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# **22<sup>nd</sup> Annual EAU Congress**

**March 21 - 24, 2007**

**Berlin – Germany**



# **Which type of urethroplasty - a critical overview of results and complications**

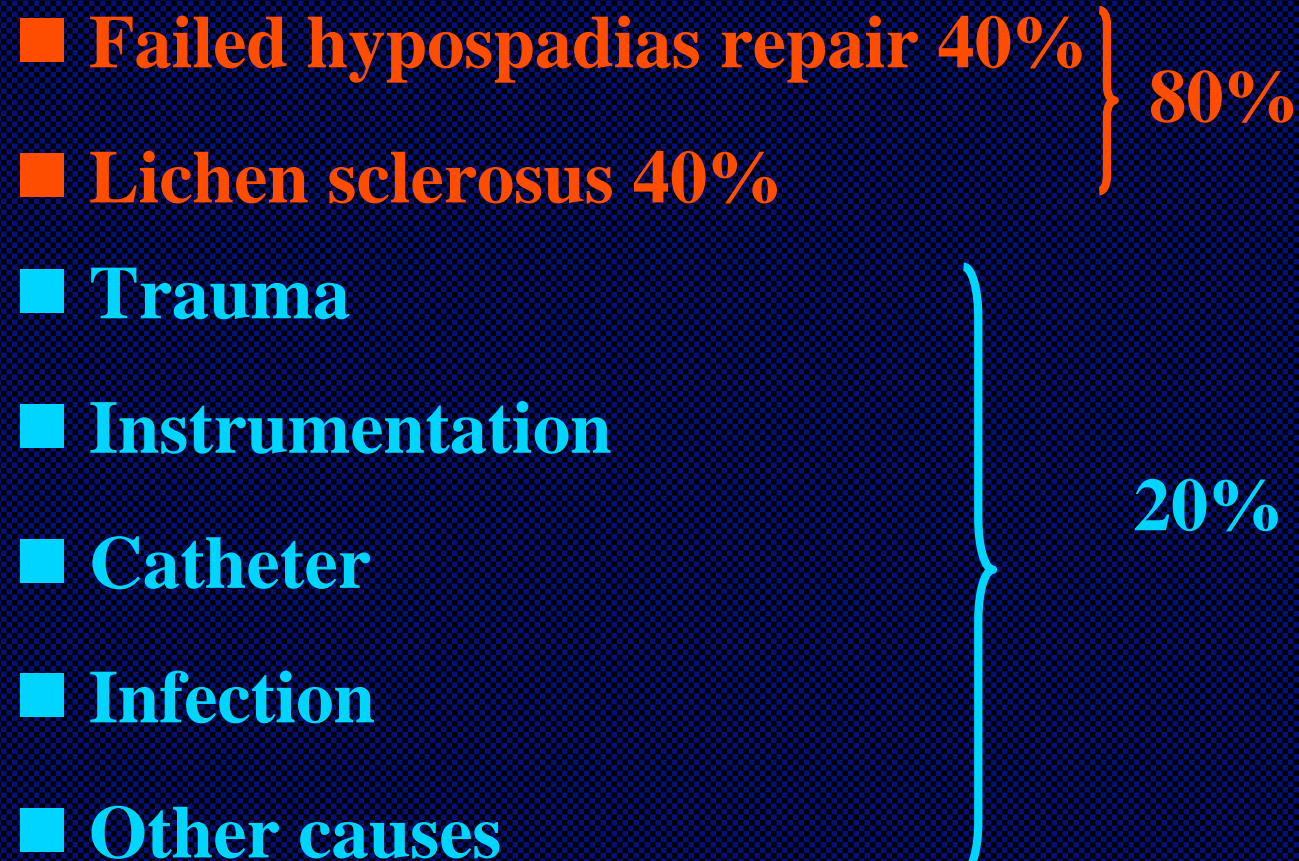


# Penile urethroplasty

**The surgical technique  
for the repair of penile  
urethral strictures is  
selected according to  
stricture etiology**



