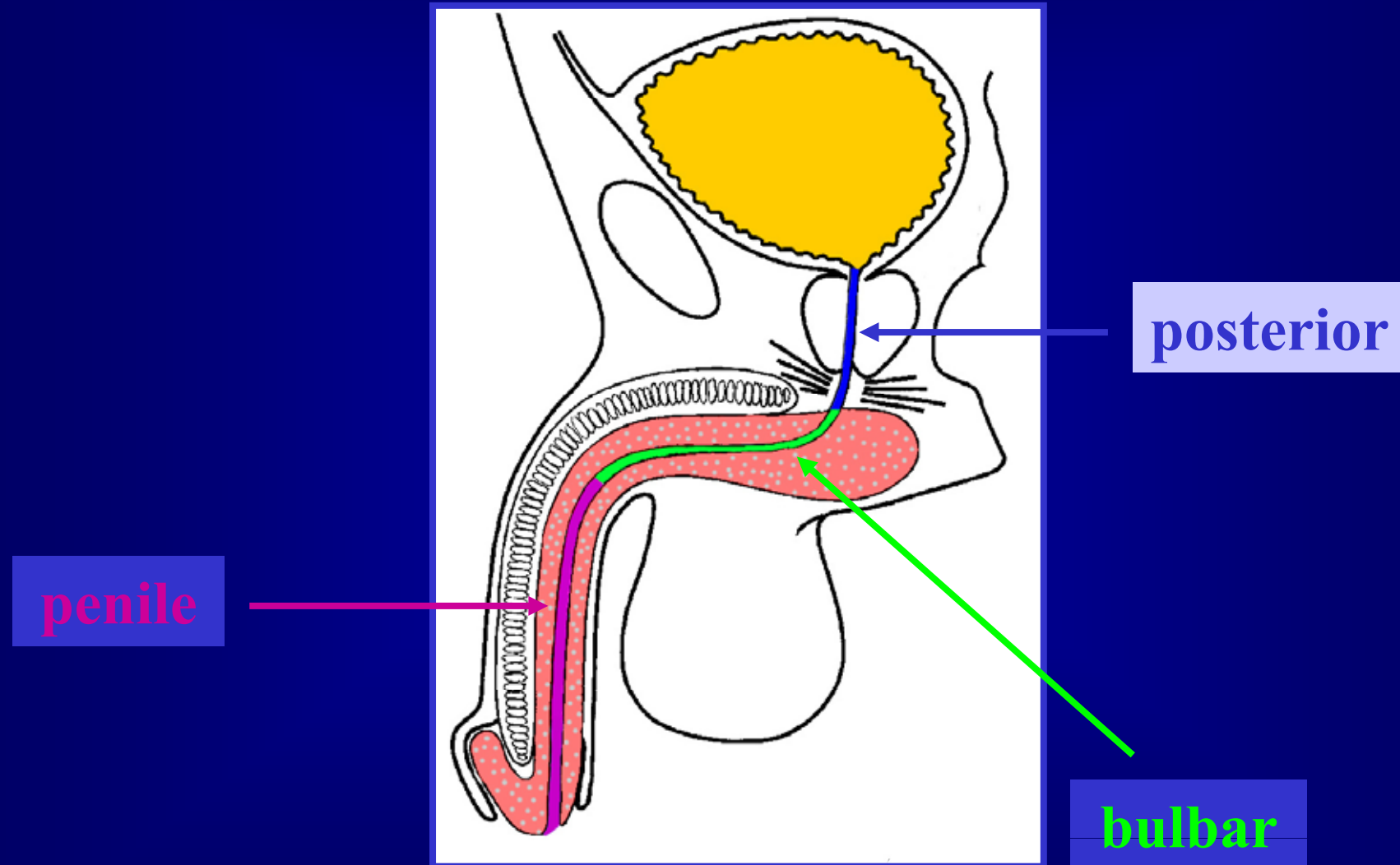
**Milan – Italy**



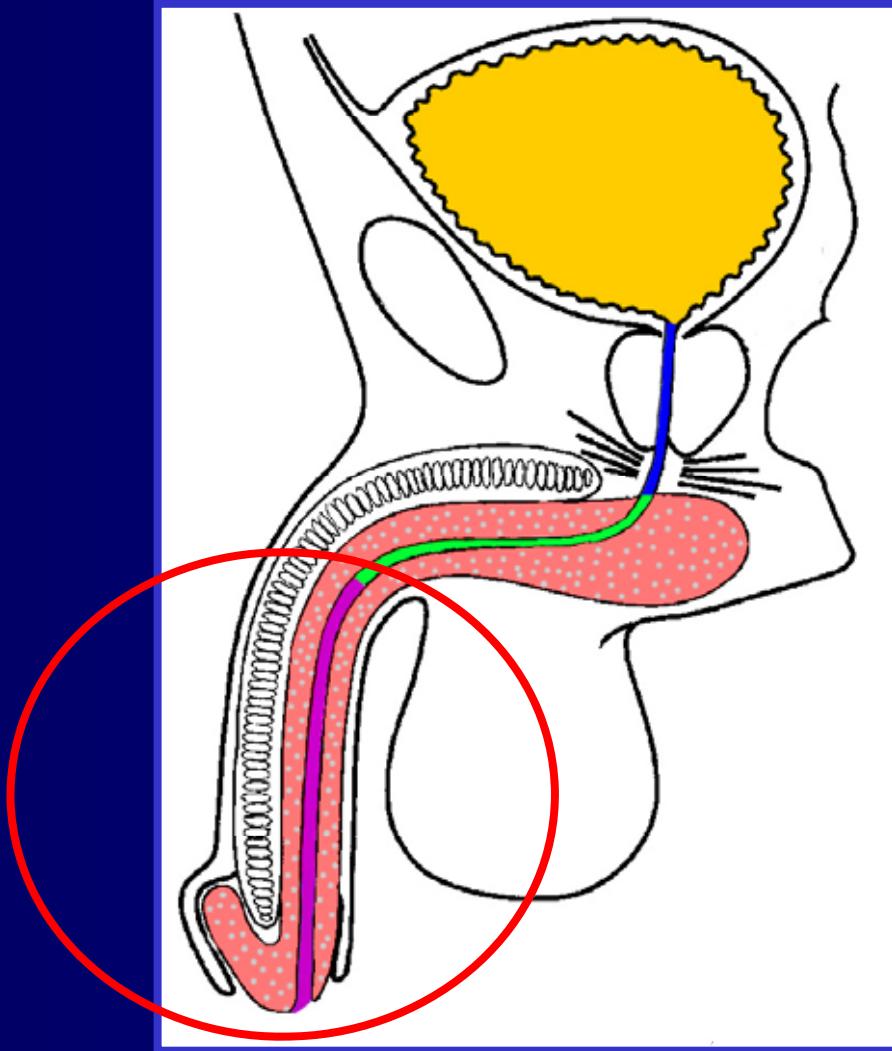
# **EAU update in the treatment of anterior urethral strictures**



# Anatomy of the male urethra



# Penile urethroplasty



One-stage or two-stage repair?

Flap or graft urethroplasty?



# Penile urethroplasty

One-stage or two-stage repair ?



**In patients with penile urethral strictures due to:**



**trauma**

**instrumentation**

**catheter**

**infection**



**the penis is normal: one-stage repair**



**In patients with penile urethral strictures due to:**



**failed hypospadias**

**lichen sclerosis**



**the penis is abnormal: two-stage repair**





# Penile urethroplasty

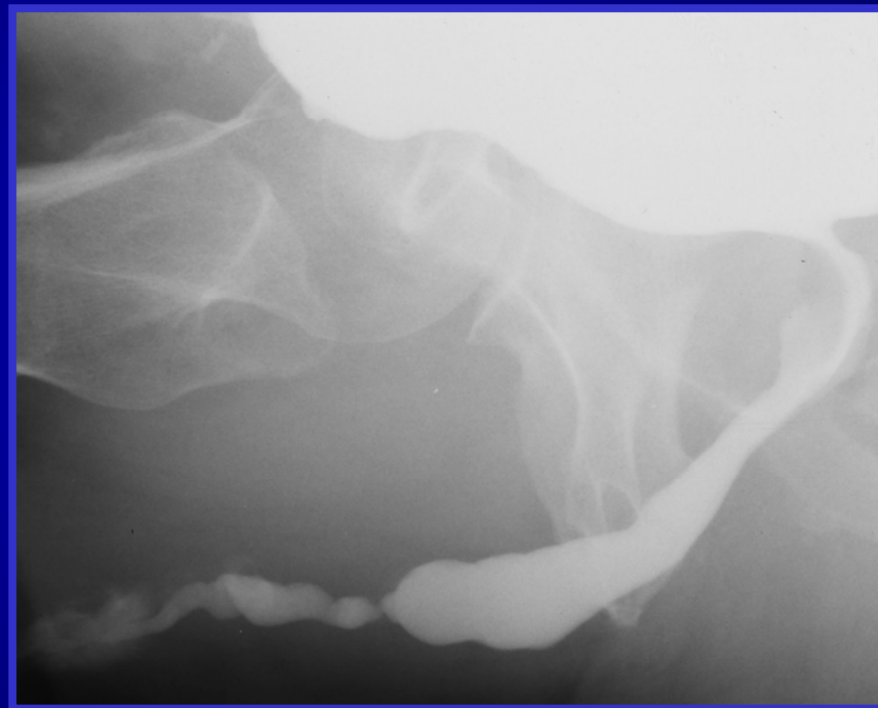
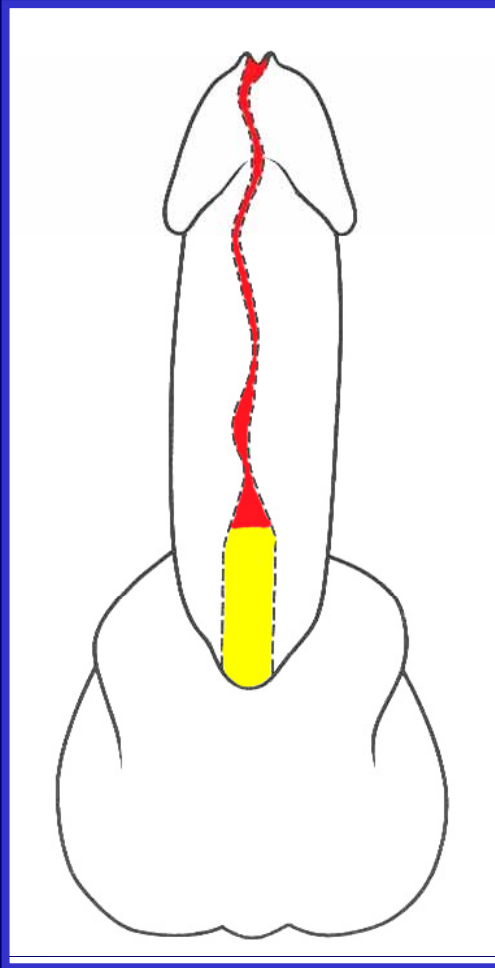
## One-stage flap or graft urethroplasty

Which type of flap technique is best?

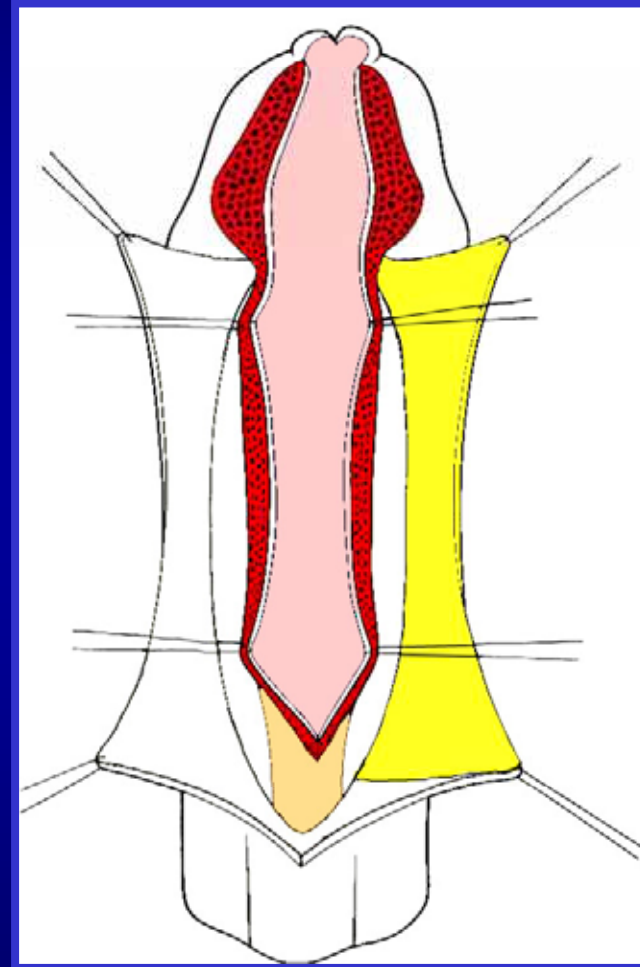
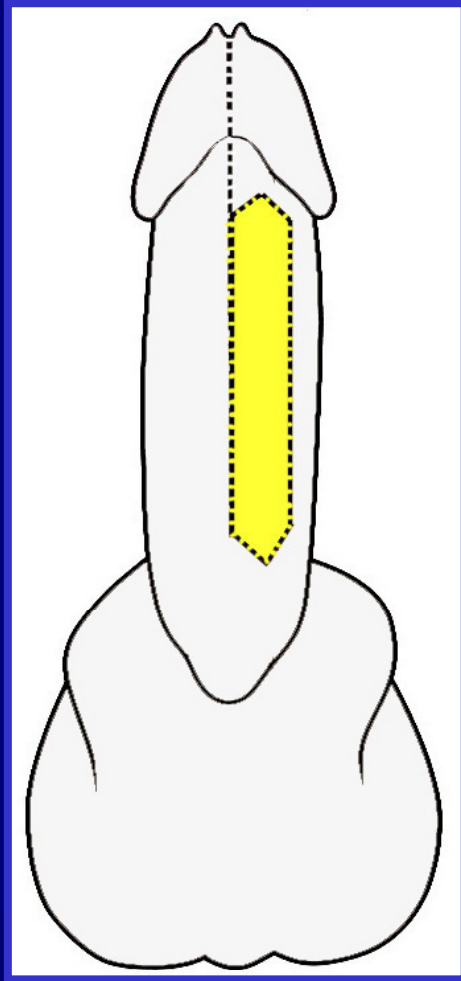
Which type of graft material is best: oral  
mucosa or penile skin?



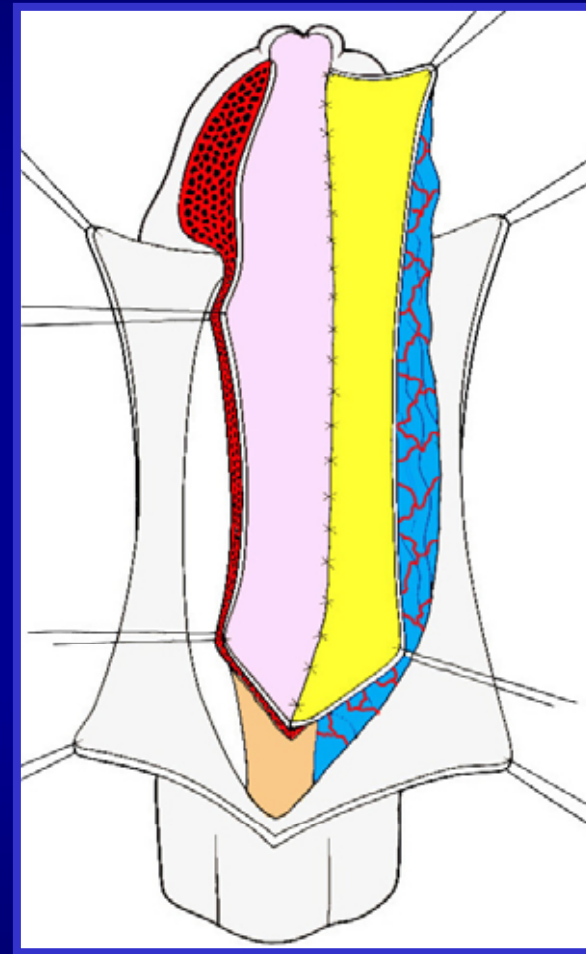
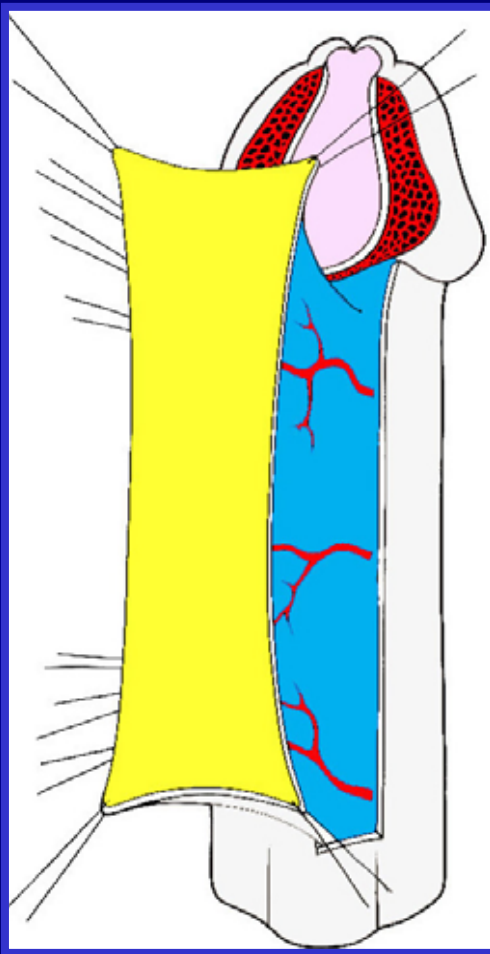
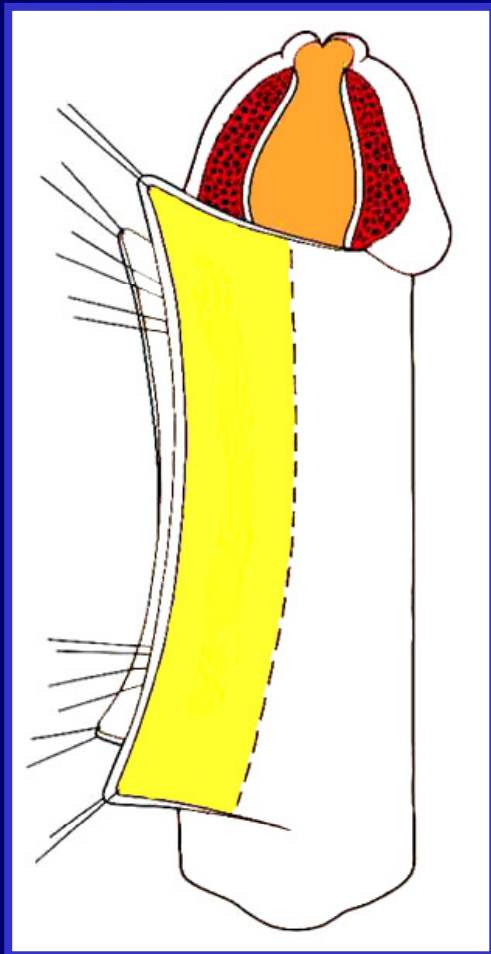
# Jordan's flap



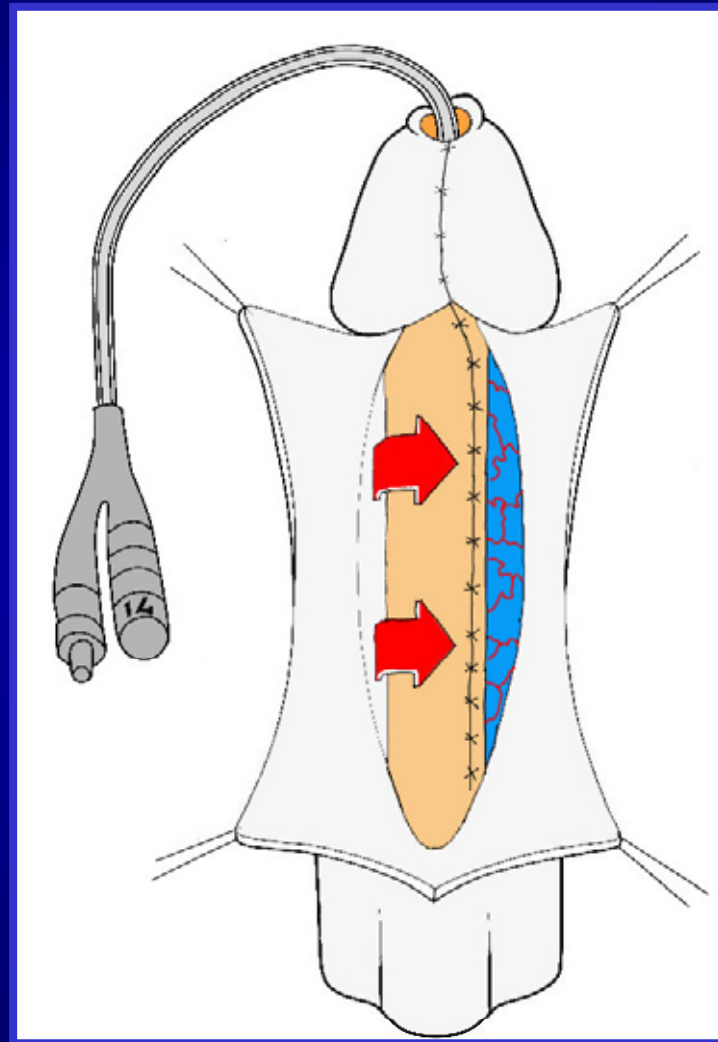
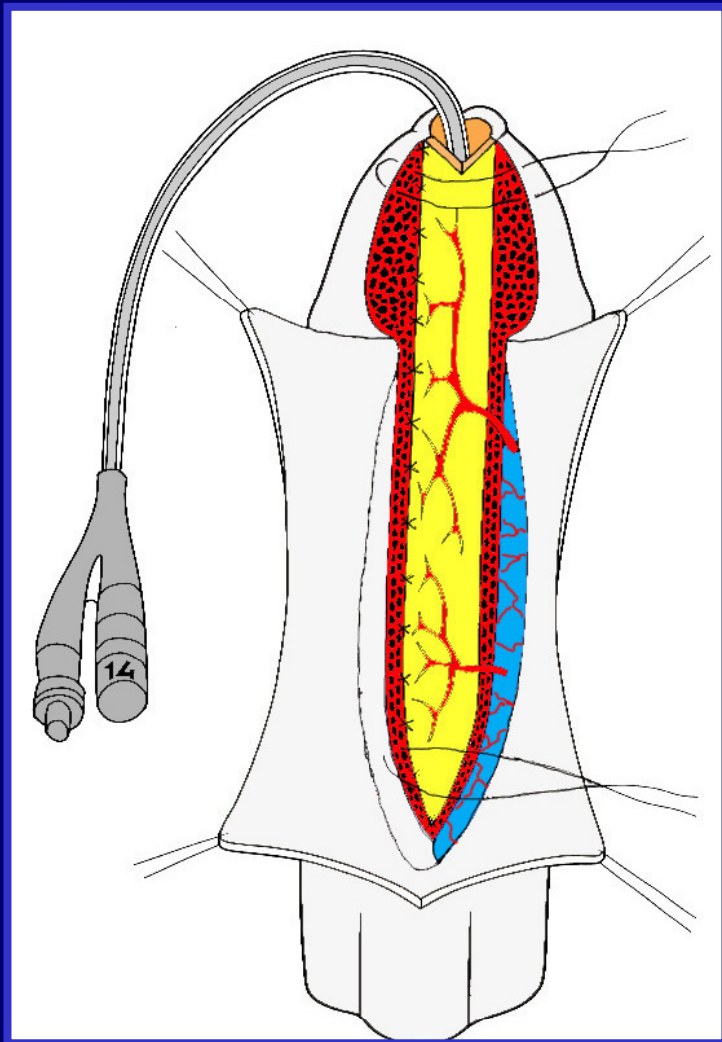
# Jordan's flap



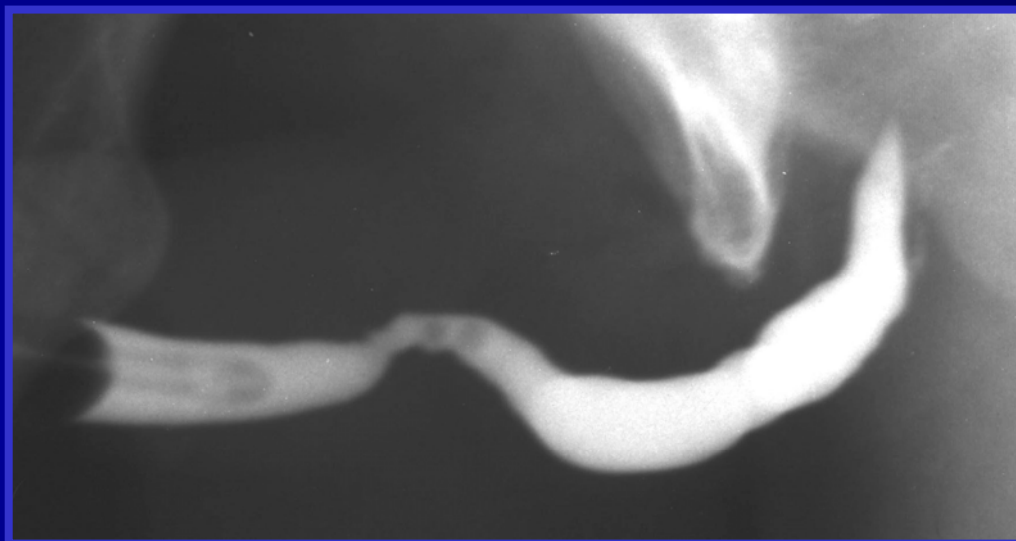
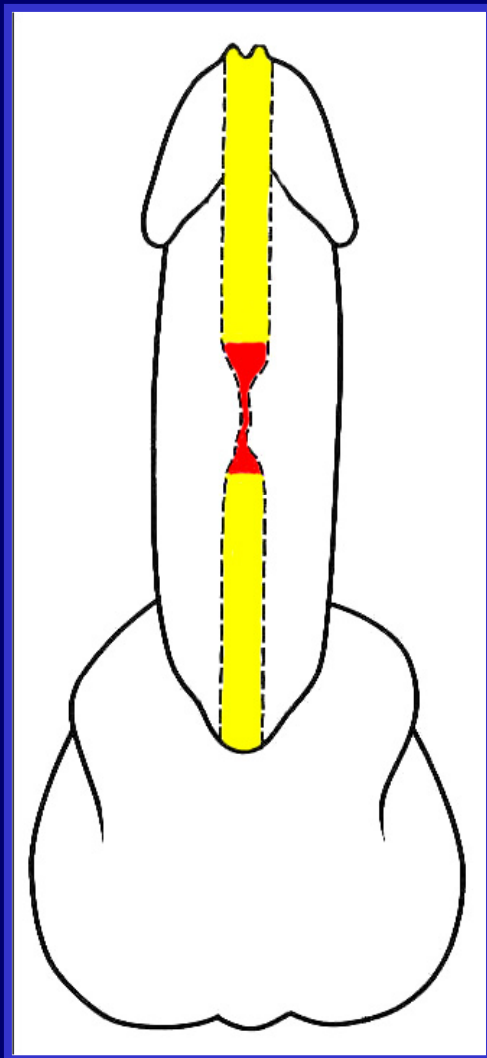
# Jordan's flap



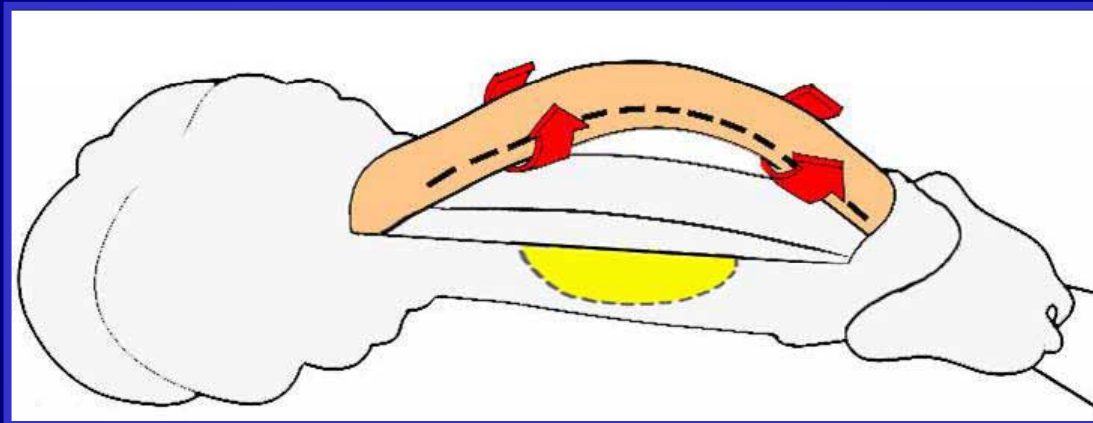
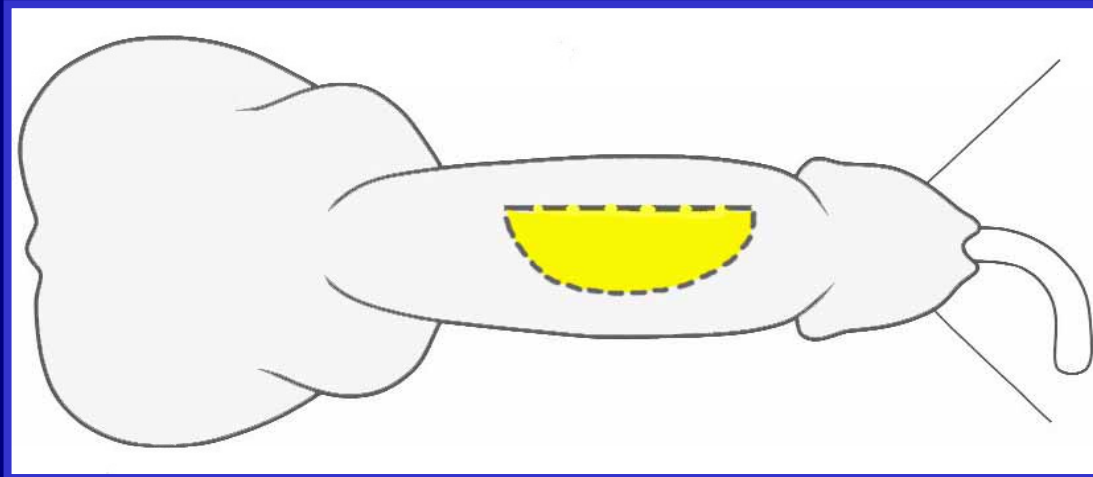
# Jordan's flap



# Dorsal Orandi's flap

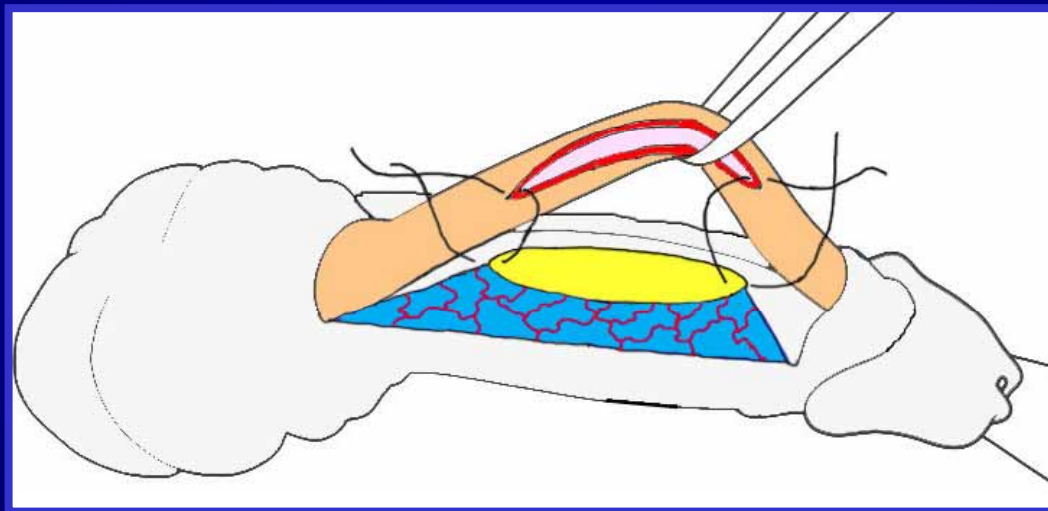
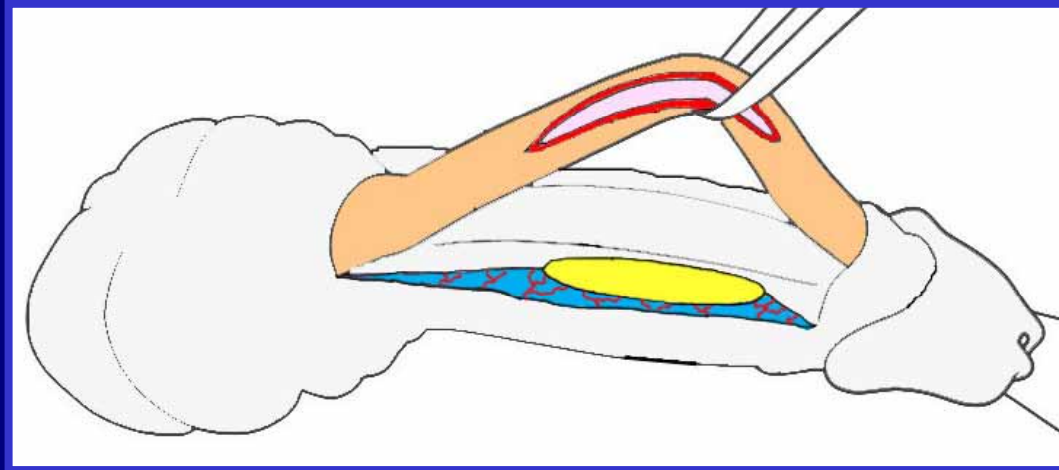


# Dorsal Orandi's flap



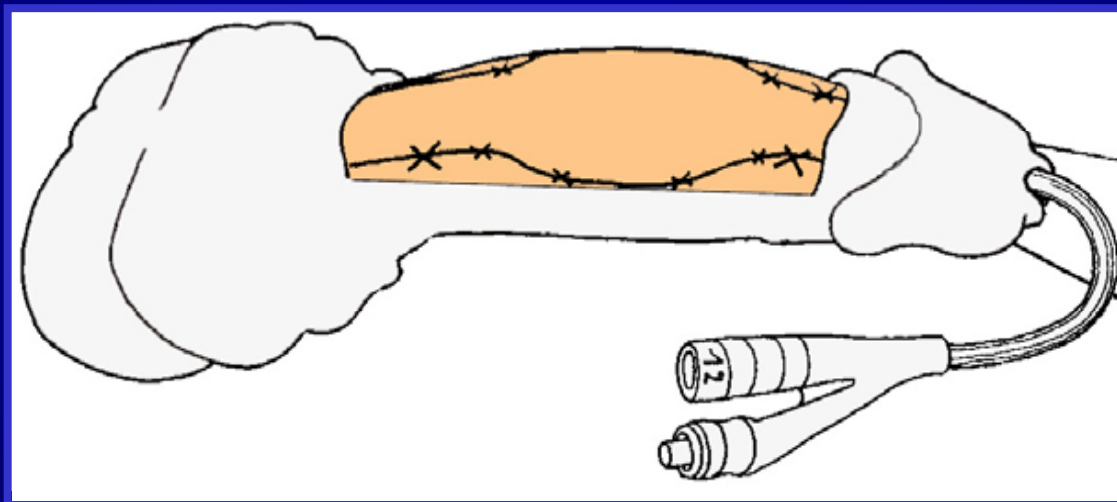
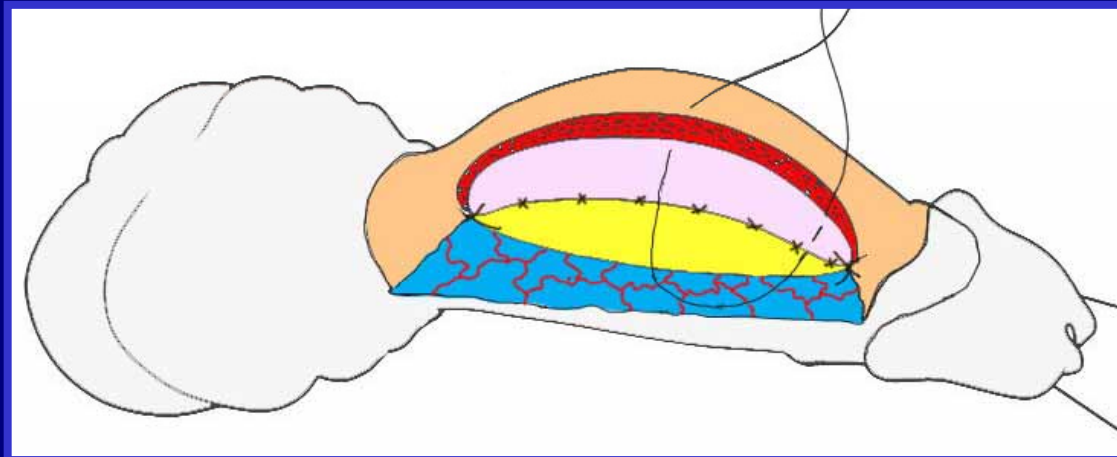


# Dorsal Orandi's flap

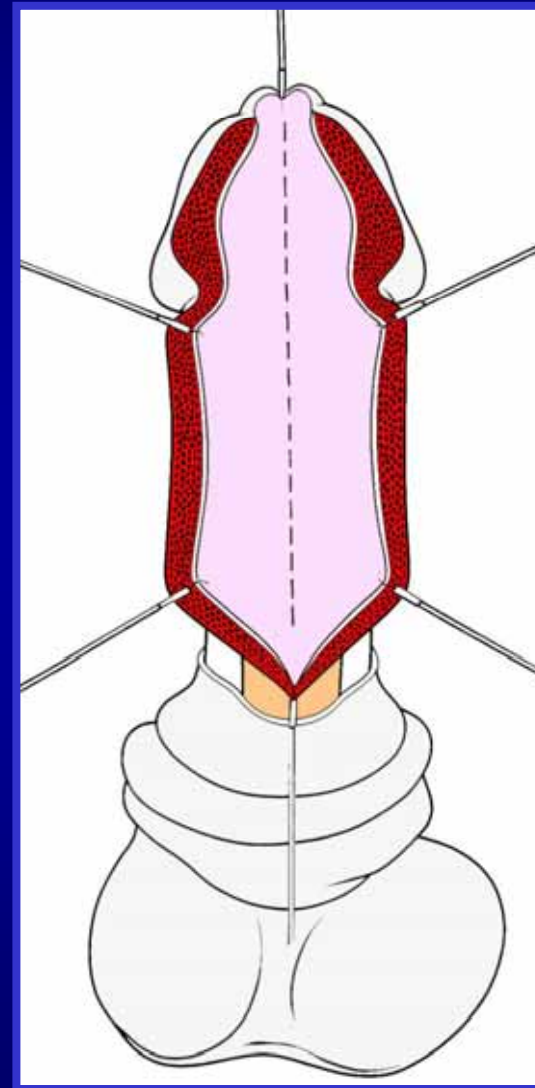
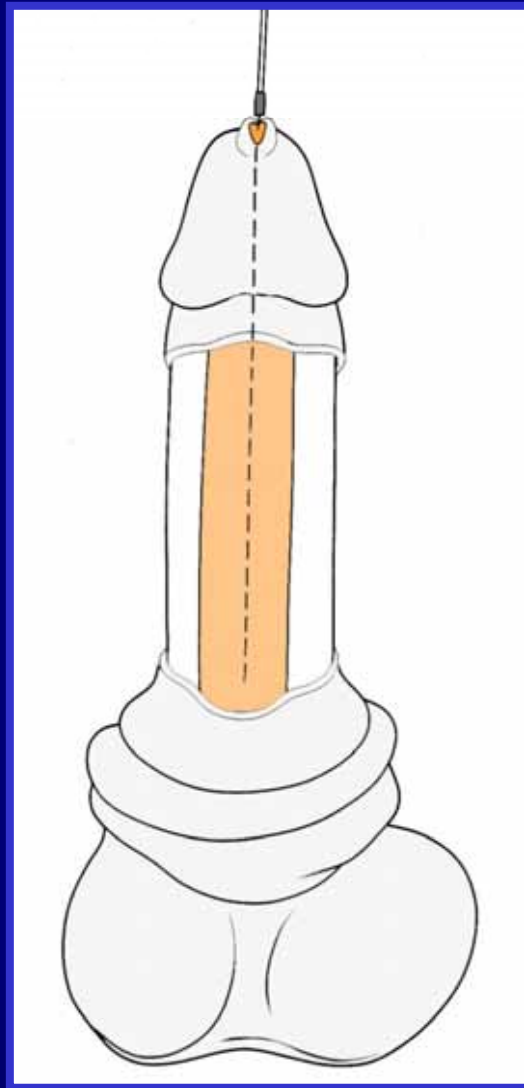




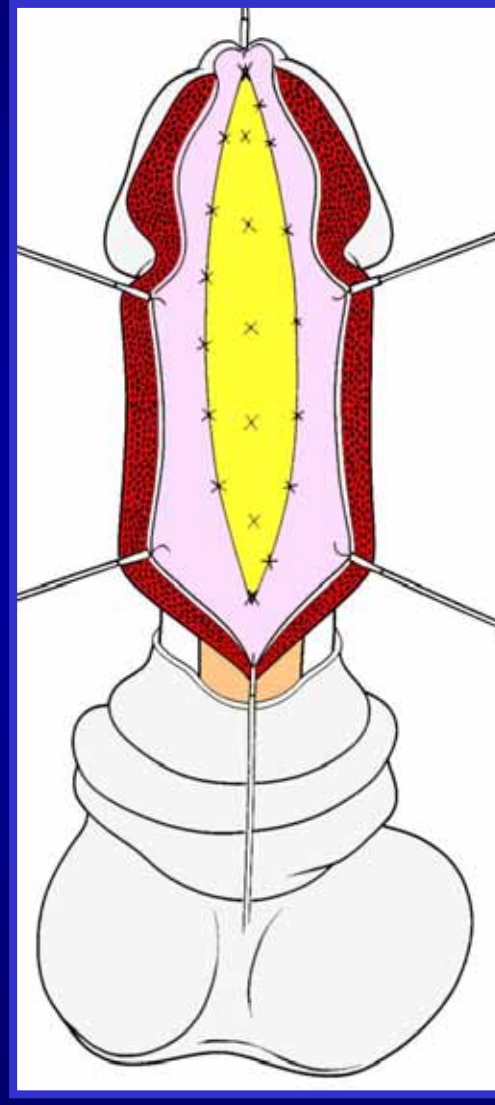
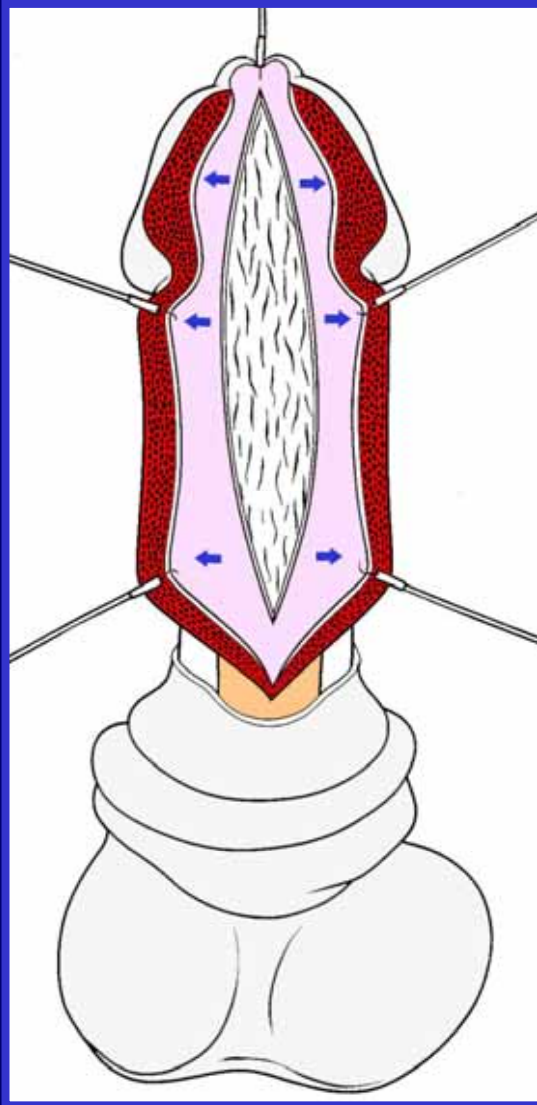
# Dorsal Orandi's flap



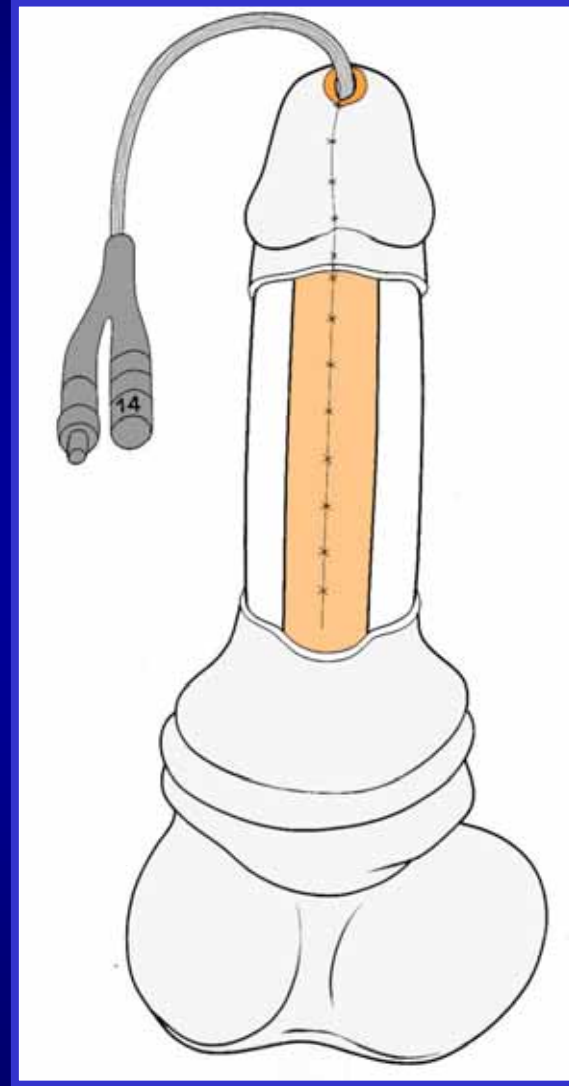
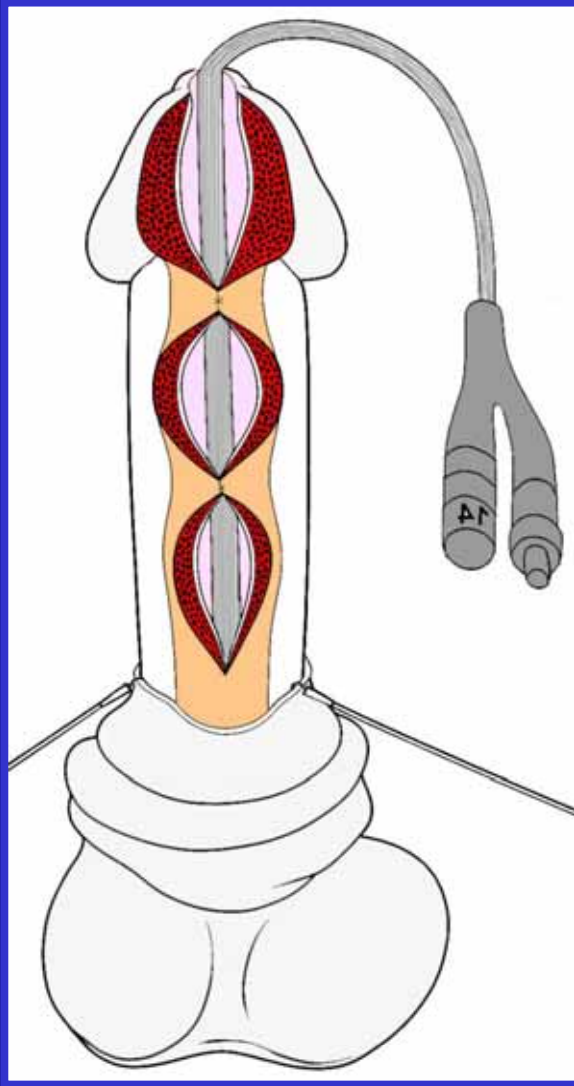
# Asopa's graft