# Etiology of penile urethral strictures in 404 patients



Barbagli 2006, unpublished data



**In patients with penile urethral strictures due to:  
trauma, instrumentation, catheter, infection and other causes**

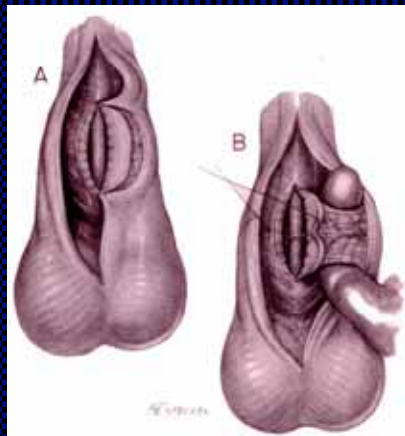


**penis is normal**





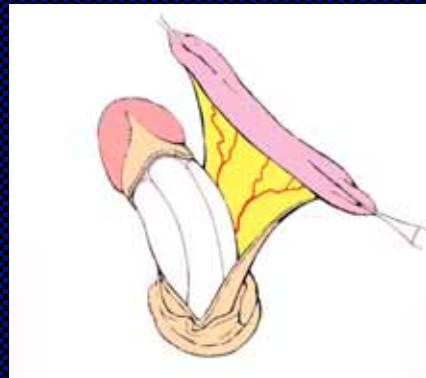
# One-stage urethroplasty using dartos fascial flap with skin island



ORANDI

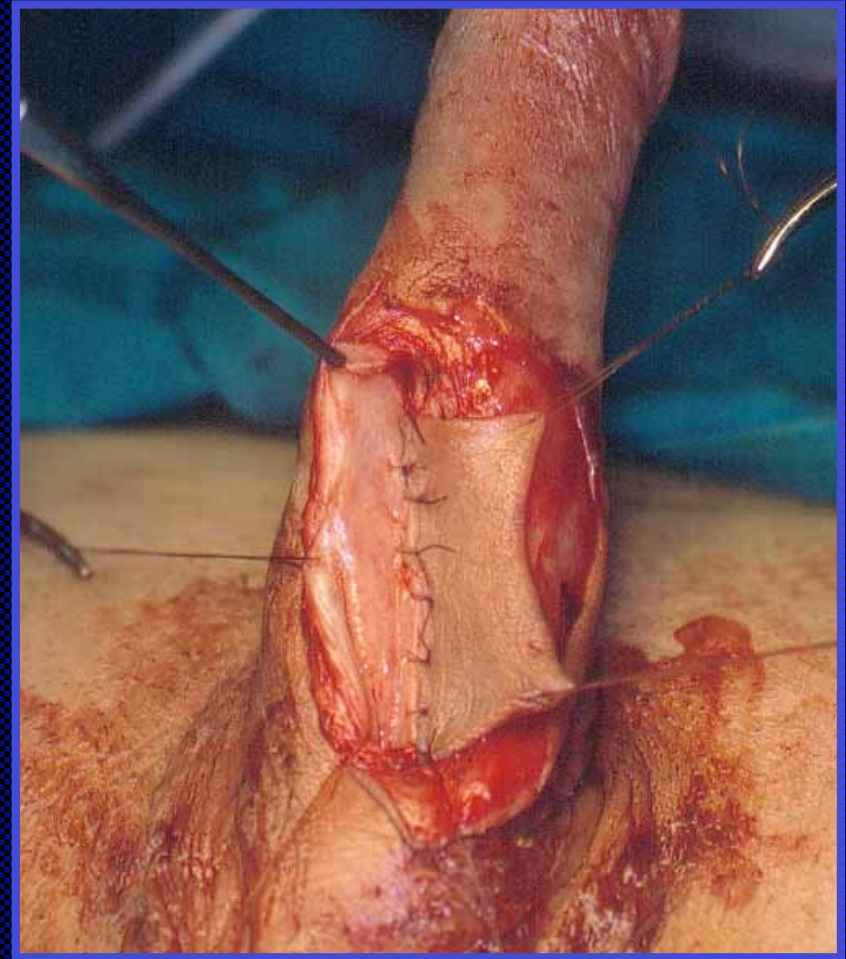
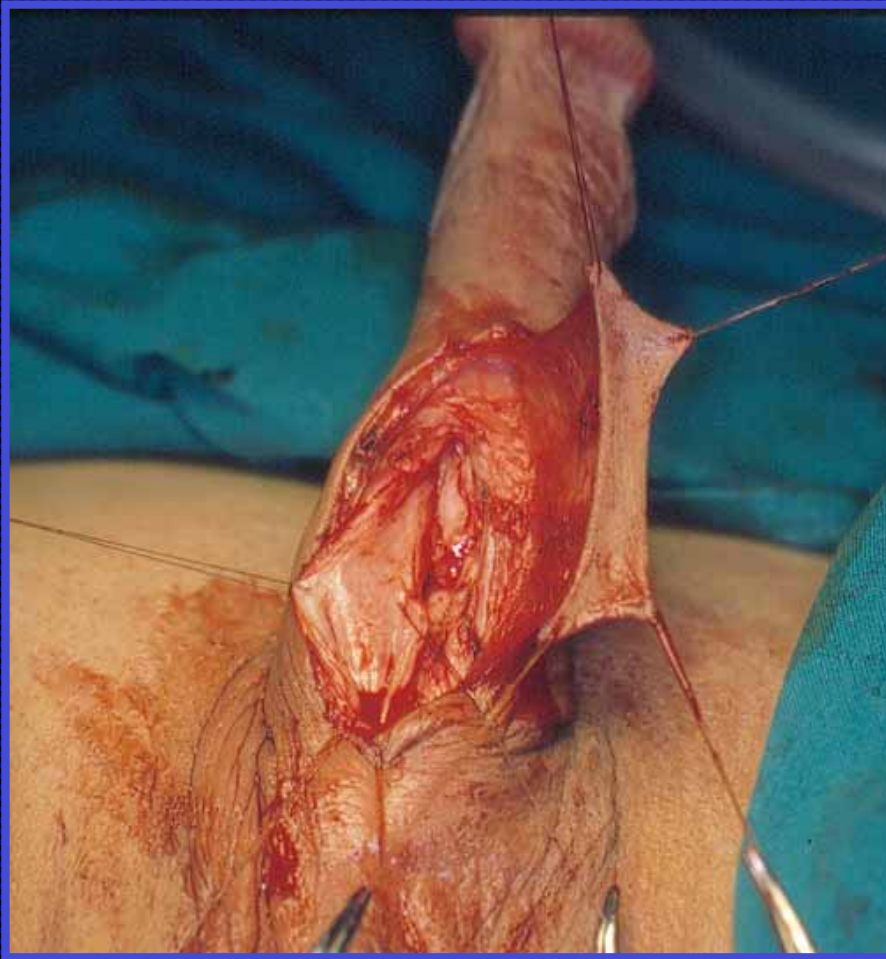