# Asopa's graft



# Asopa's graft



# Complications following flap urethroplasty



penile haematoma



skin necrosis



fistula



penile-glans torsion



sacculation





# Complications following graft urethroplasty



**infection**



**meatal stenosis**



**fistula**



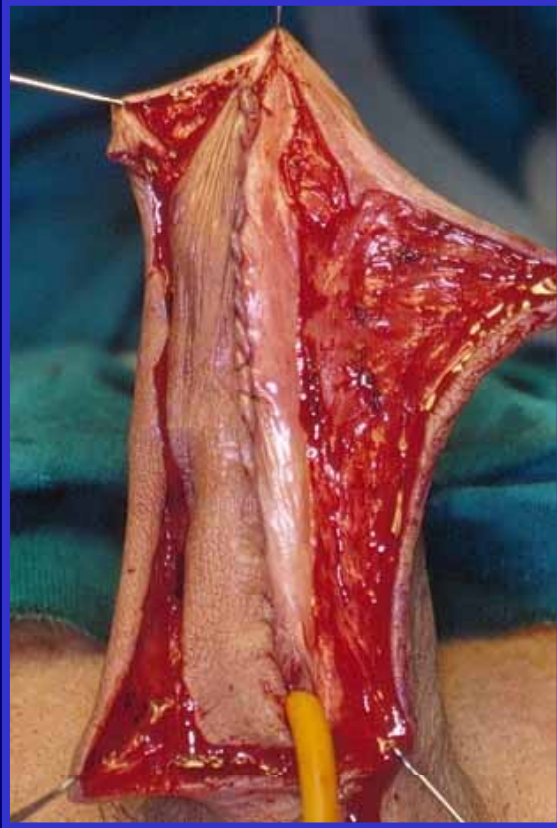
# One-stage penile flap or graft urethroplasty

## Results

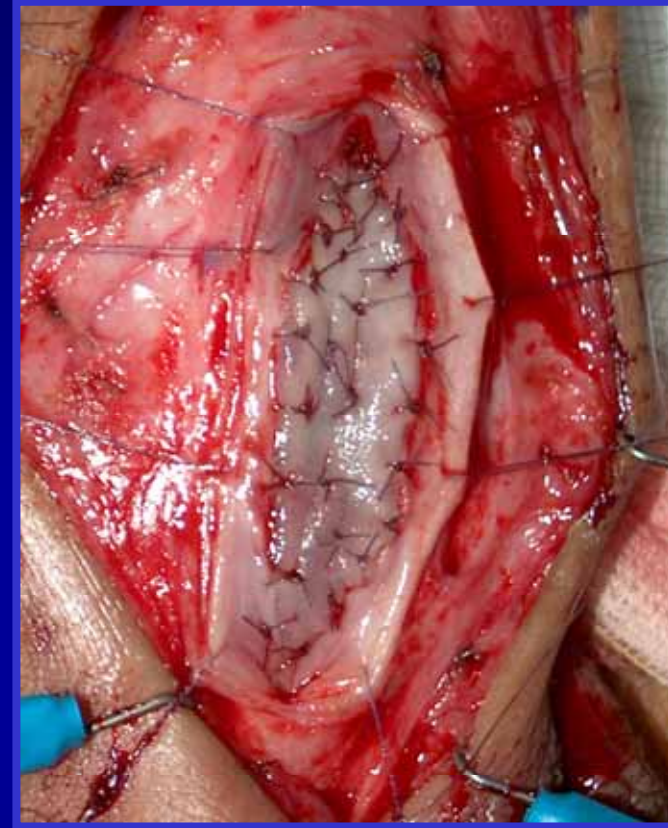
patients	type of repair	success
18	flap	66.7%
22	oral graft	81.8%
23	skin graft	78.3%

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





**flap**



**graft**

**Basically, the choice between flap or graft one-stage urethroplasty should be made according to the status of the urethral plate and according to the surgeon background, training and preference**



# Penile urethroplasty

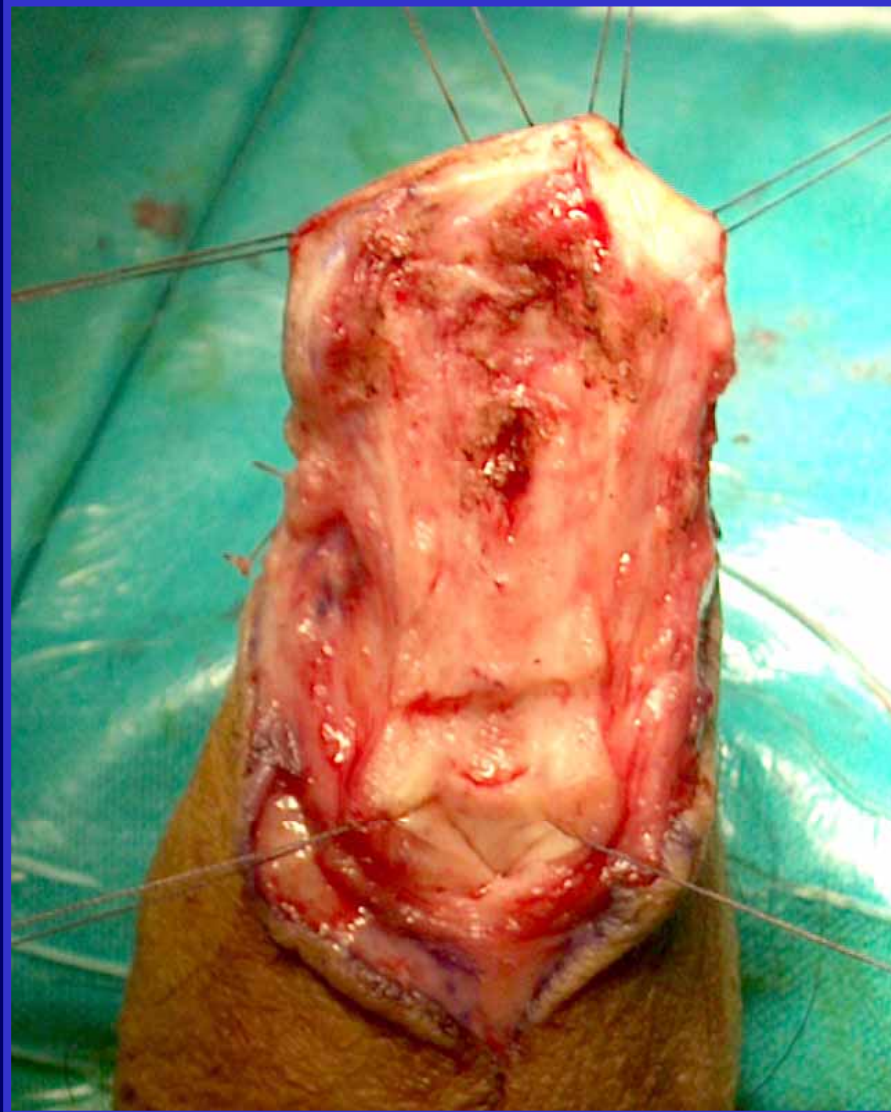
## Two-stage urethroplasty

Which type of graft material is best:  
oral mucosa or penile skin?



# Two-stage urethroplasty using oral mucosal graft









# Complications following the first stage of urethroplasty



**10-39% of patients showed contracture or scarring of the initial graft, requiring new grafting procedures**

**Barbagli et al., Eur Urol, 2006**



## Second stage







# Complications following the second stage of urethroplasty



**fistula**



**glans dehiscence**



**meatal stenosis**

**30% of patients showed complications following the second stage of urethroplasty, requiring surgical revision**

**Barbagli et al., Eur Urol 2006**





# Results of two-stage penile urethroplasty in patients with failed hypospadias repair

Surgical techniques	N°	Success		Failure	
Two-stage techniques with penile skin	14	7	50%	7	50%
Two-stage techniques with oral mucosa	17	14	82.3%	3	17.6%
TOTAL	31	21	67.7%	10	32.3%

Barbagli et al., Eur Urol 2006



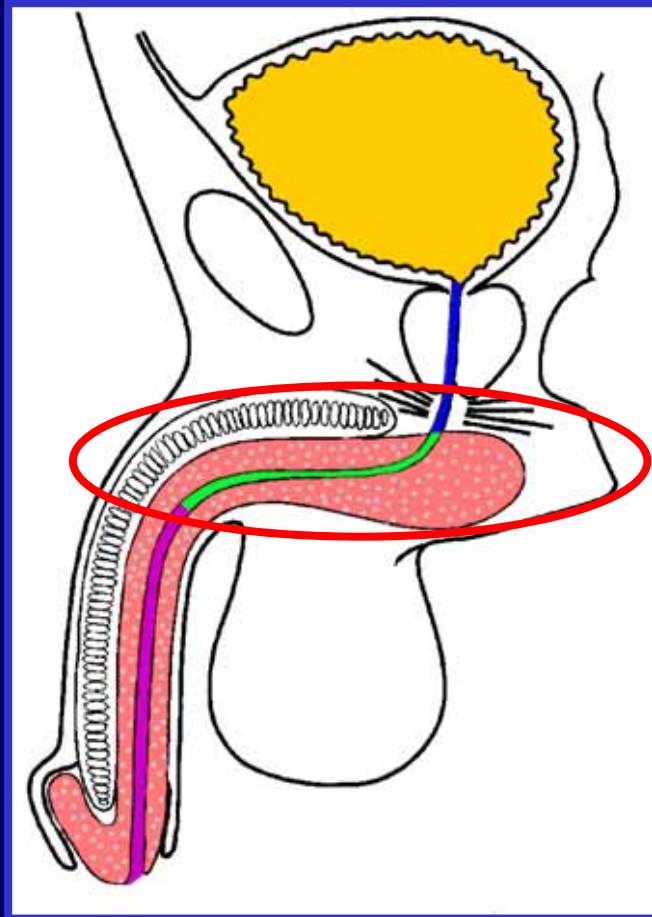
## **Conclusion**

**Two-stage penile urethroplasty using oral graft is not a simple procedure and require a great expertise to avoid a lot of traps**

**Moreover, this two-stage procedure, also in the hands of skilled surgeon, showed an high complications rate either following the first stage or the second stage**



# Bulbar urethroplasty



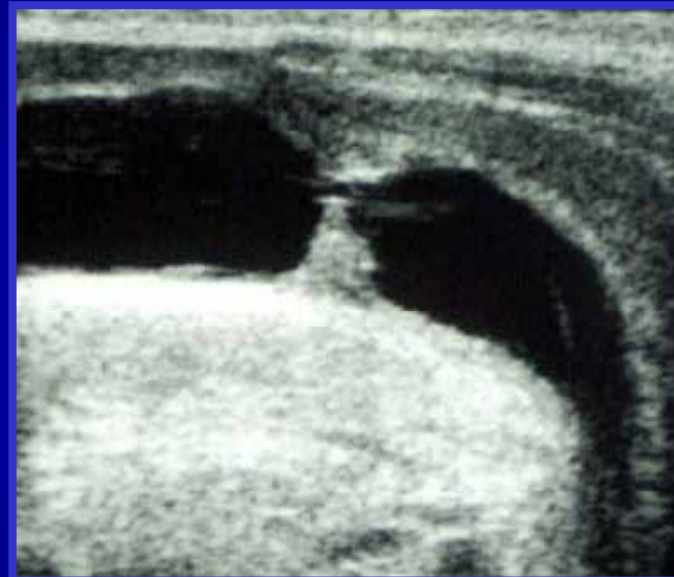
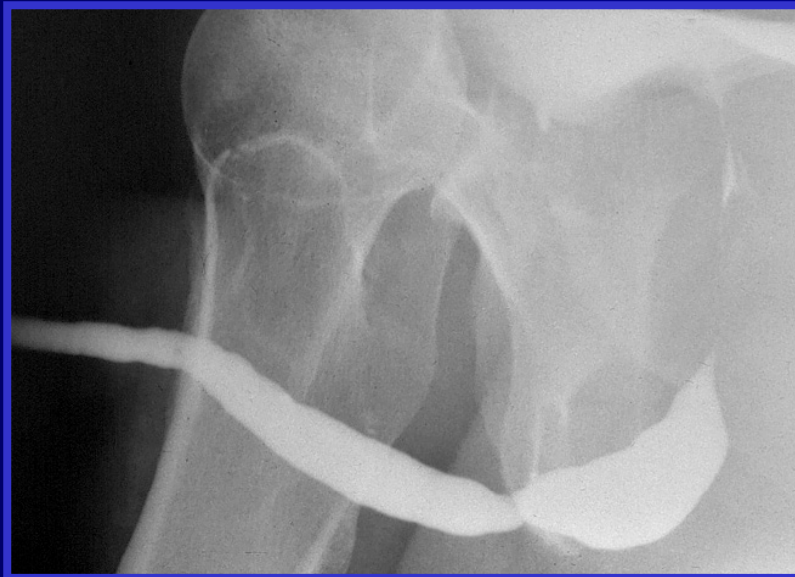
**Anastomotic or substitution  
urethroplasty?**

**Ventral or dorsal graft location?**

**One-stage or two-stage repair?**

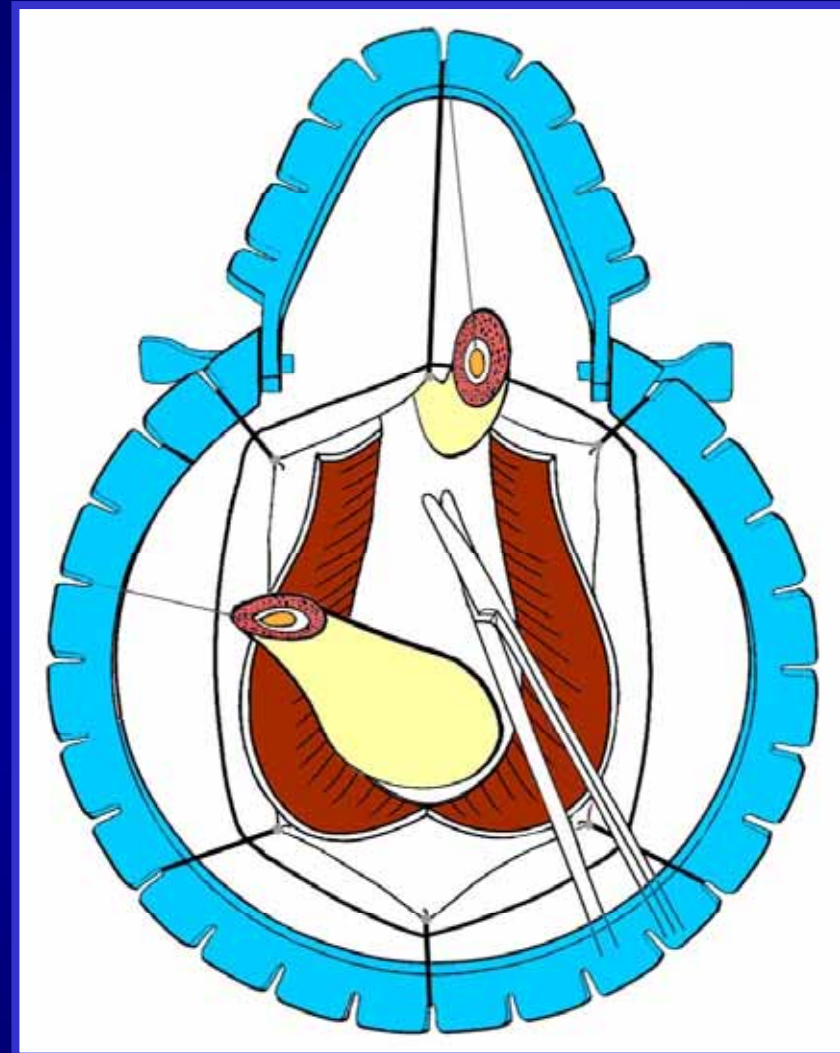
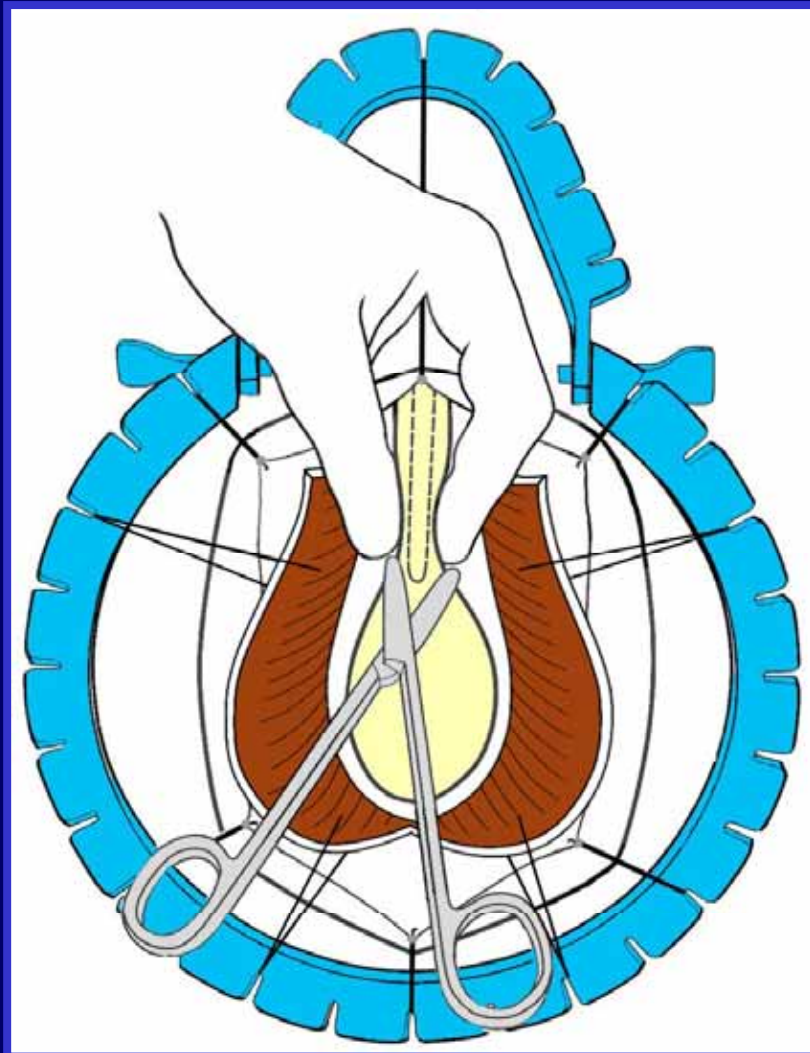


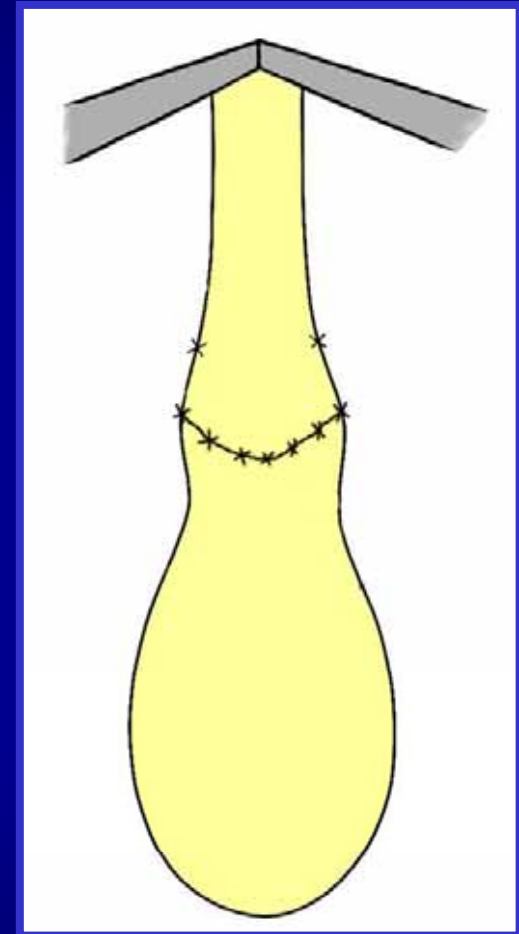
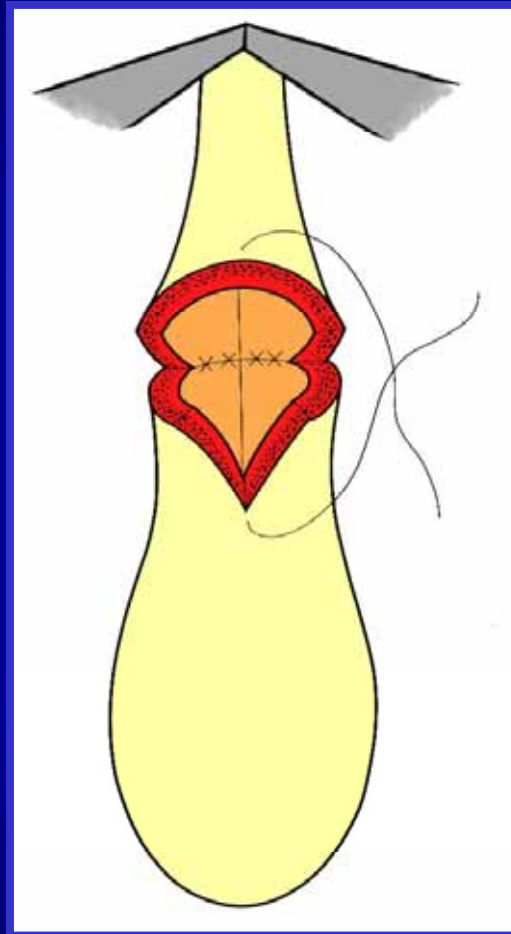
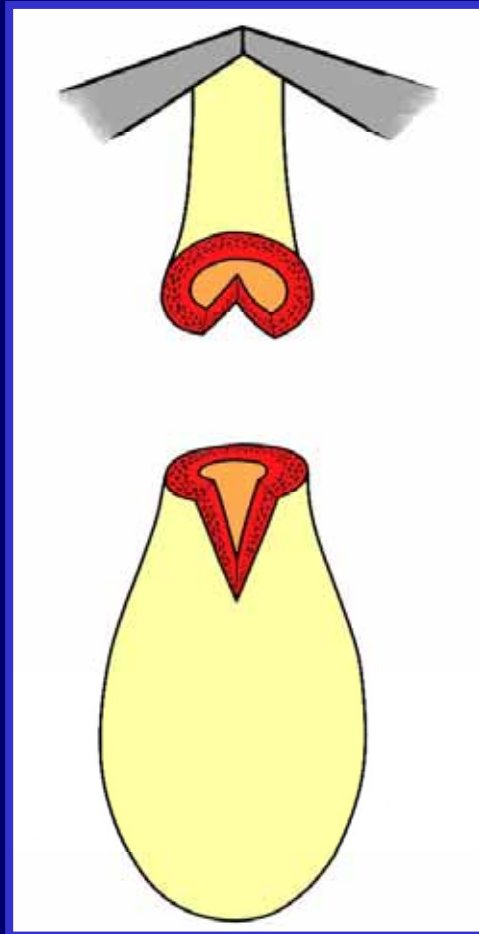
# End-to-end anastomosis