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# Orandi

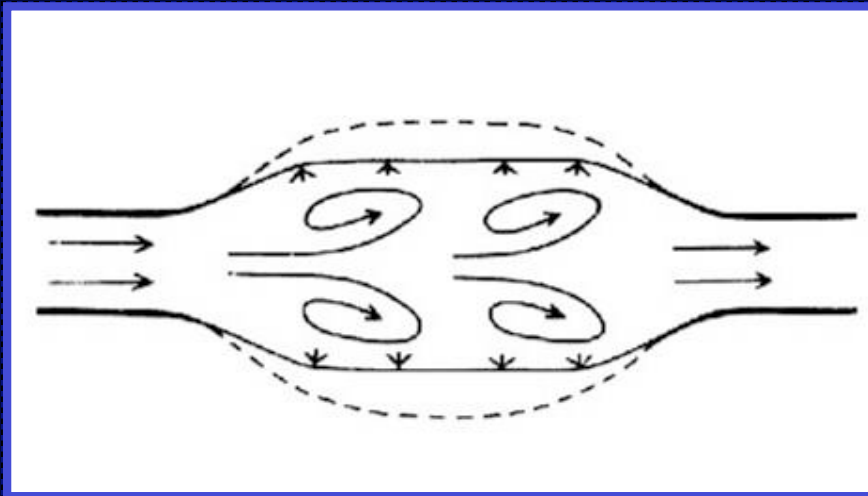




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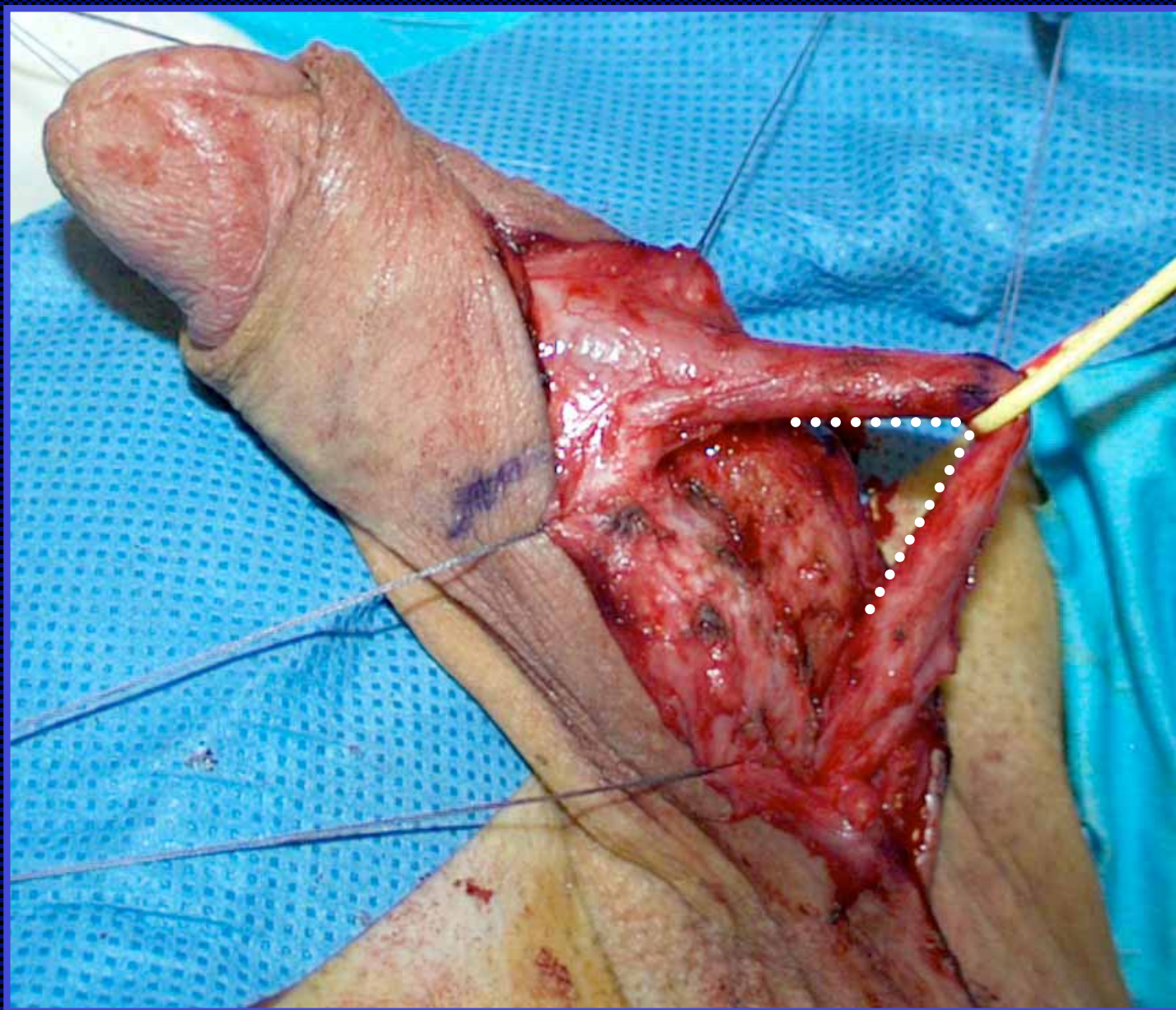