Urethral stricture ranging from 1 to 2 cm



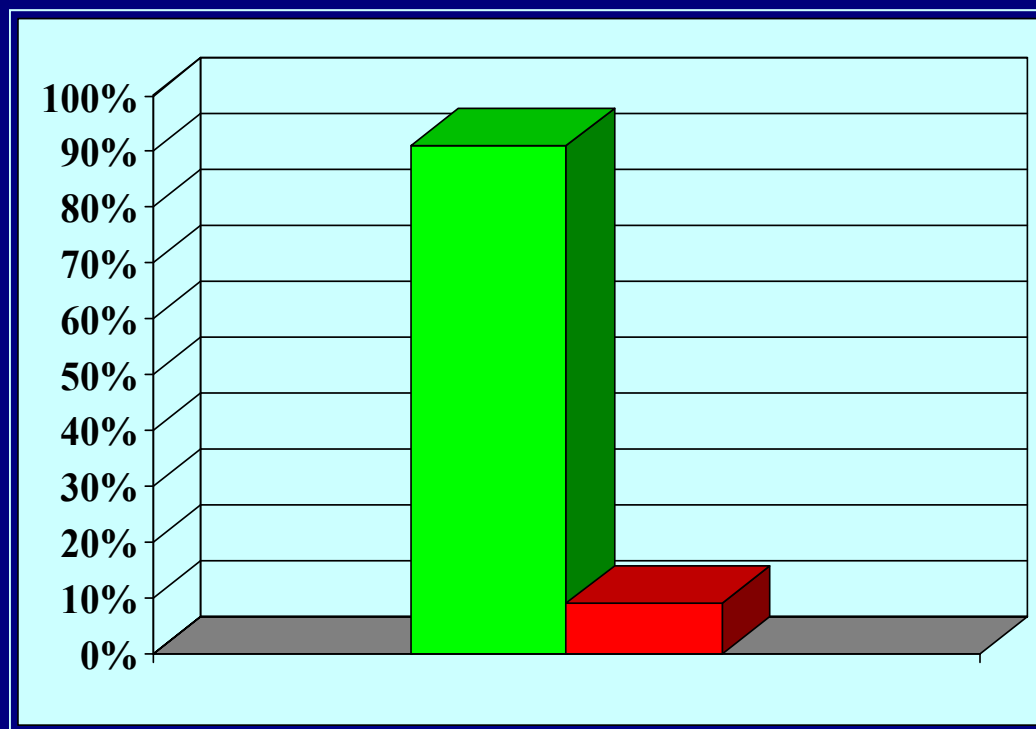






# Results of 153 end-to-end anastomosis

Follow-up: 12 - 218 months (mean 68)



■ success	90.8%
■ failure	9.2%

Barbagli G. et al, J Urol 2007

## **In our experience, out of 60 patients who underwent end-to-end anastomosis:**

- **14 (23.3%)** experienced ejaculatory dysfunction
- **11 (18.3%)** had decreased glans sensitivity
- **7 (11.6%)** experienced a glans that was neither full or not swollen during erection
- **1 (1.6%)** experienced a cold glans during erection

**Barbagli G. et al, J Urol 2007**





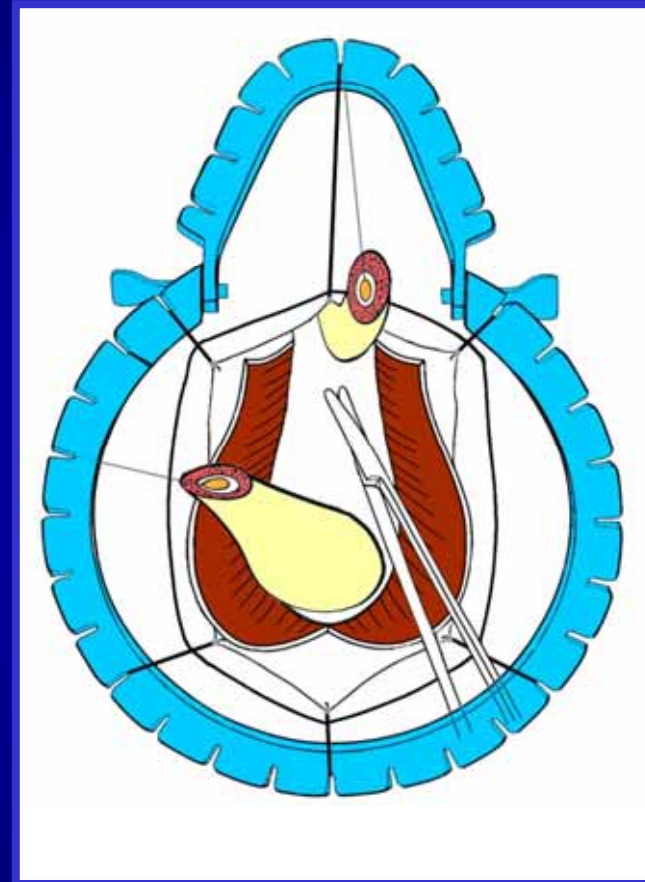
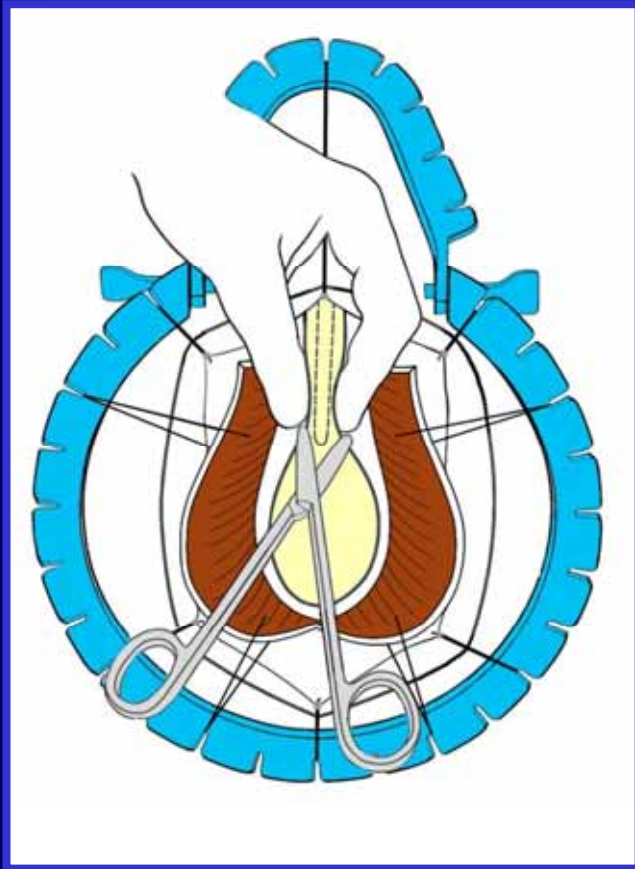
# Augmented anastomotic repair using oral graft



Urethral stricture ranging from 2 to 4 cm

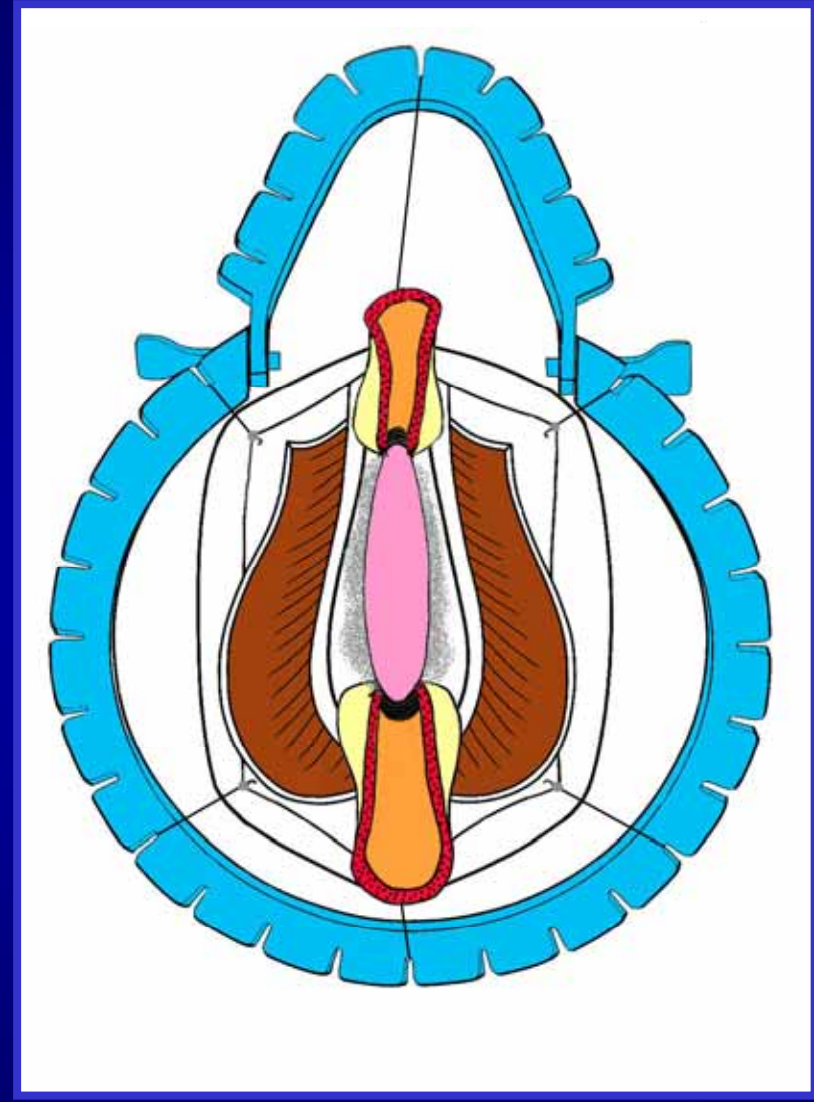
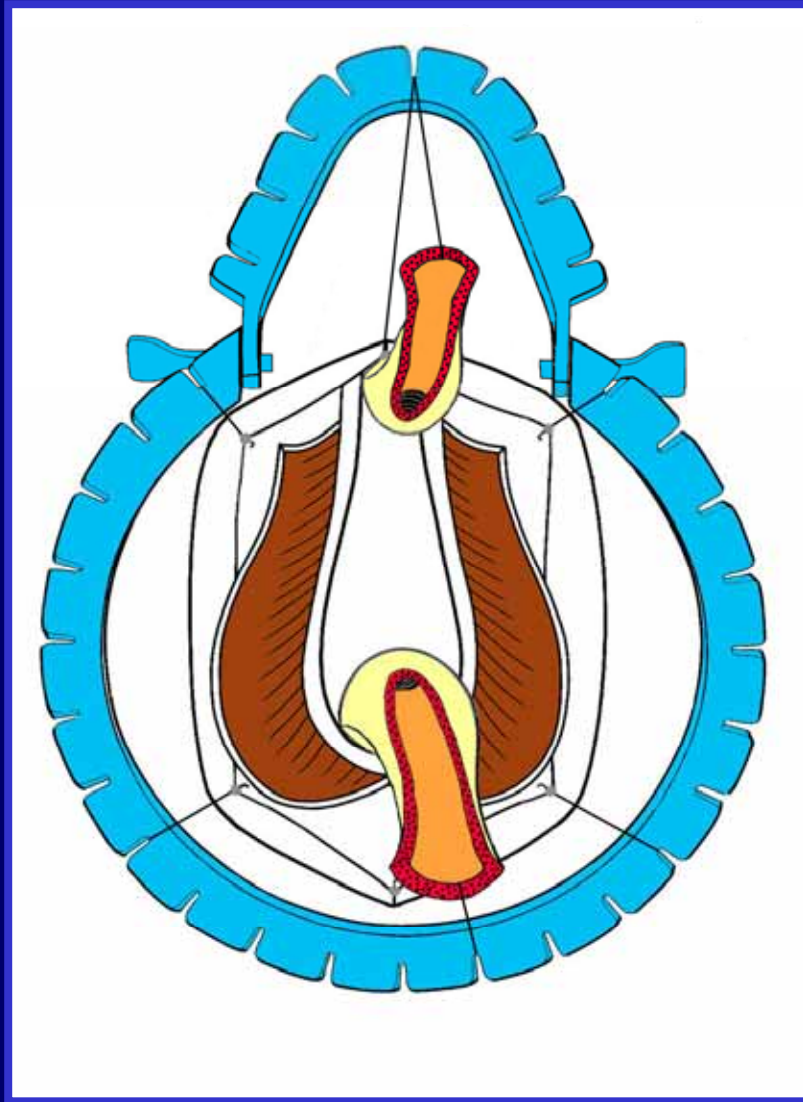


# Augmented anastomotic repair using oral graft

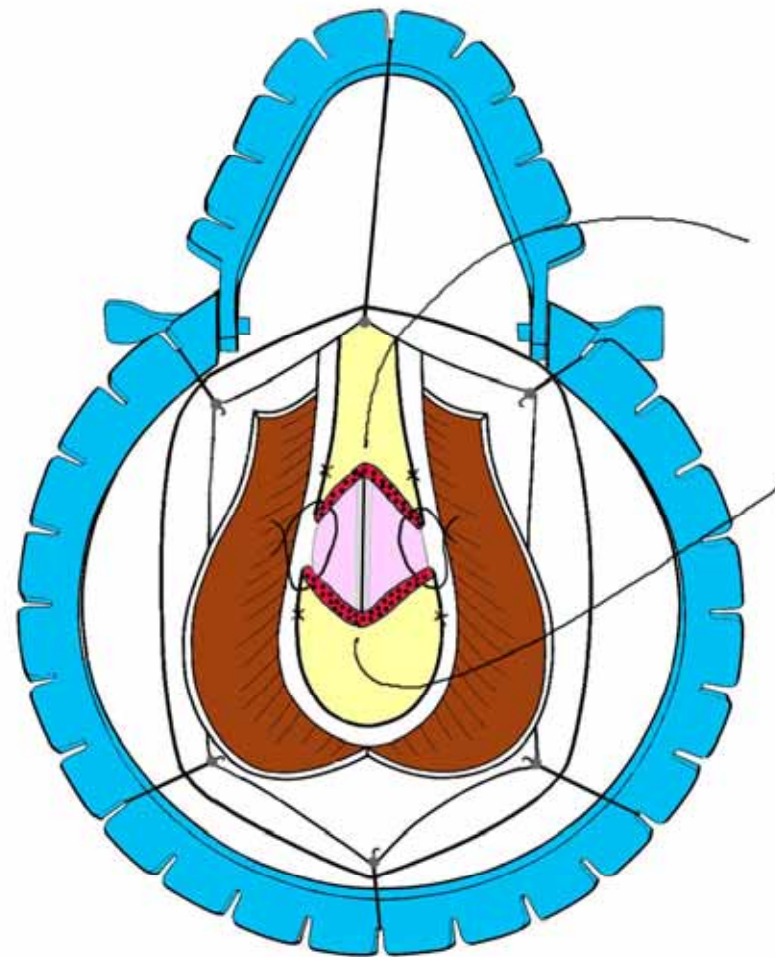
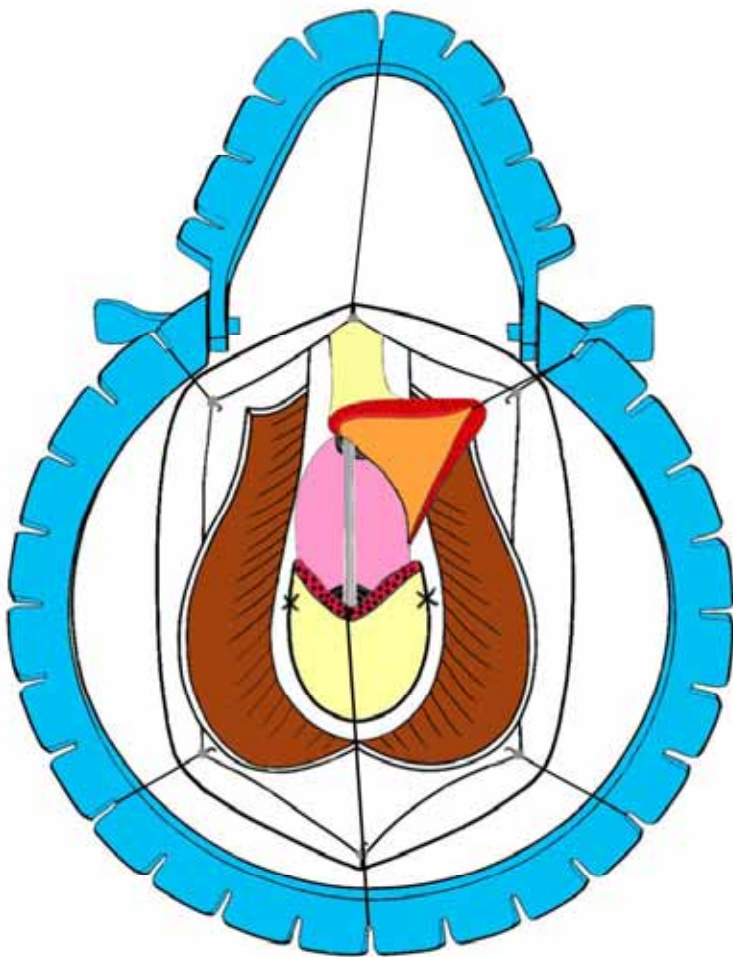


**Dorsal roof-strip**

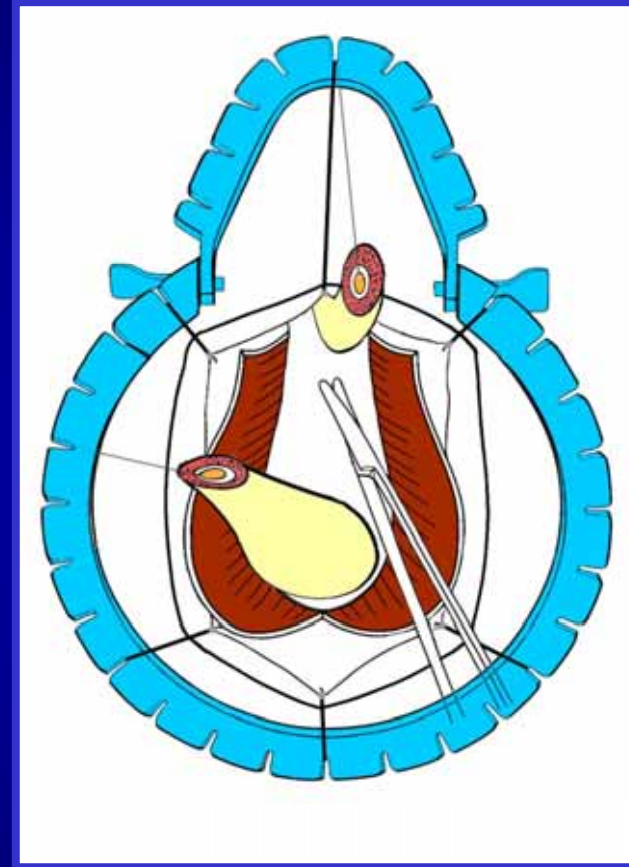
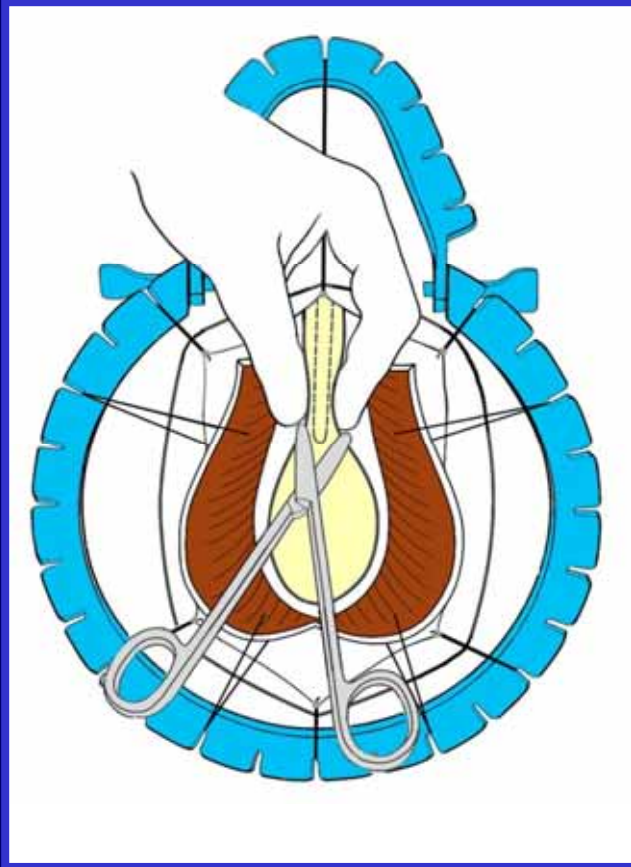








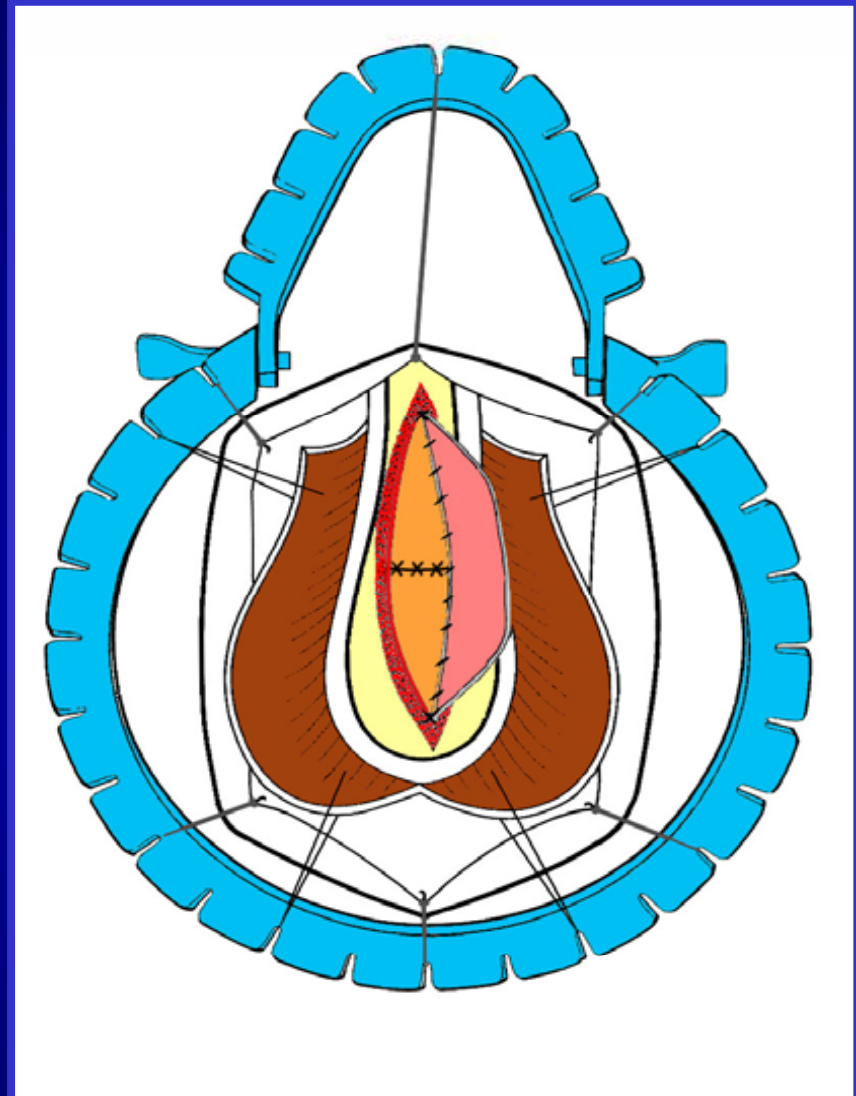
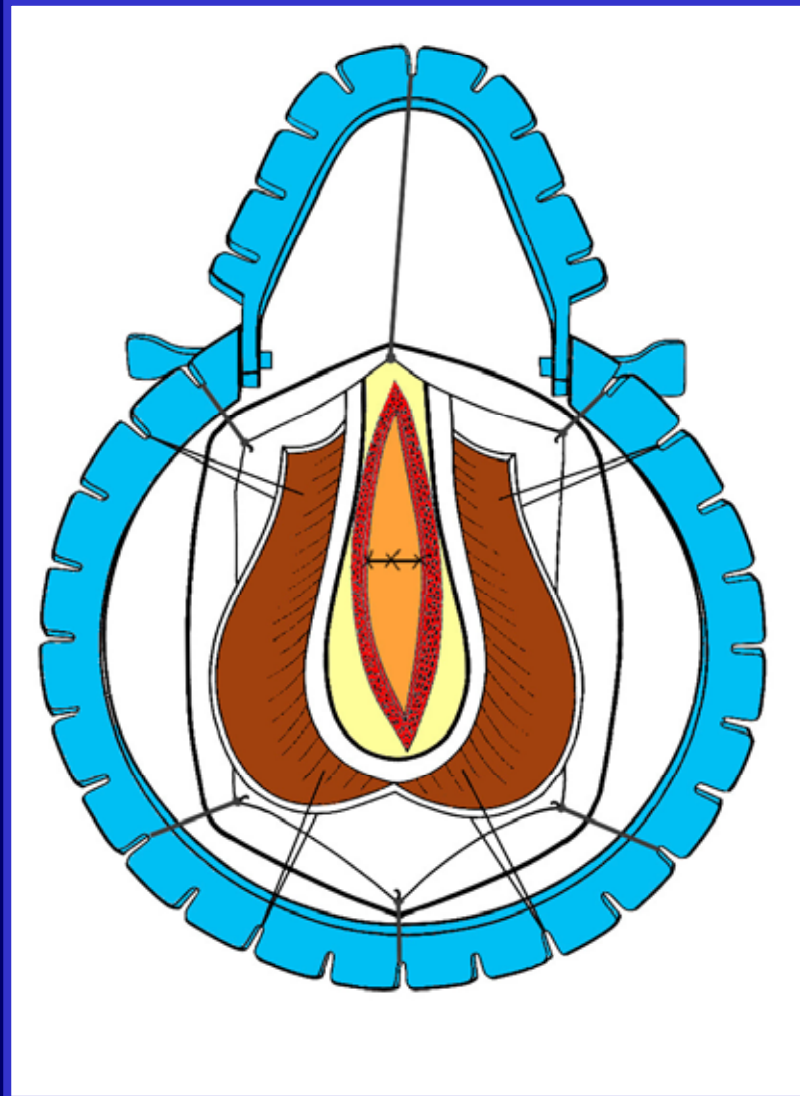
# Augmented anastomotic repair using oral graft

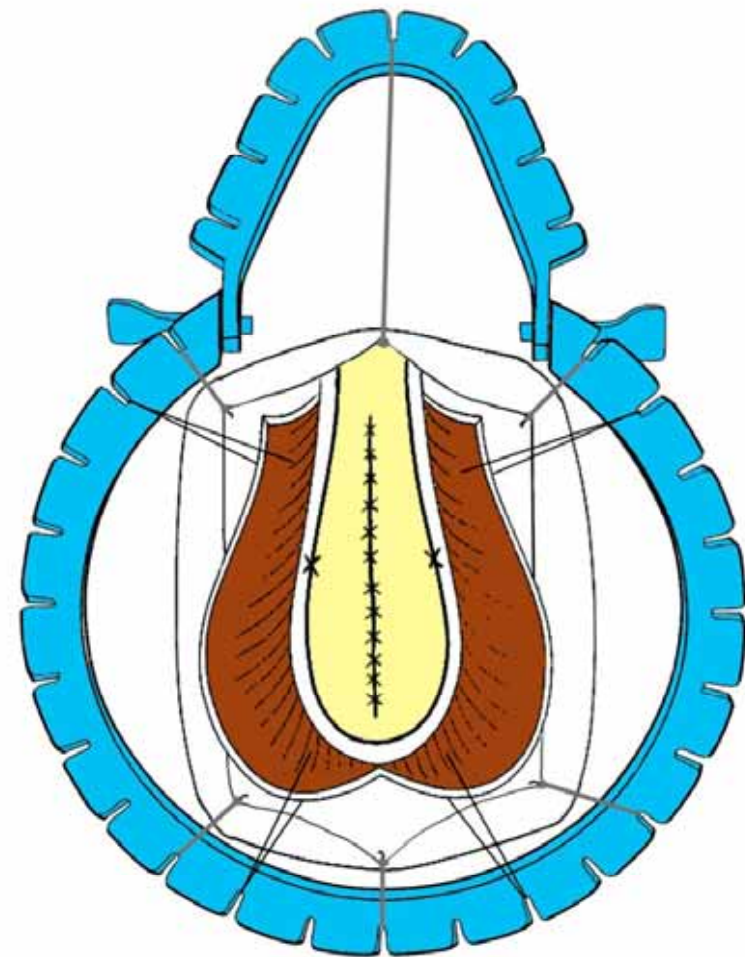
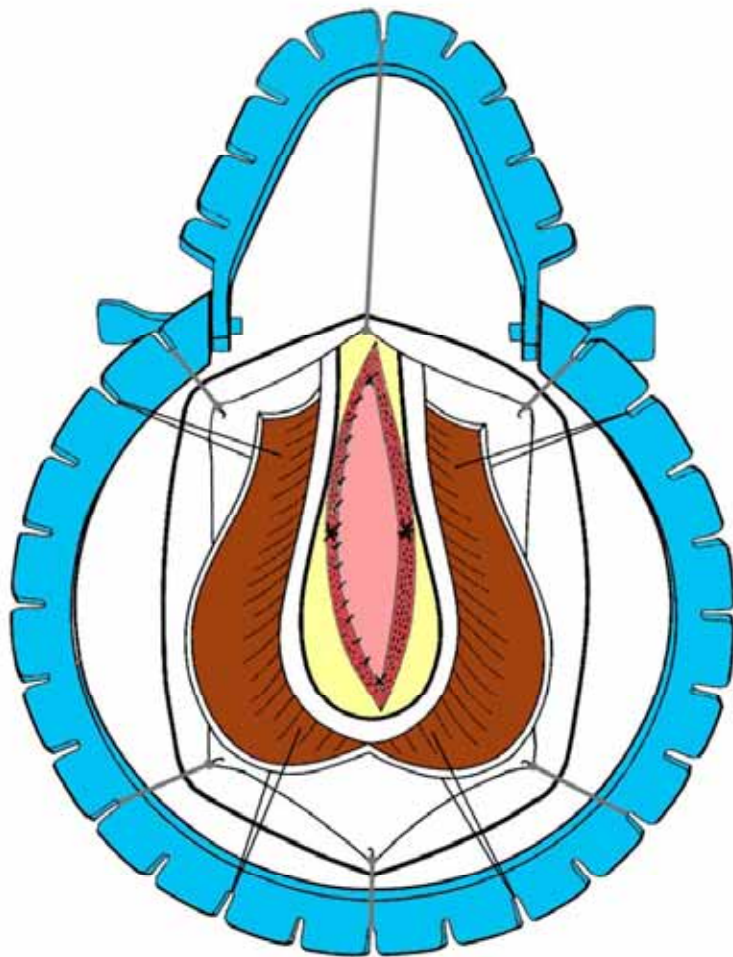


**Ventral floor-strip**



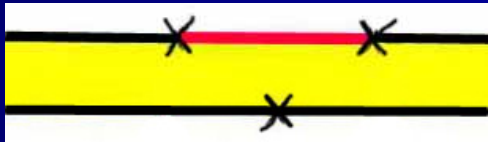
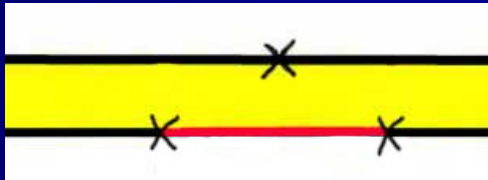






# Augmented anastomotic repair using oral graft

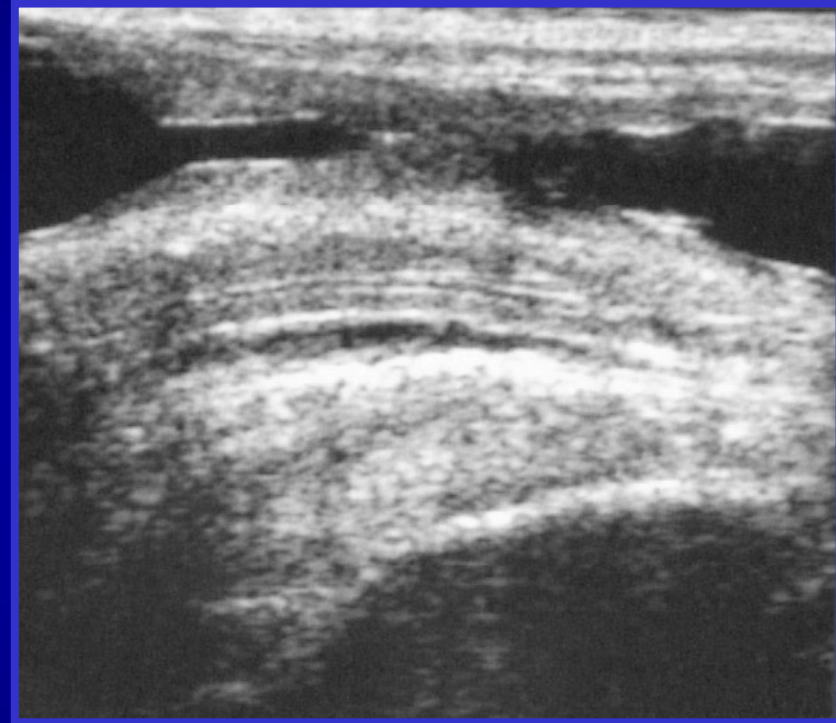
## Results

type of repair		success
	dorsal OMG	79 %
	ventral OMG	28 %

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



# Substitution urethroplasty

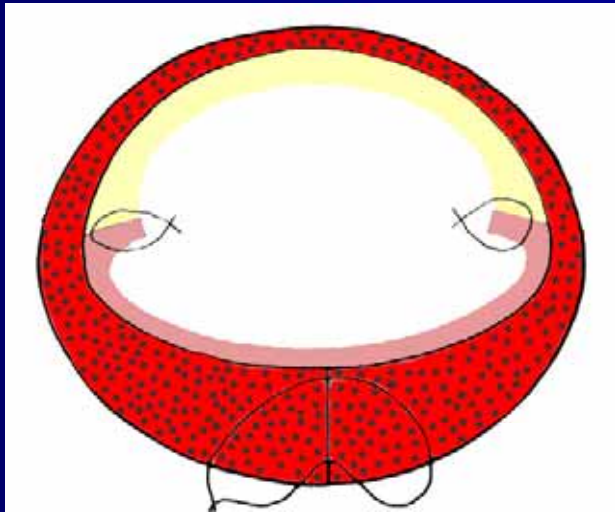


**Urethral stricture more than 4 cm in length**



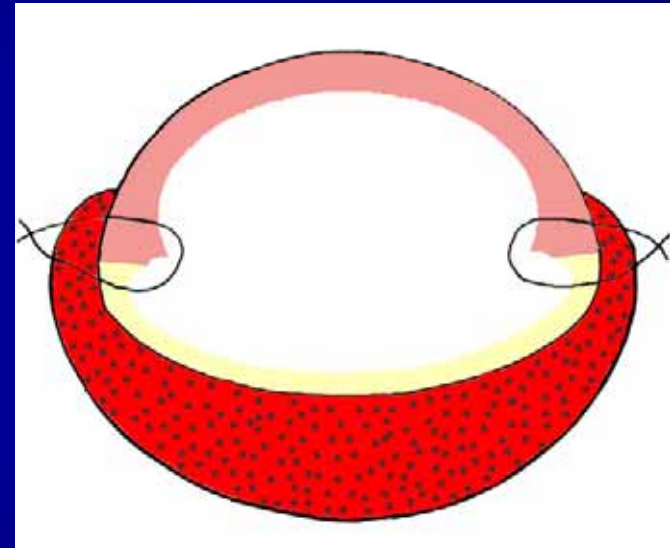


# Which type of substitution urethroplasty is best?



**ventral**

?



**dorsal**





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## Trauma/Reconstruction/Diversion

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# BULBAR URETHROPLASTY USING BUCCAL MUCOSA GRAFTS PLACED ON THE VENTRAL, DORSAL OR LATERAL SURFACE OF THE URETHRA: ARE RESULTS AFFECTED BY THE SURGICAL TECHNIQUE?

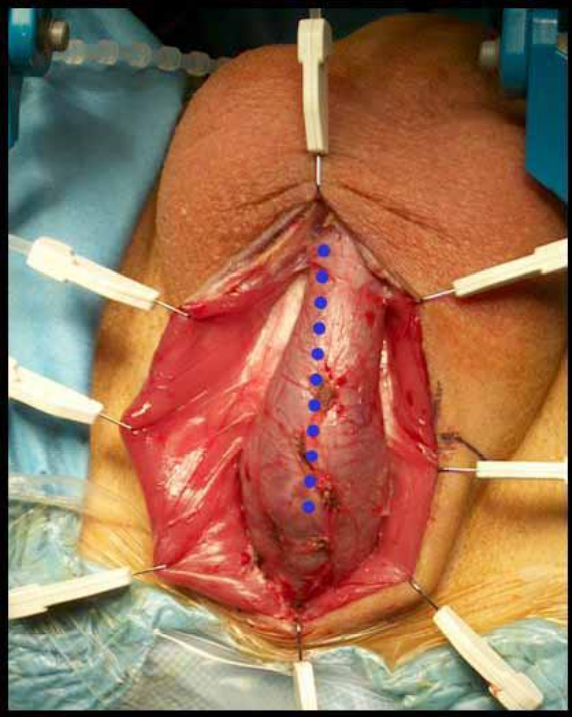
GUIDO BARBAGLI, ENZO PALMINTERI, GIORGIO GUAZZONI, FRANCESCO MONTORSI,  
DAMIANO TURINI AND MASSIMO LAZZERI\*

*From the Center for Urethral and Genitalia Reconstructive Surgery (GB, EP), Arezzo, San Raffaele-Vita-Salute Hospital and University (GG, FM), Milan, Department of Urology, Santa Chiara (DT), Florence and Department of Urology, Ospedale Fondazione San Raffaele Giglio (ML), Cefalù, Italy*

**J Urol 2005**

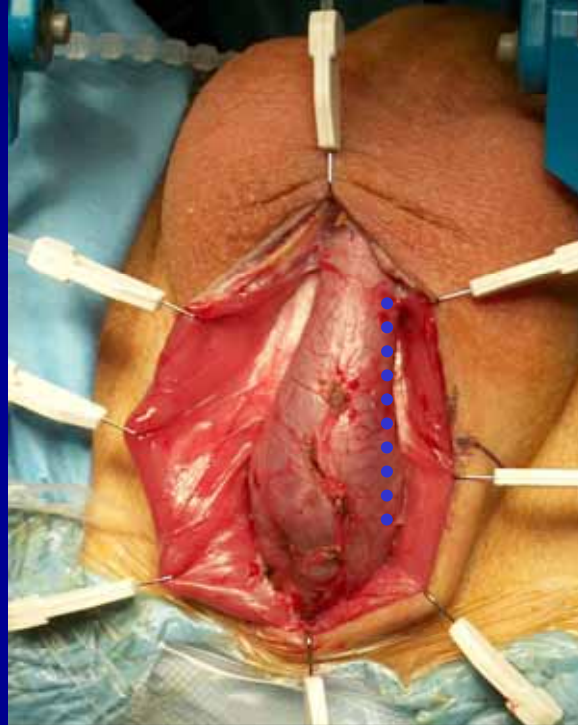


# Results



**ventral**

**83% success**



**lateral**

**83% success**



**dorsal**

**85% success**



# Substitution urethroplasty

## Results

( revised on December 31, 2007)

type of repair	success
ventral OMG	91 %
lateral OMG	83 %
dorsal OMG	77 %

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



## **Comparative success rate of 426 one-stage anterior urethroplasties**

<b>Site</b>	<b>Surgical technique</b>	<b>N. patients</b>	<b>Success rate</b>
<b>penile</b>	<b>flap</b>	<b>18</b>	<b>66.7%</b>
<b>penile</b>	<b>oral graft</b>	<b>22</b>	<b>81.8%</b>
<b>penile</b>	<b>skin graft</b>	<b>23</b>	<b>78.3%</b>
<b>bulbar</b>	<b>end-to-end</b>	<b>153</b>	<b>90.8%</b>
<b>bulbar</b>	<b>substitution</b>	<b>170</b>	<b>81.8%</b>
<b>bulbar</b>	<b>augmented</b>	<b>40</b>	<b>60%</b>

# Uretroplastia en dos tiempos

¿ cómo y cuándo ?



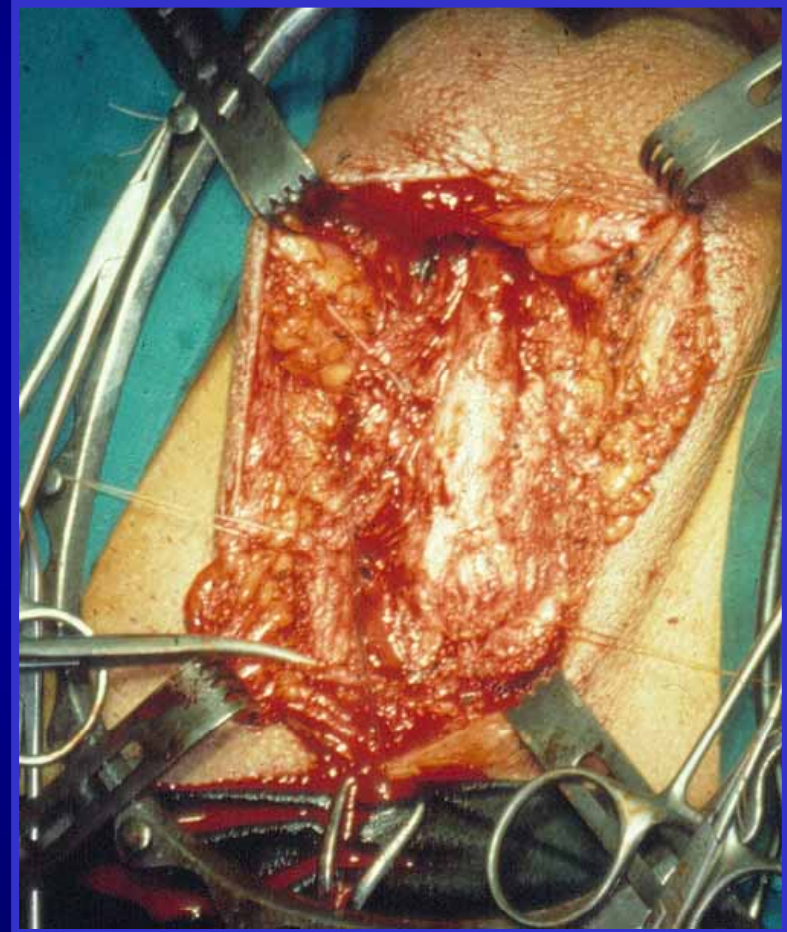
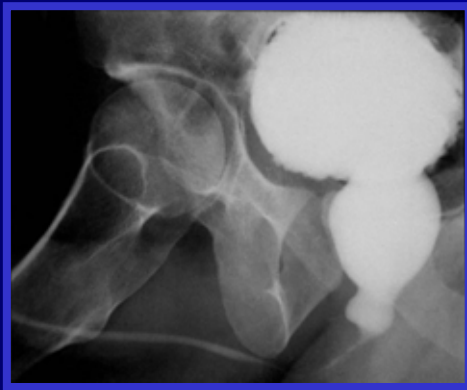


# ¿Cuándo ?



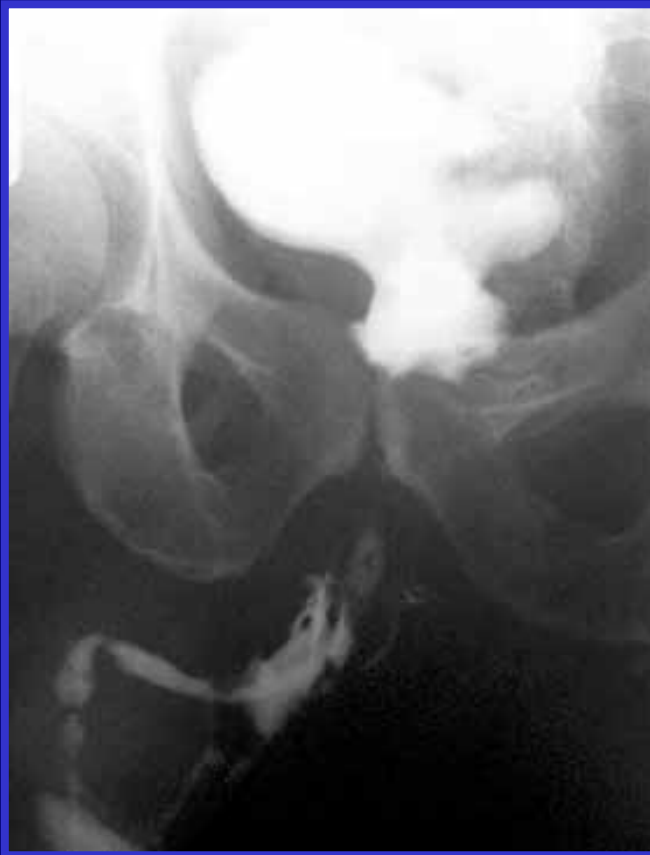
# Local adverse conditions

Previous failed open urethroplasty



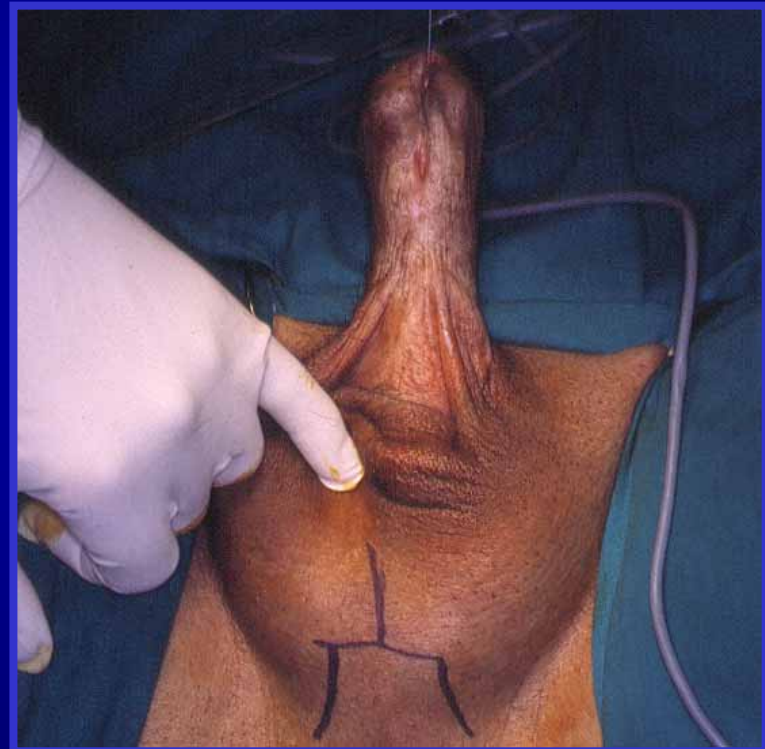
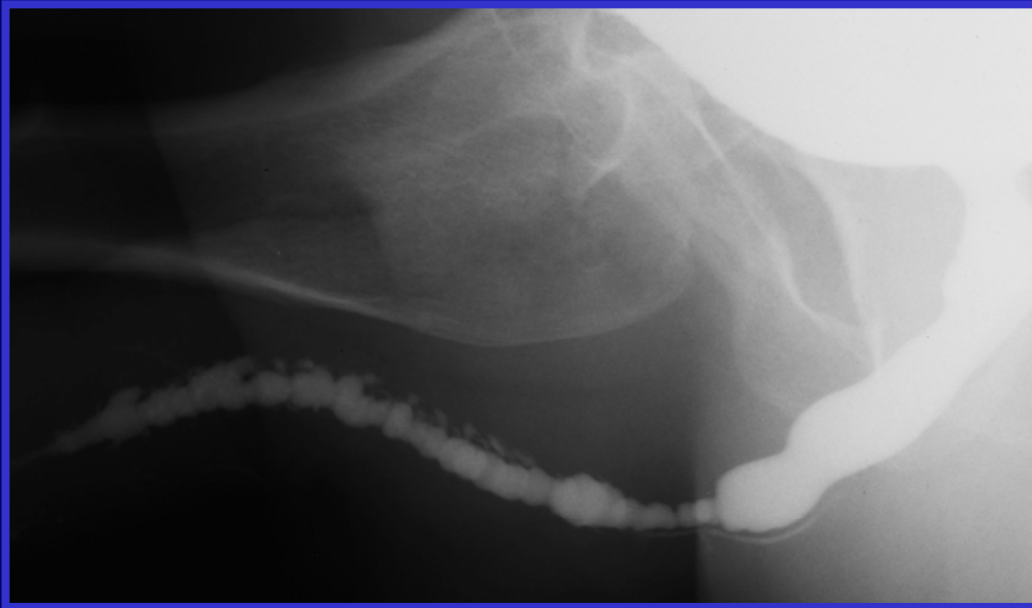
# Local adverse conditions