# Result

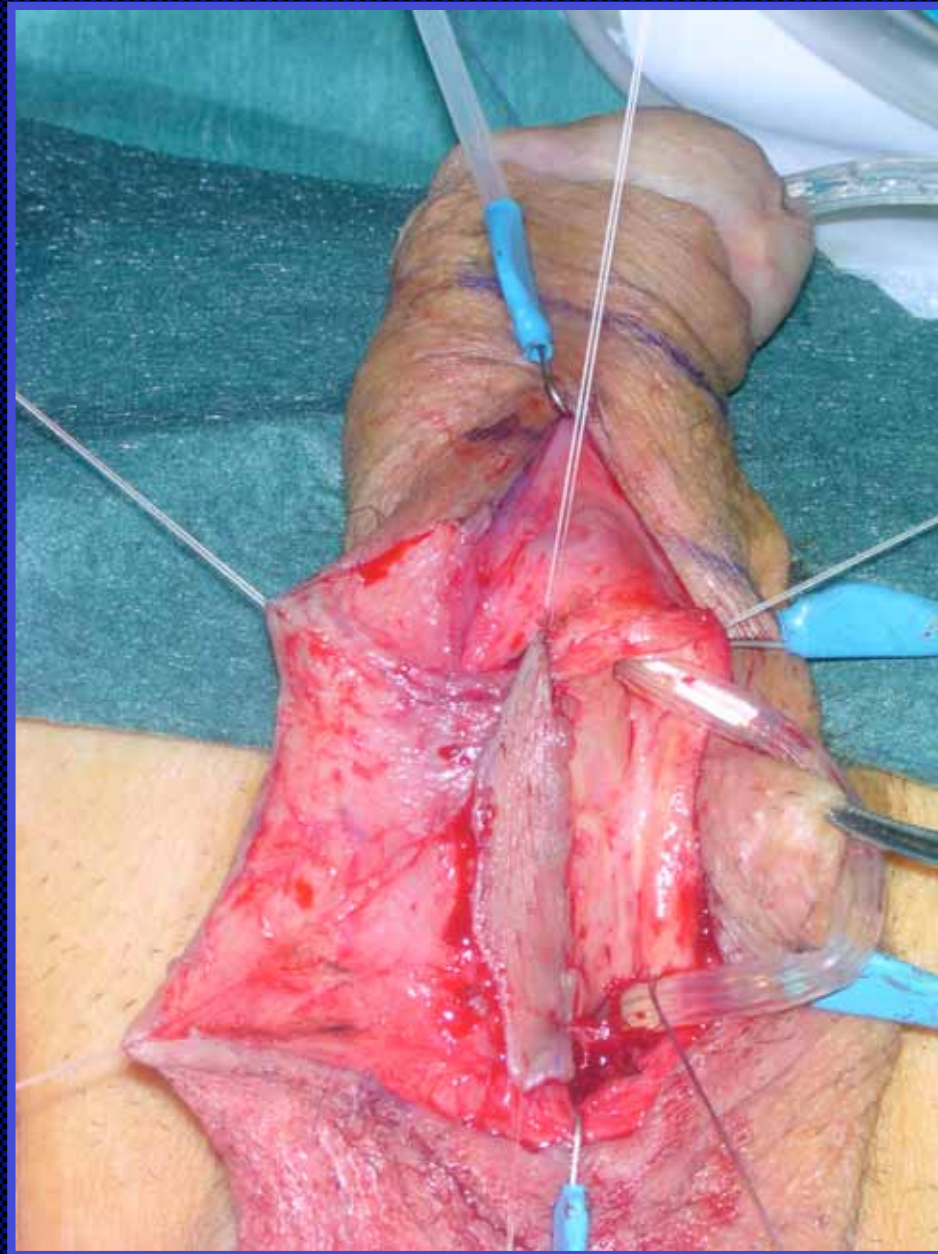














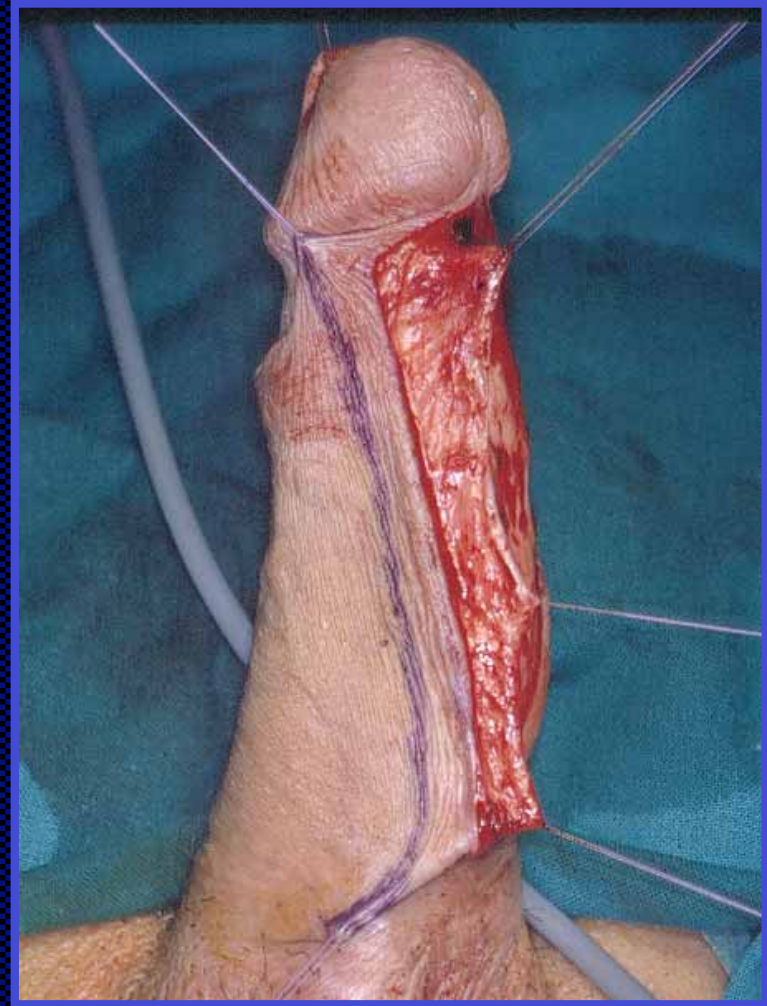




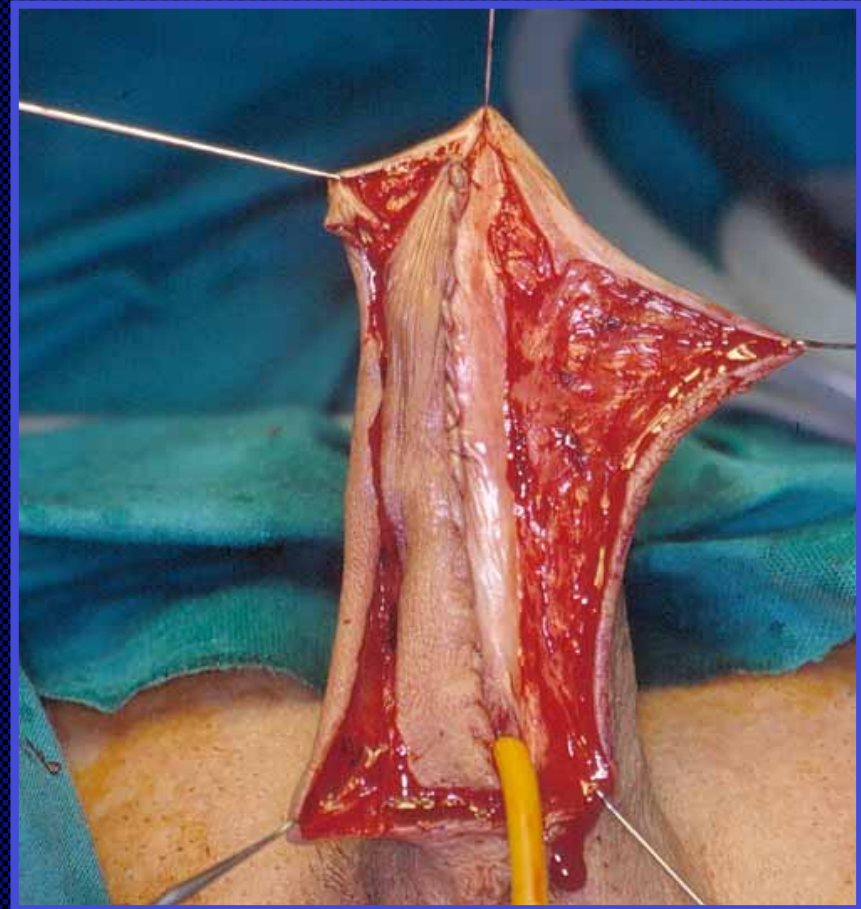