## Fistulas and abscess



## Local adverse conditions

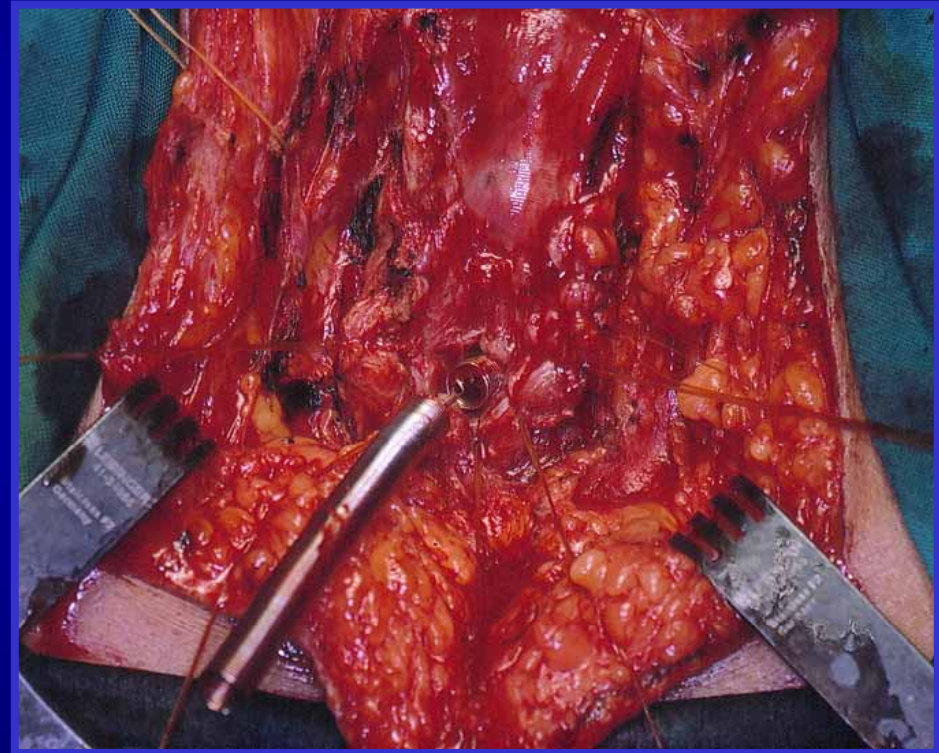
**Panurethral stricture associated with lichen sclerosus**





# Local adverse conditions

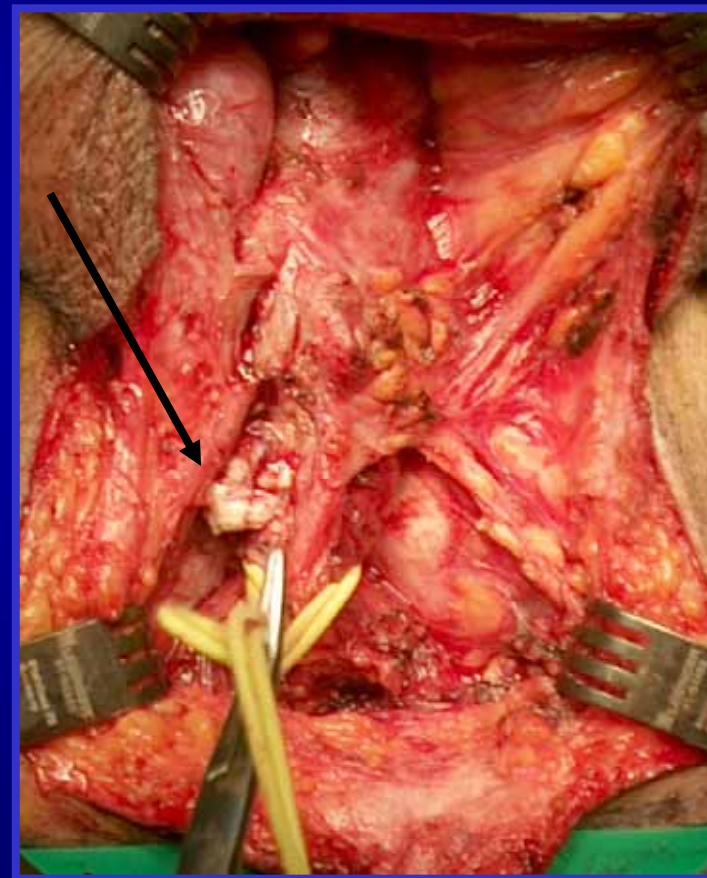
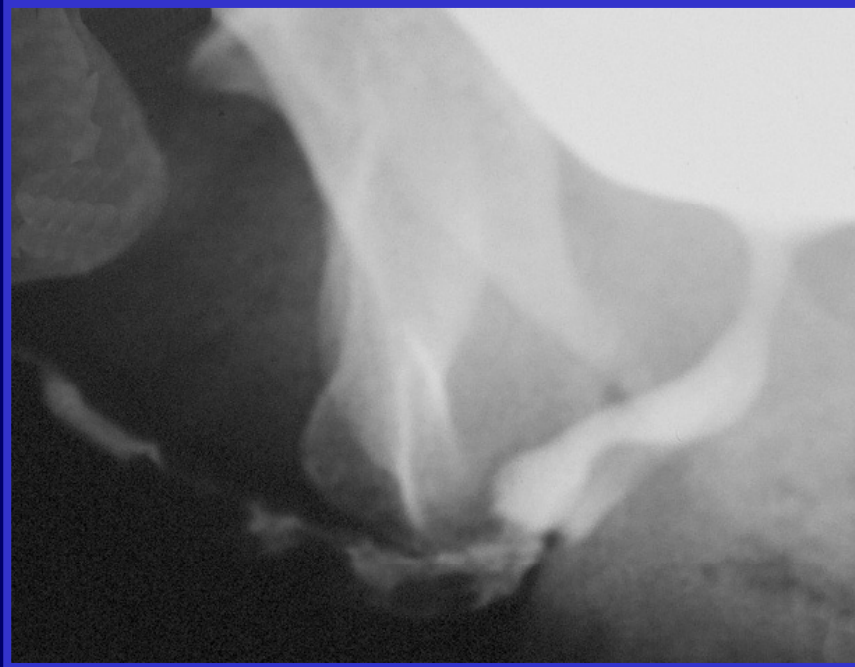
## Urethral stent





# Local adverse conditions

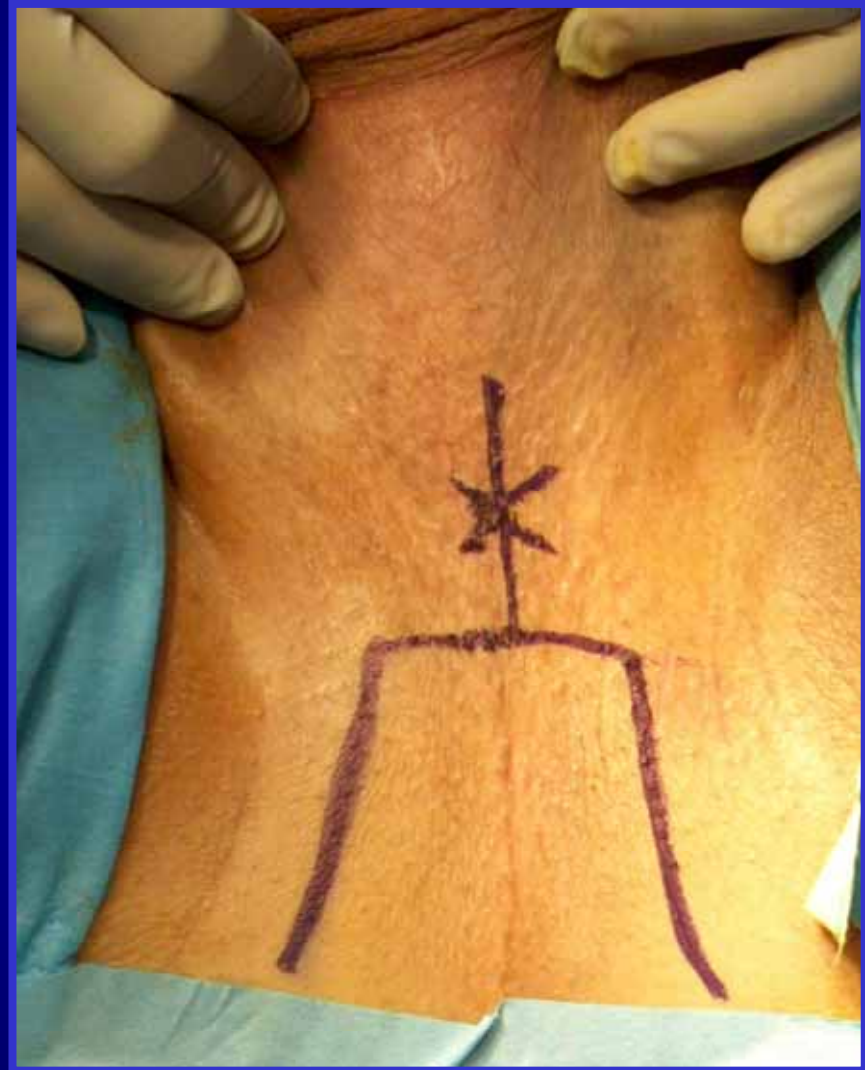
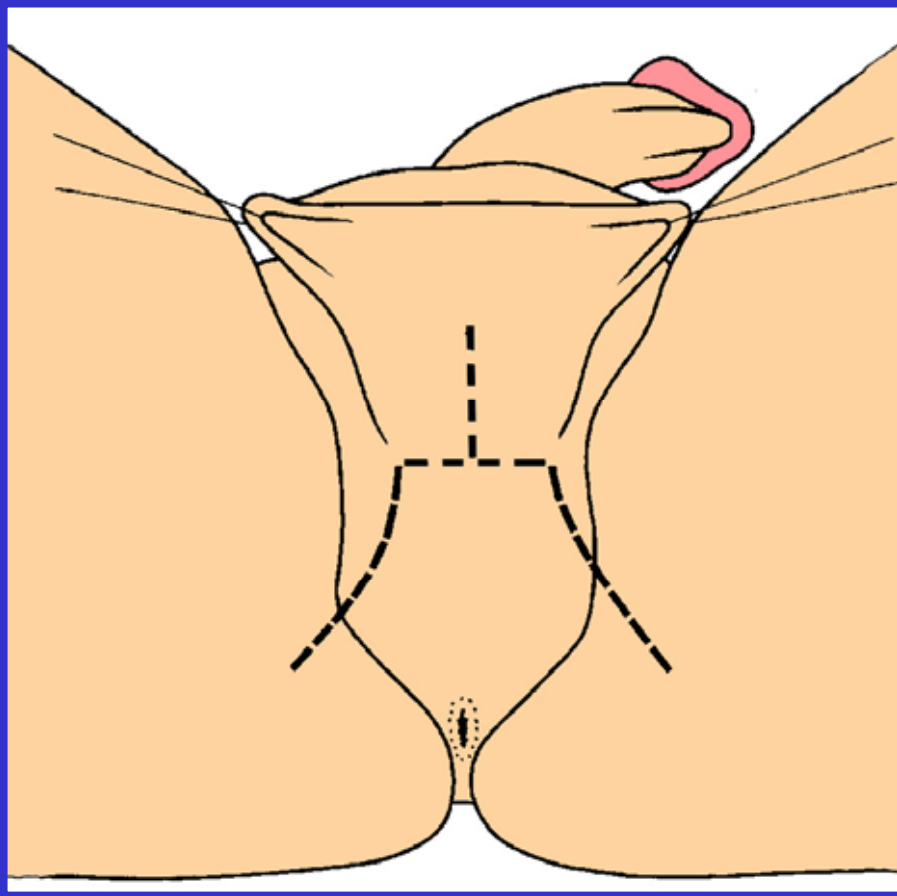
## Urethral carcinoma



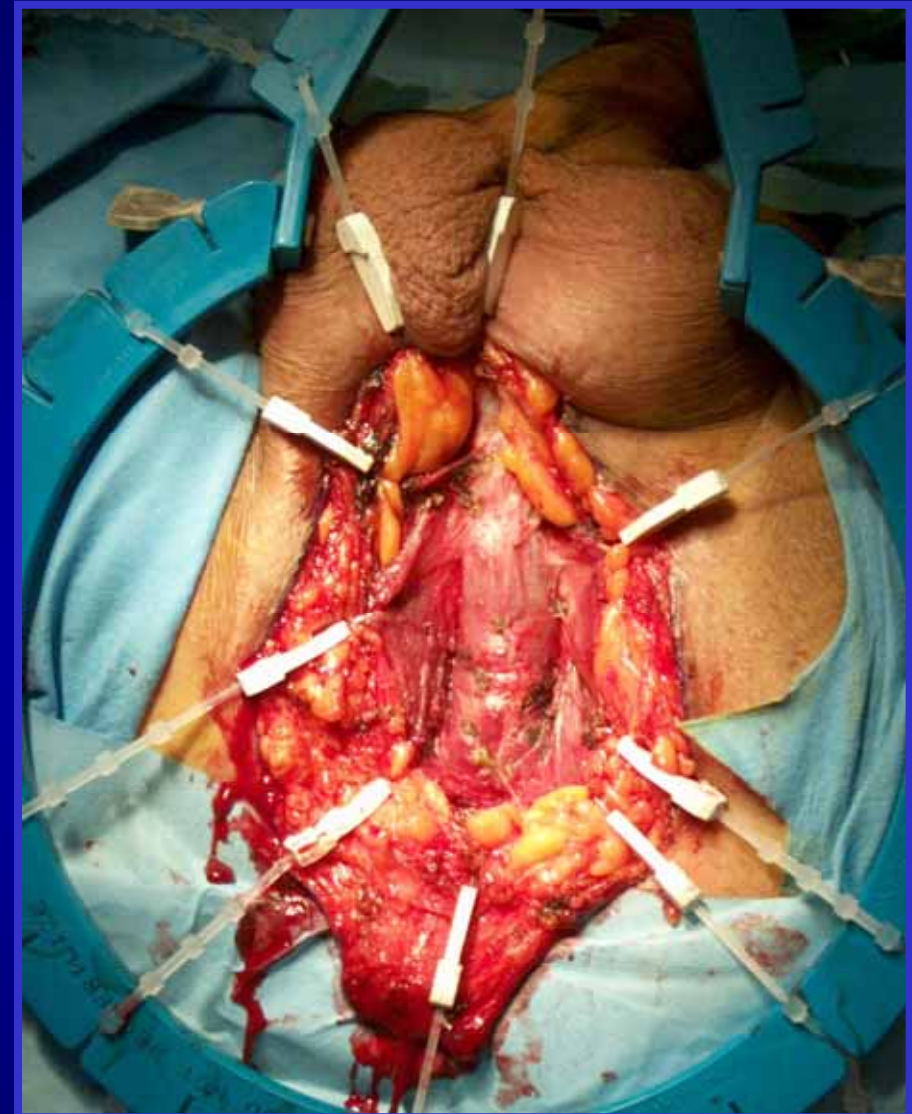
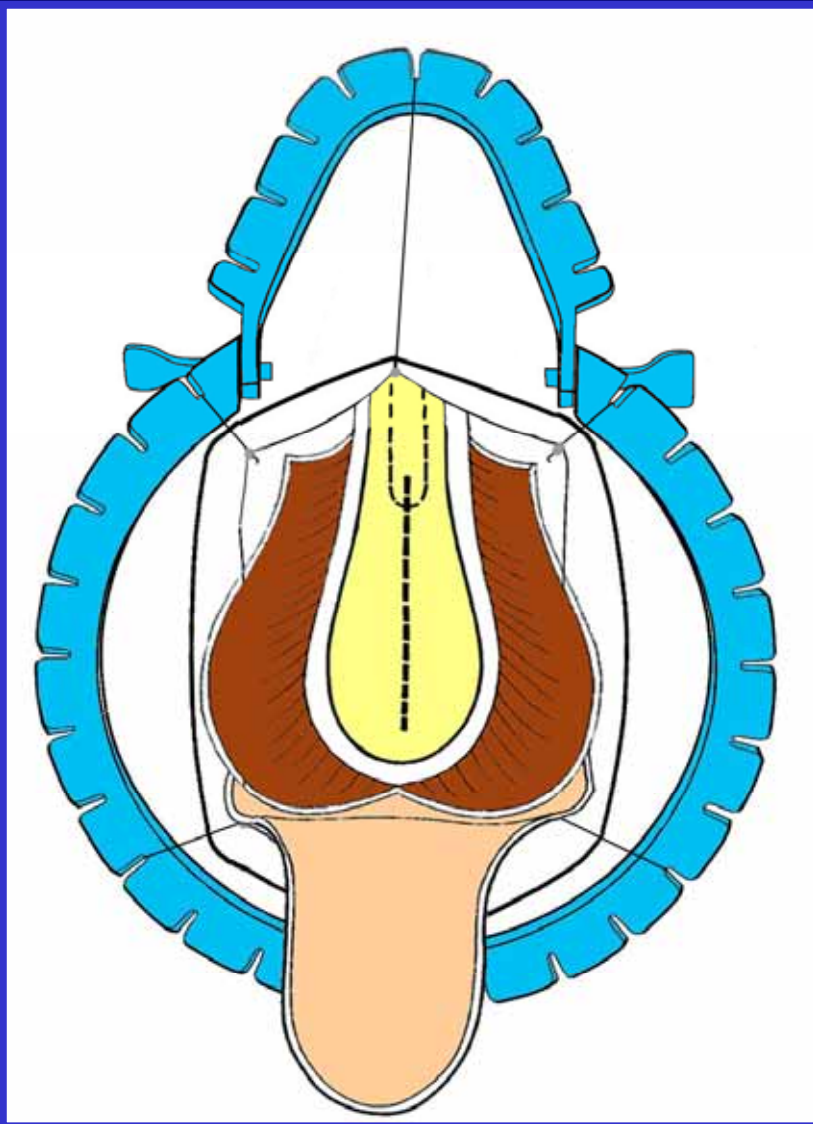
¿Cómo ?

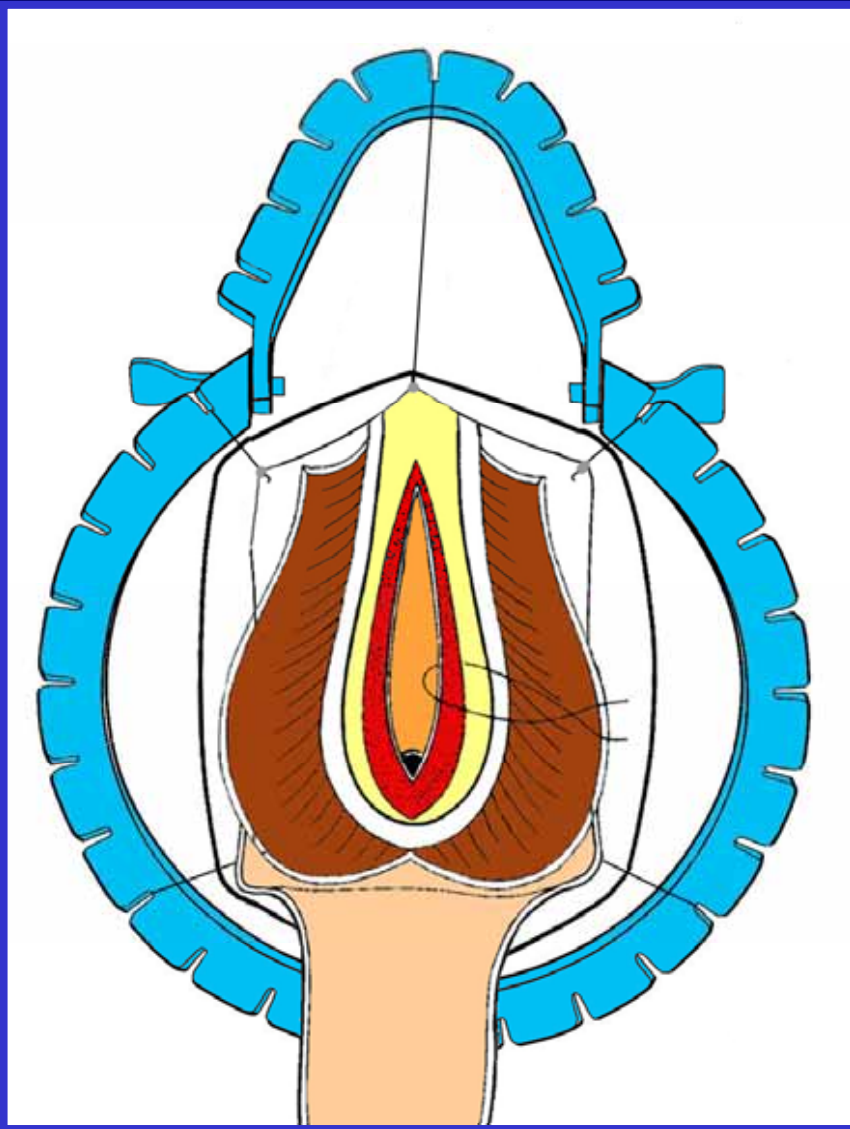


# First stage

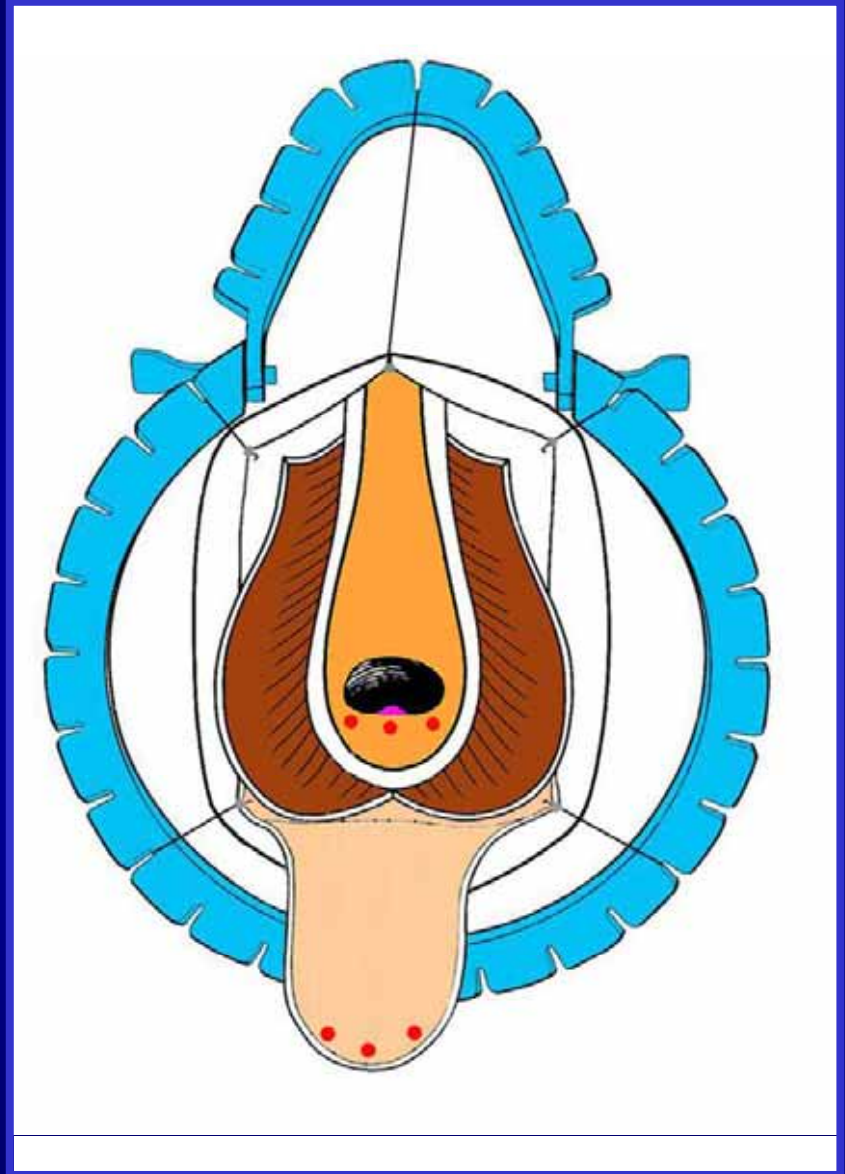
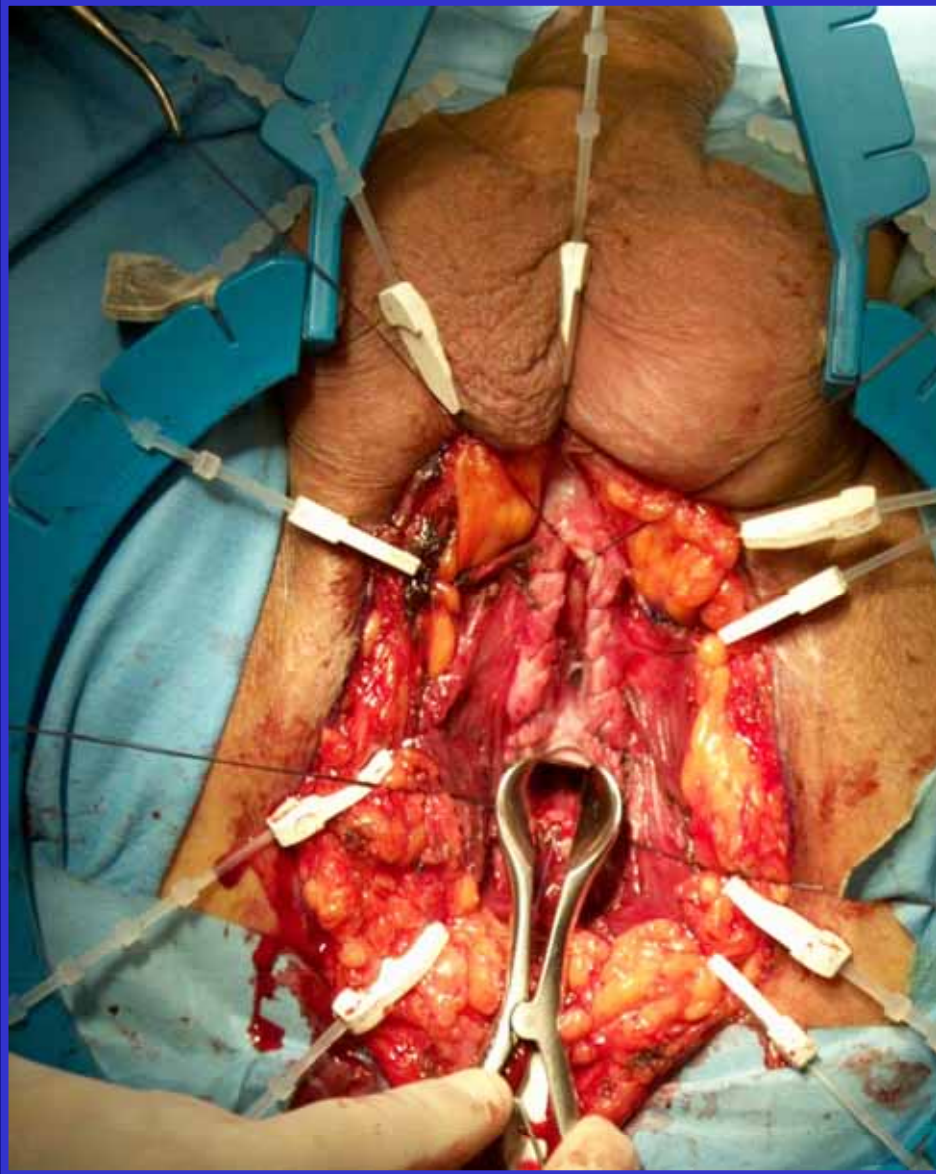