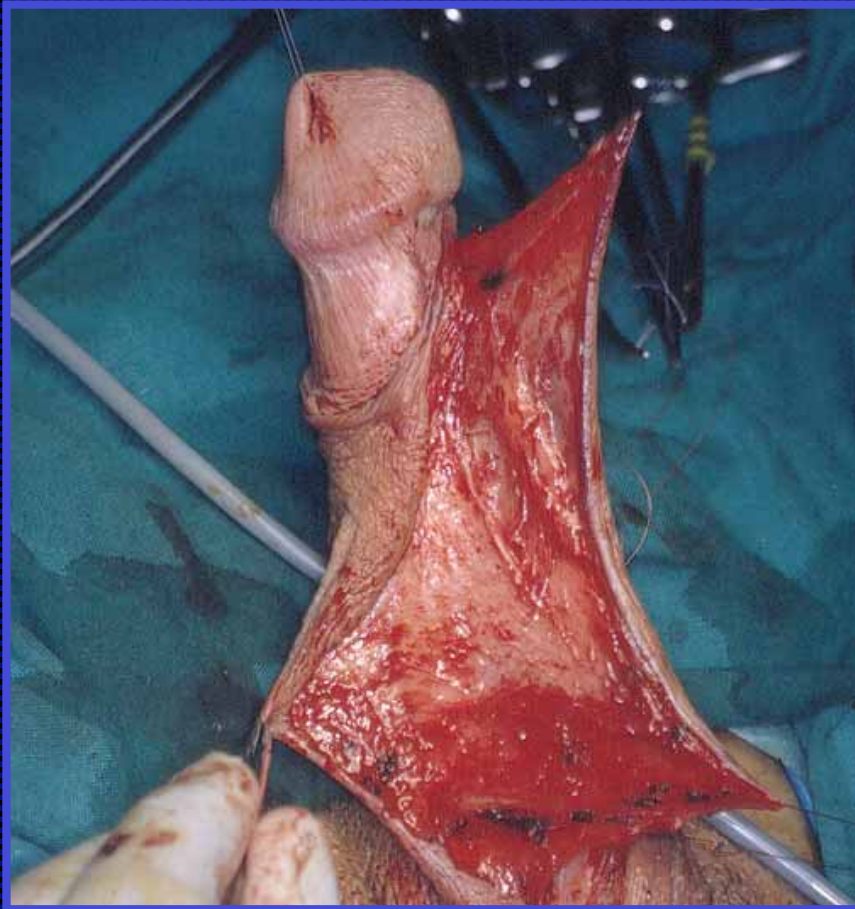