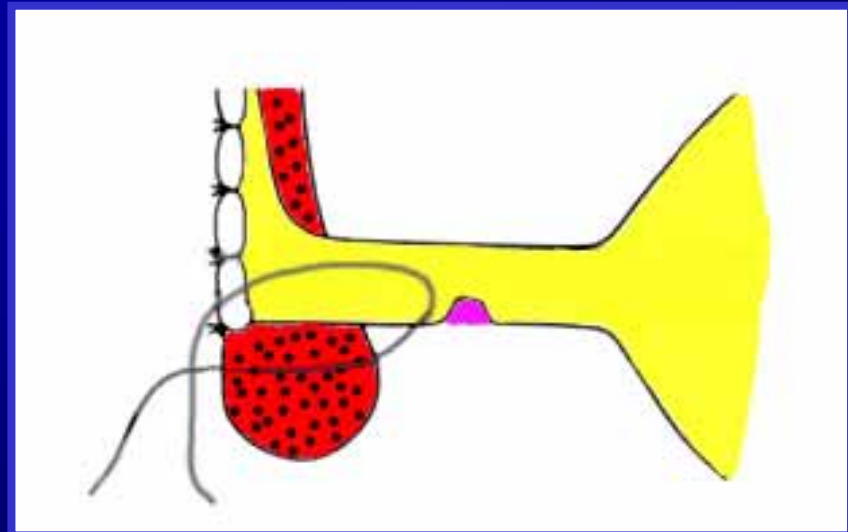
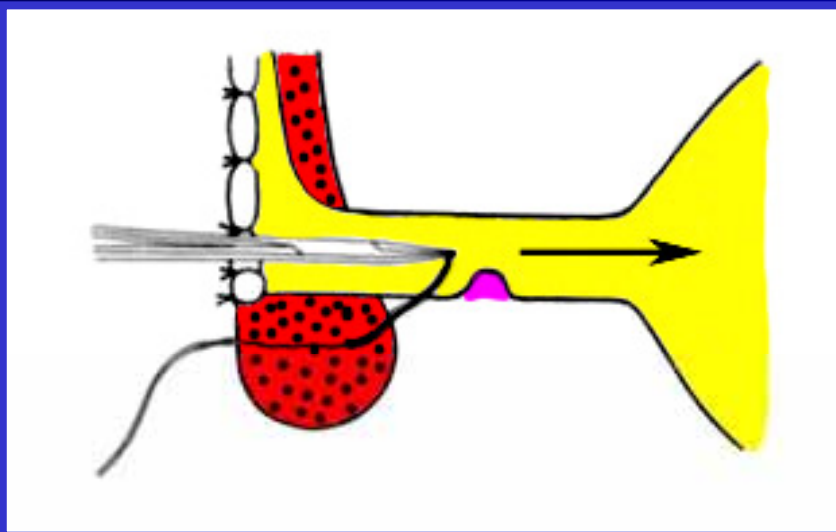
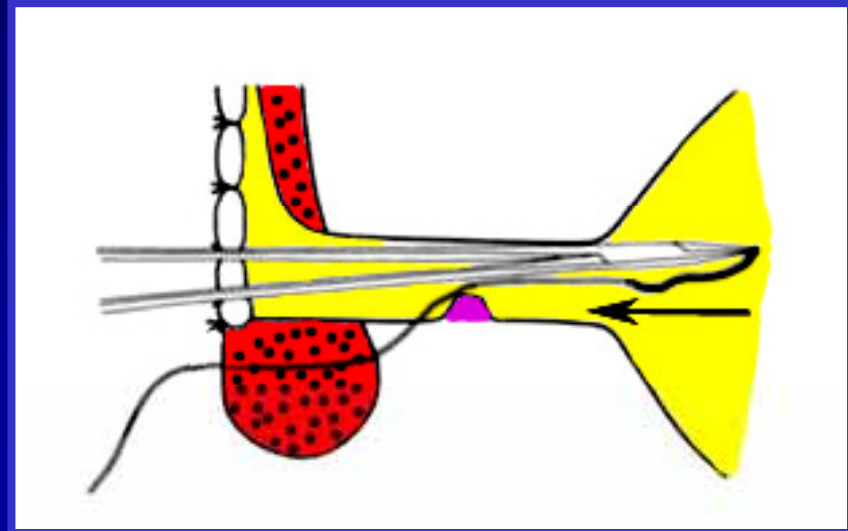
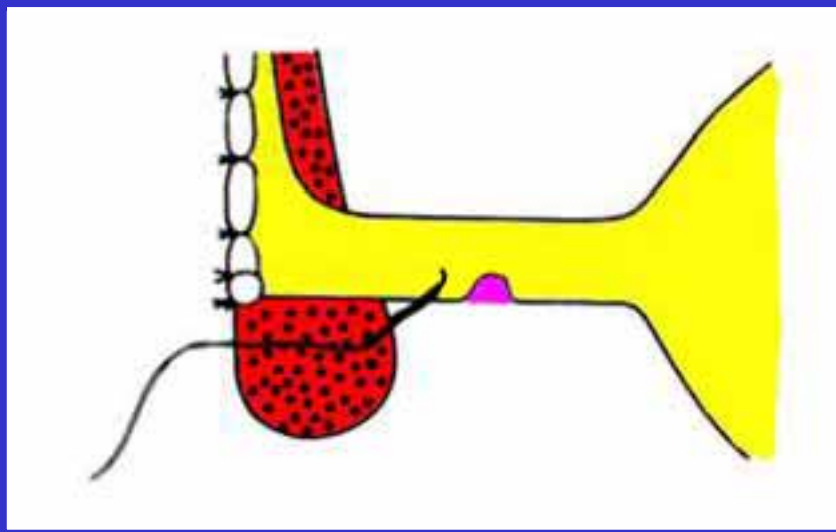




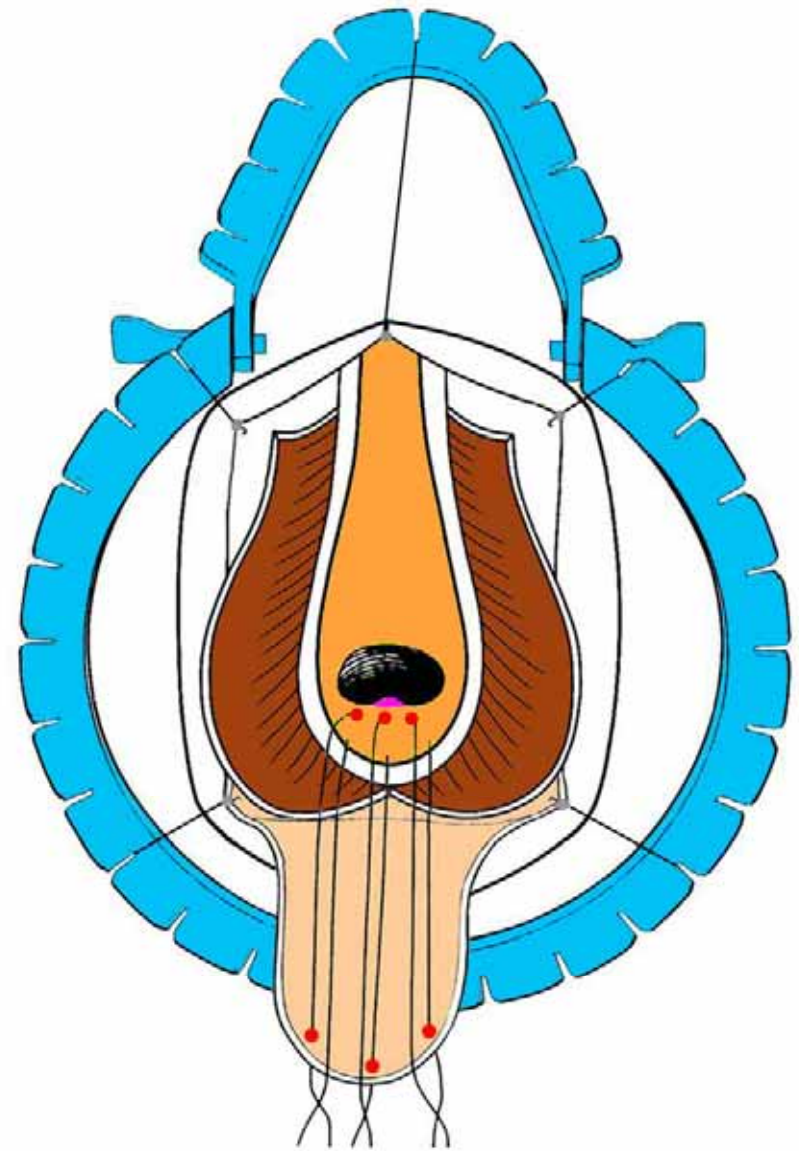
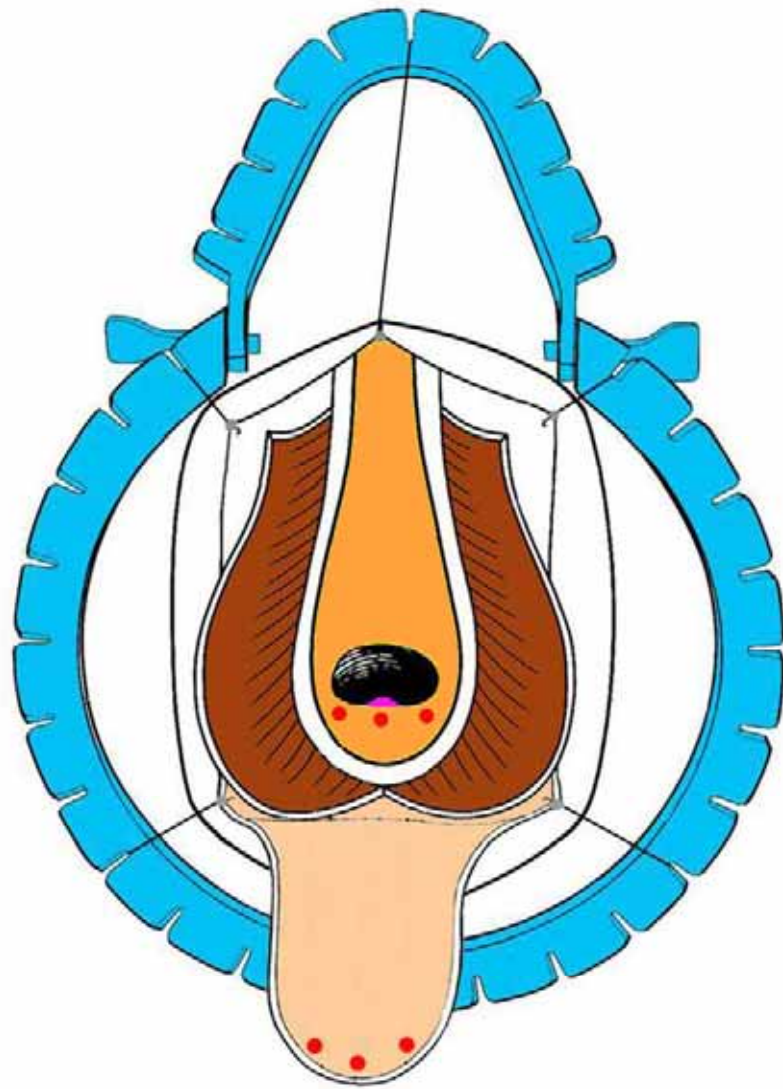
# Webster's technique

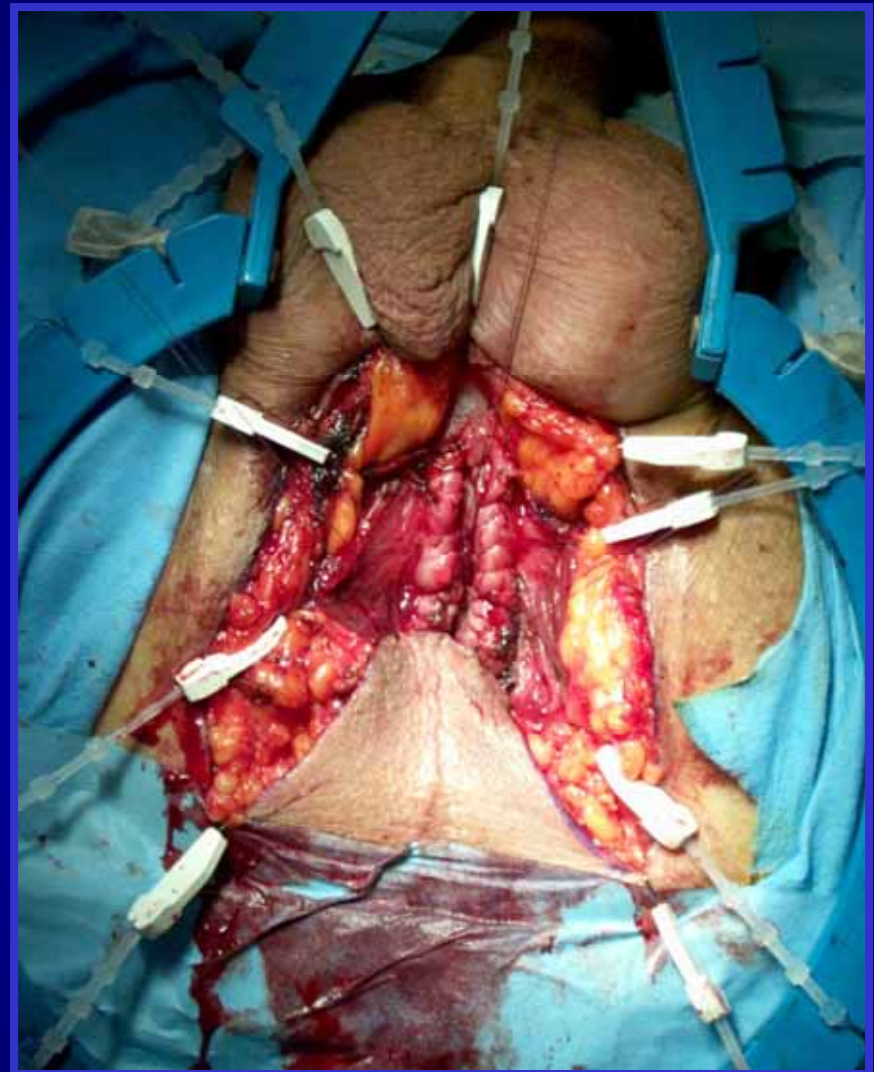
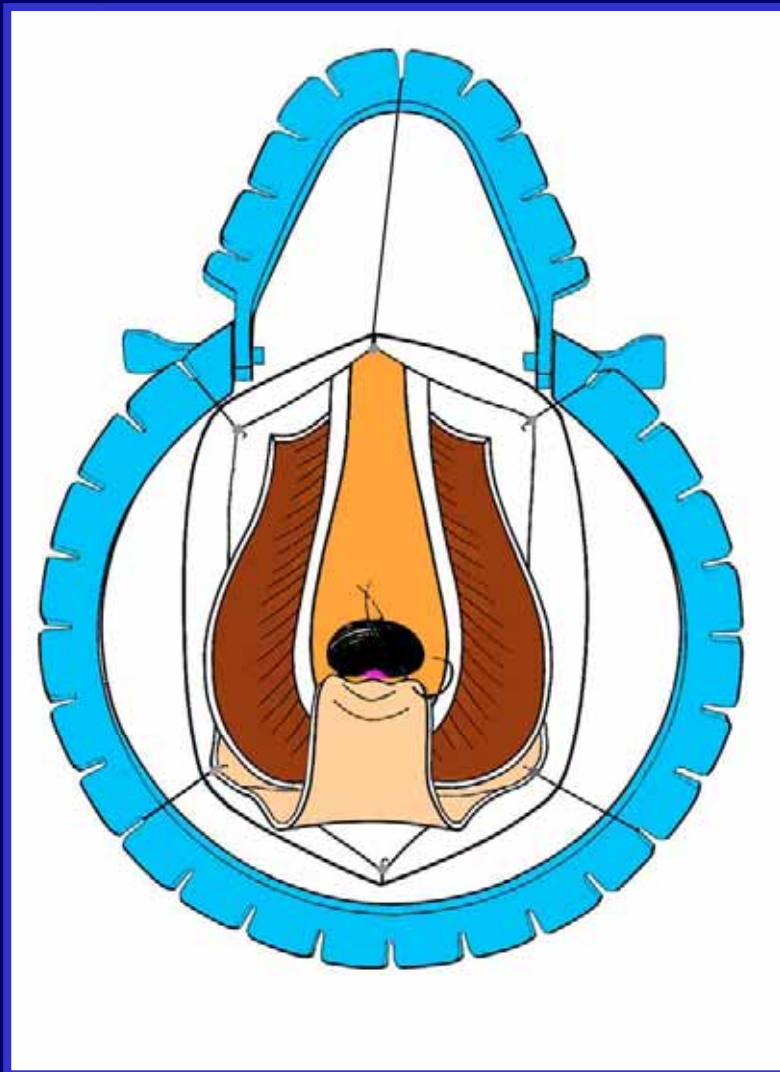


# Webster's technique

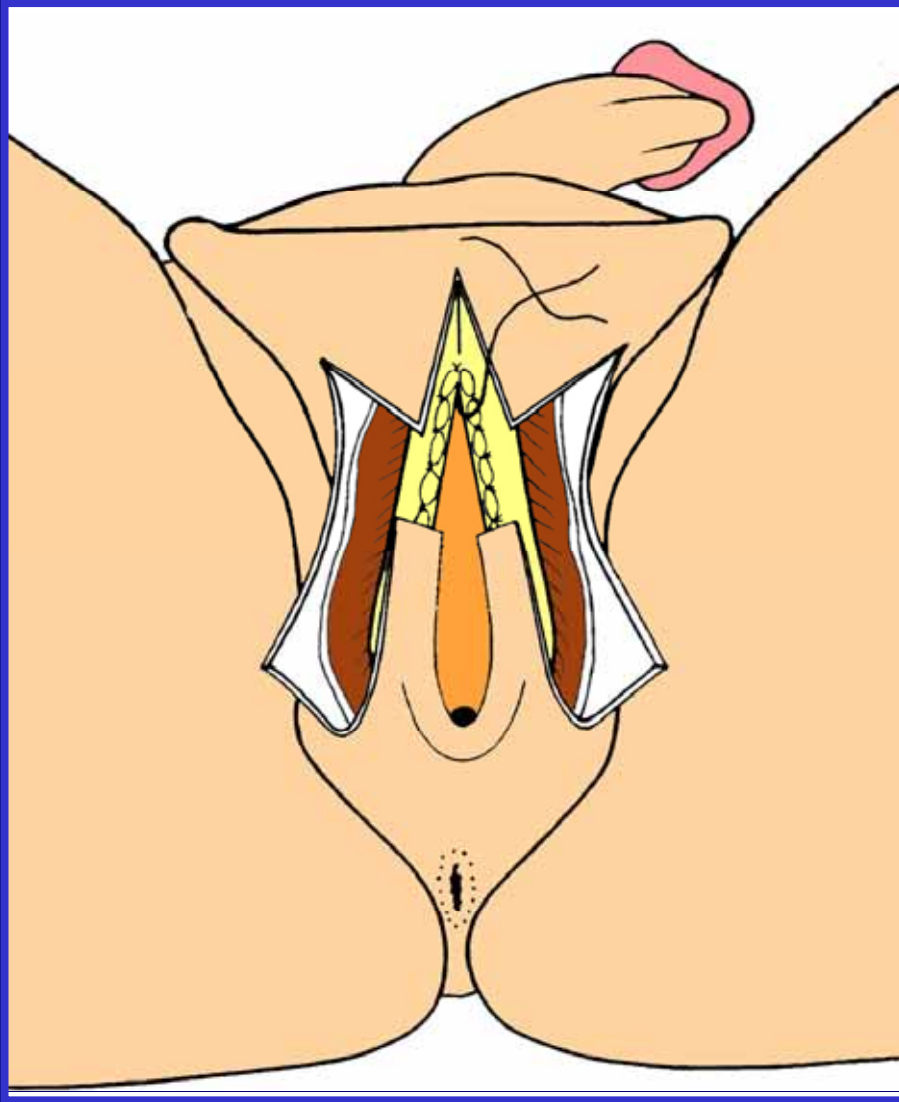


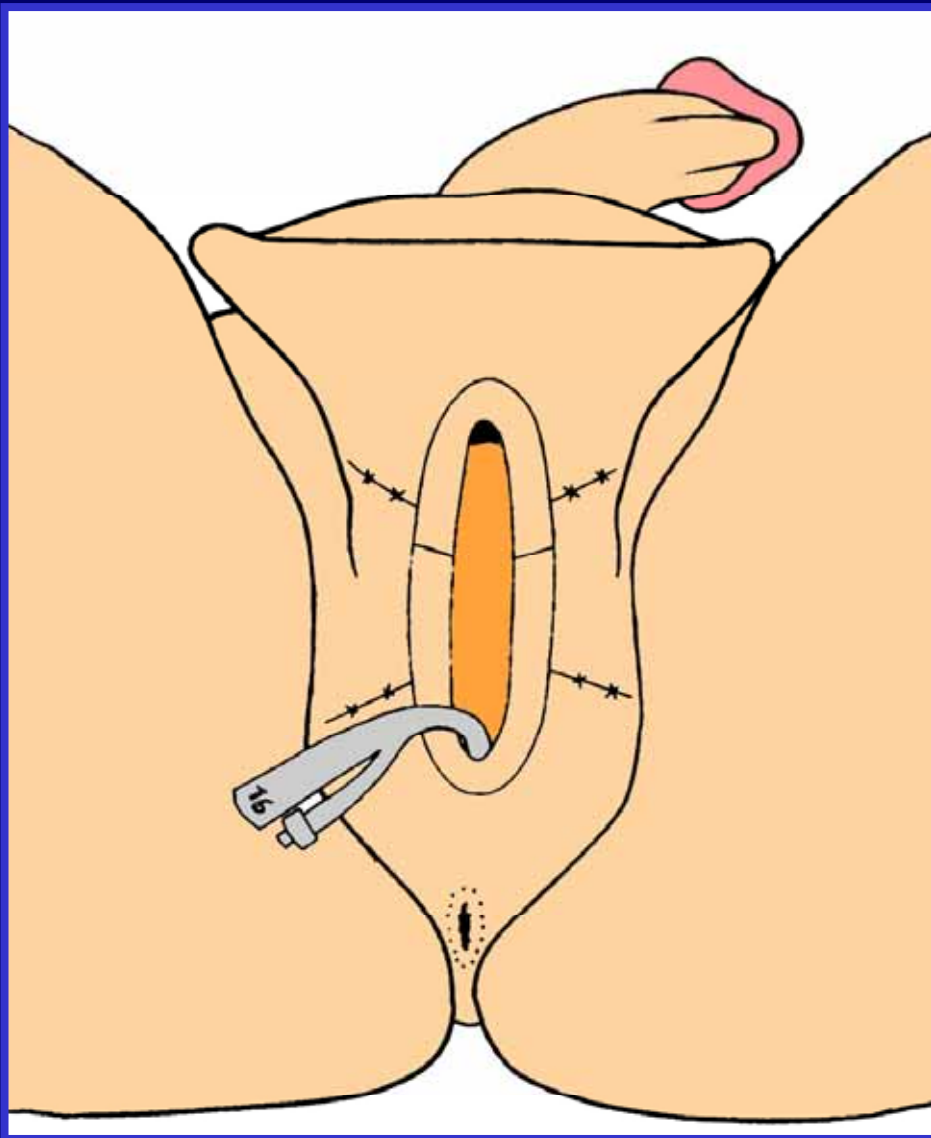












**I published the technique in 1968, believing then that it was original.**

**My  $\cap$ -shaped scrotal flap, or something very like it, had already**

**been described by :**

**Leadbetter 1960**

**Gil-Vernet 1966**

**Wells 1966**

**Williams 1968**

**Alas for any urologist who thinks he has an  
original idea for the urethra!**

**John Blandy in “Reconstructive Urologic Surgery” , The Williams & Wilkins Company, Baltimore,  
1997, chapter 24, pag 276**







## Second stage

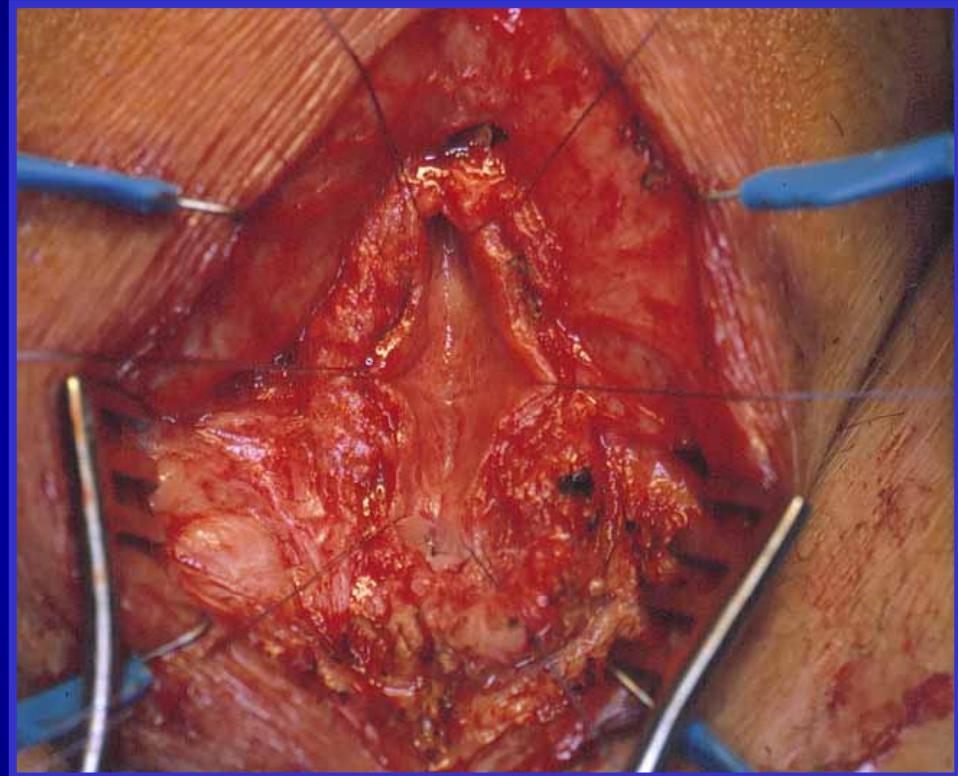
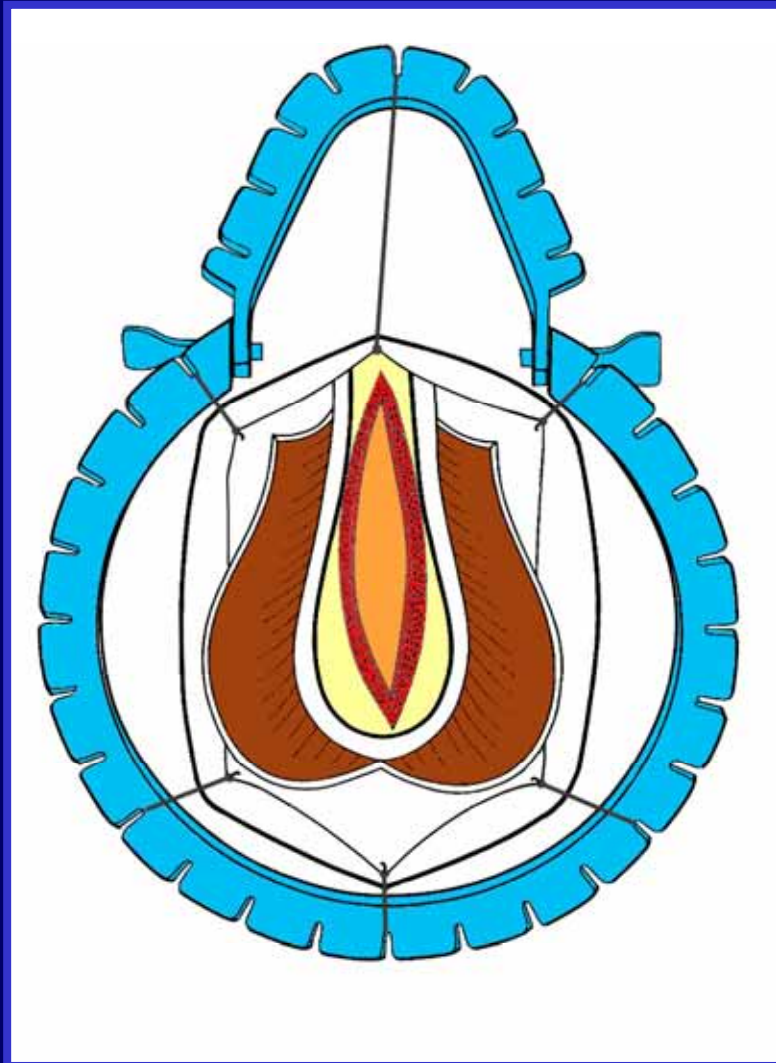




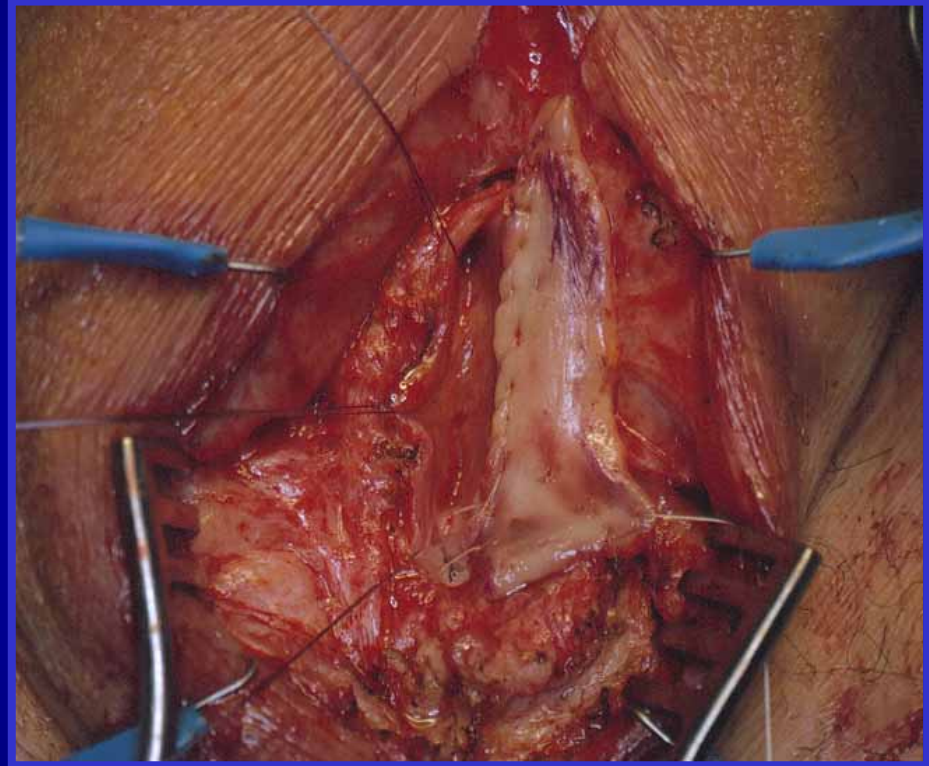
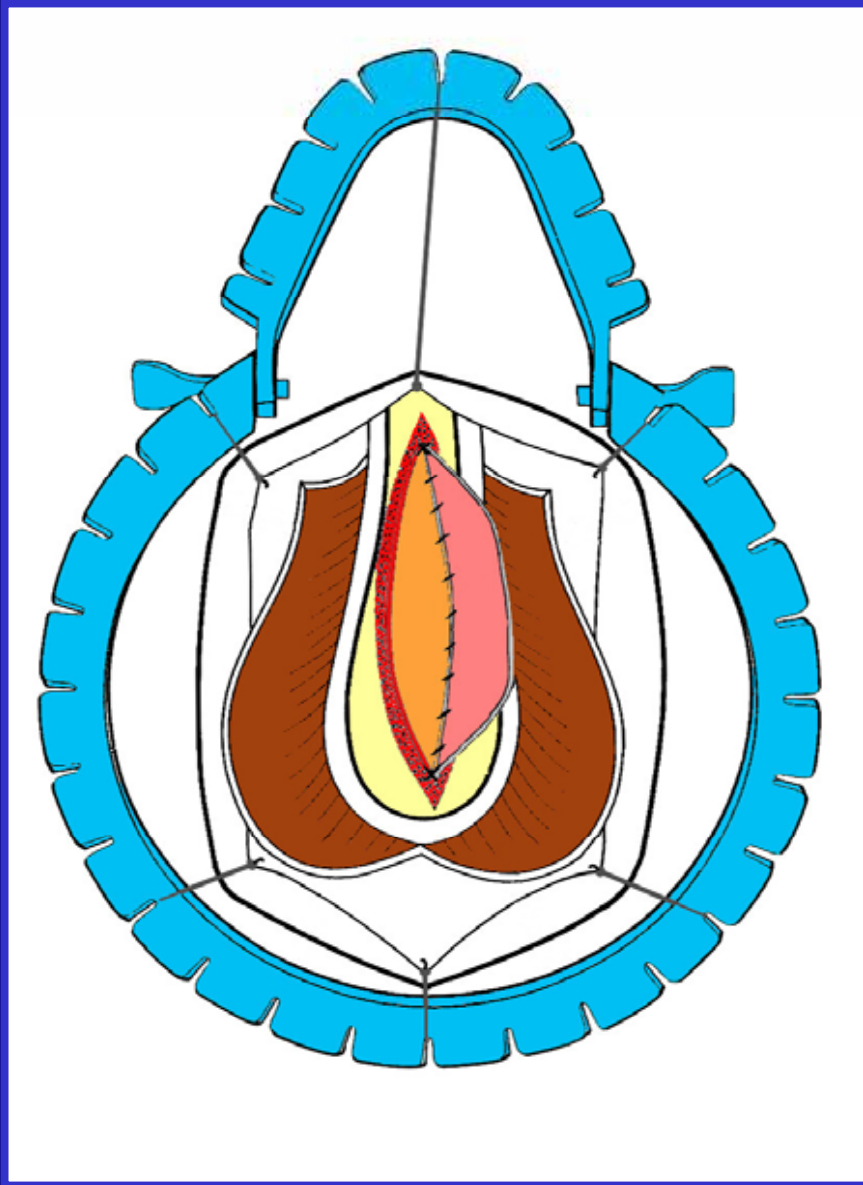


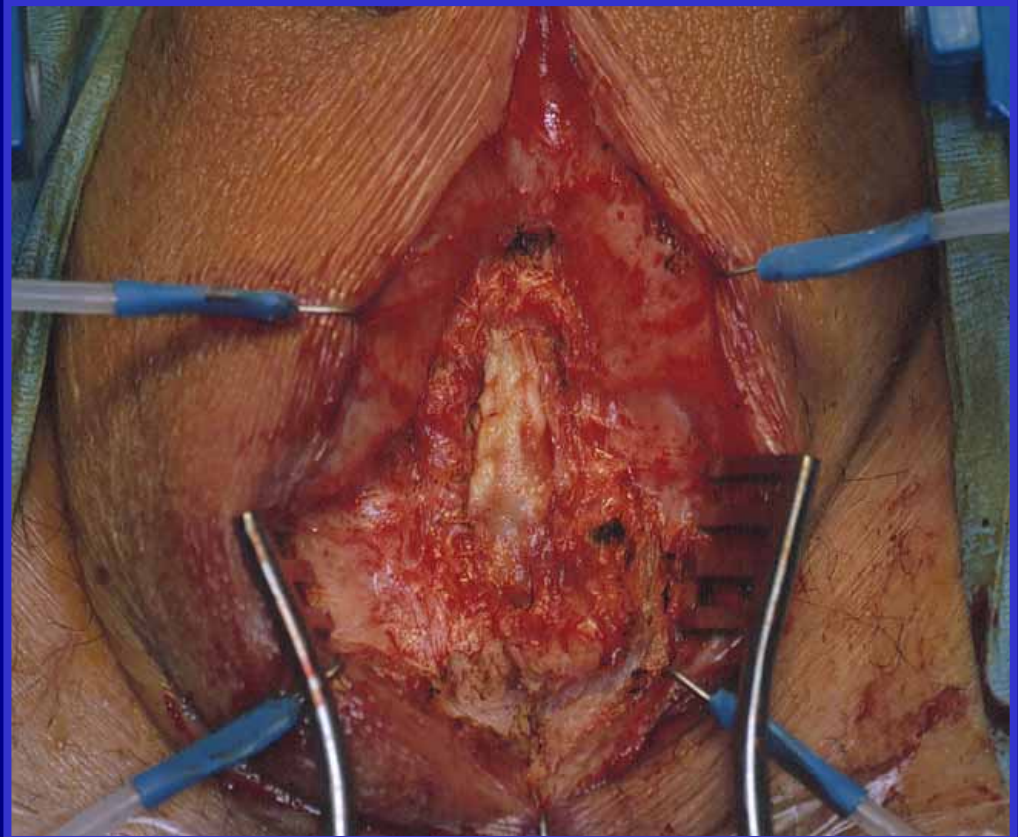
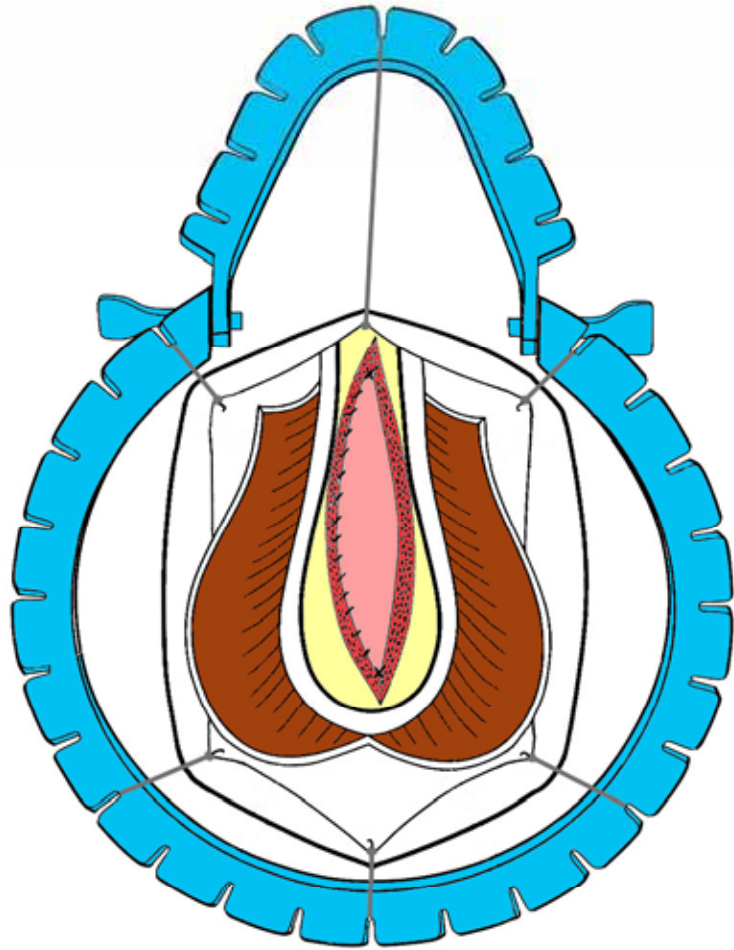
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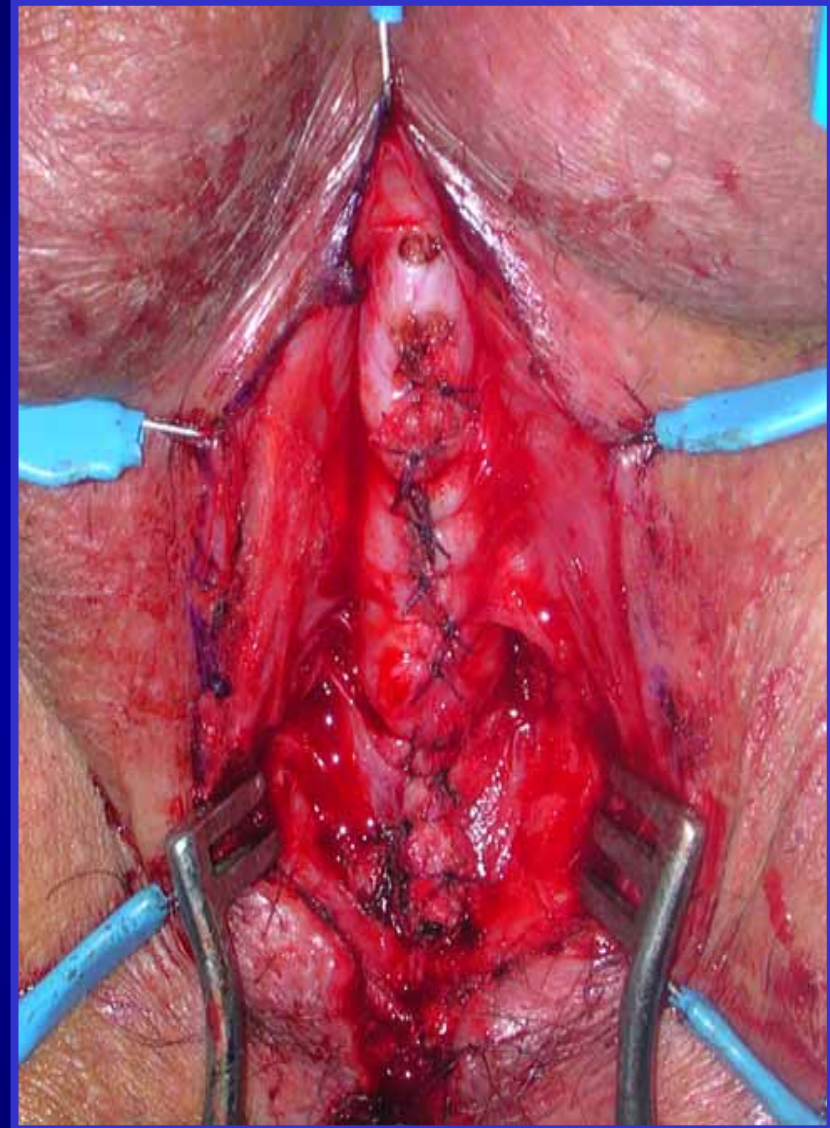
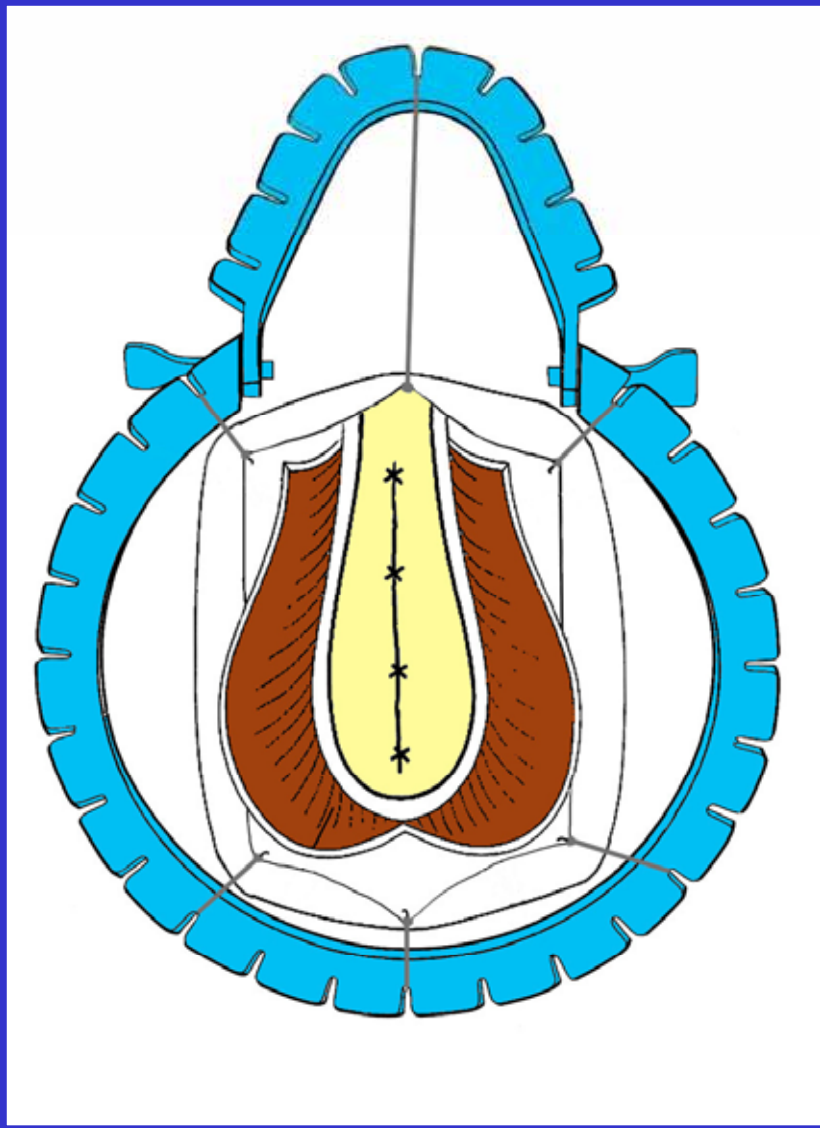














# Conclusion

- **Reconstructive surgery for urethral strictures is continually evolving and the superiority of one approach over another is not yet clearly defined**
- **The reconstructive urethral surgeon must be fully able in the use of different surgical techniques to deal with any condition of the urethra at the time of surgery**



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



What can you find in [www.urethralcenter.it](http://www.urethralcenter.it)?

- Up-to-date Information on urethral pathology and surgery
- Everything you need to know about urethral stricture diseases
- How to make a diagnosis
- All the surgical techniques performed at our Center
- An up-to-date database of surgical outcome
- Information and opportunities for "hands-on" training
- Up-to-date literature
- The articles published by Guido Barbagli
- The books published by Guido Barbagli
- The lectures presented by Guido Barbagli at Meetings and Congress
- The history of urethral surgery
- An Atlas of Surgical Techniques
- Video
- Comments and suggestion for the urologists of XXI century
- ...and more!

The website is up-to-date monthly

**This lecture is fully available on our website**

**Thank you !**



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