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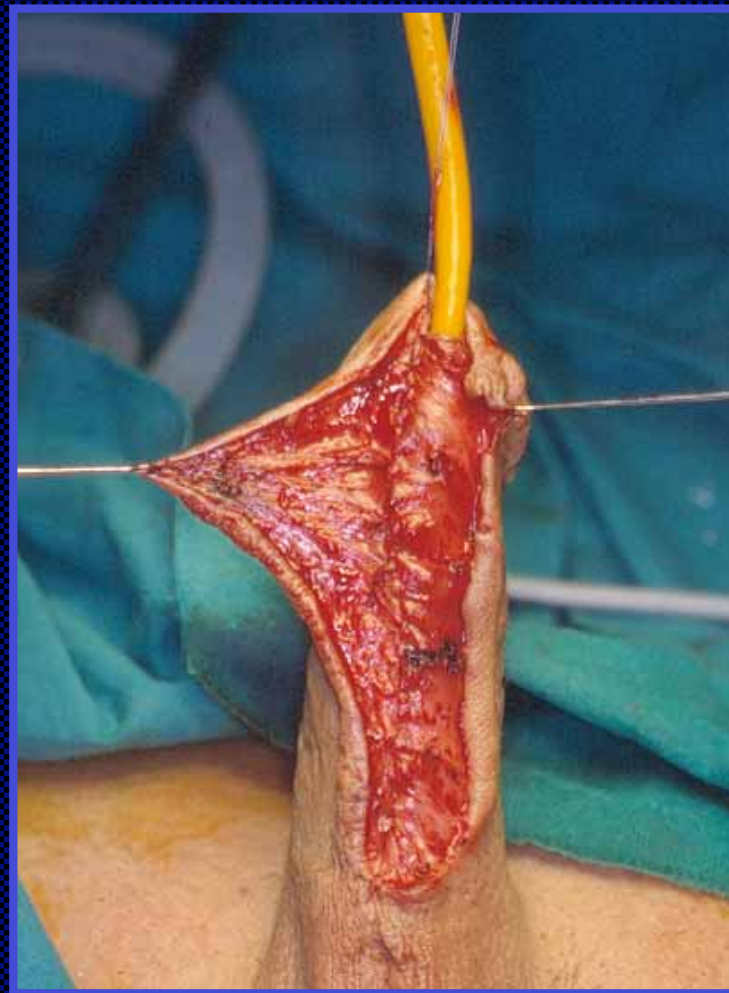
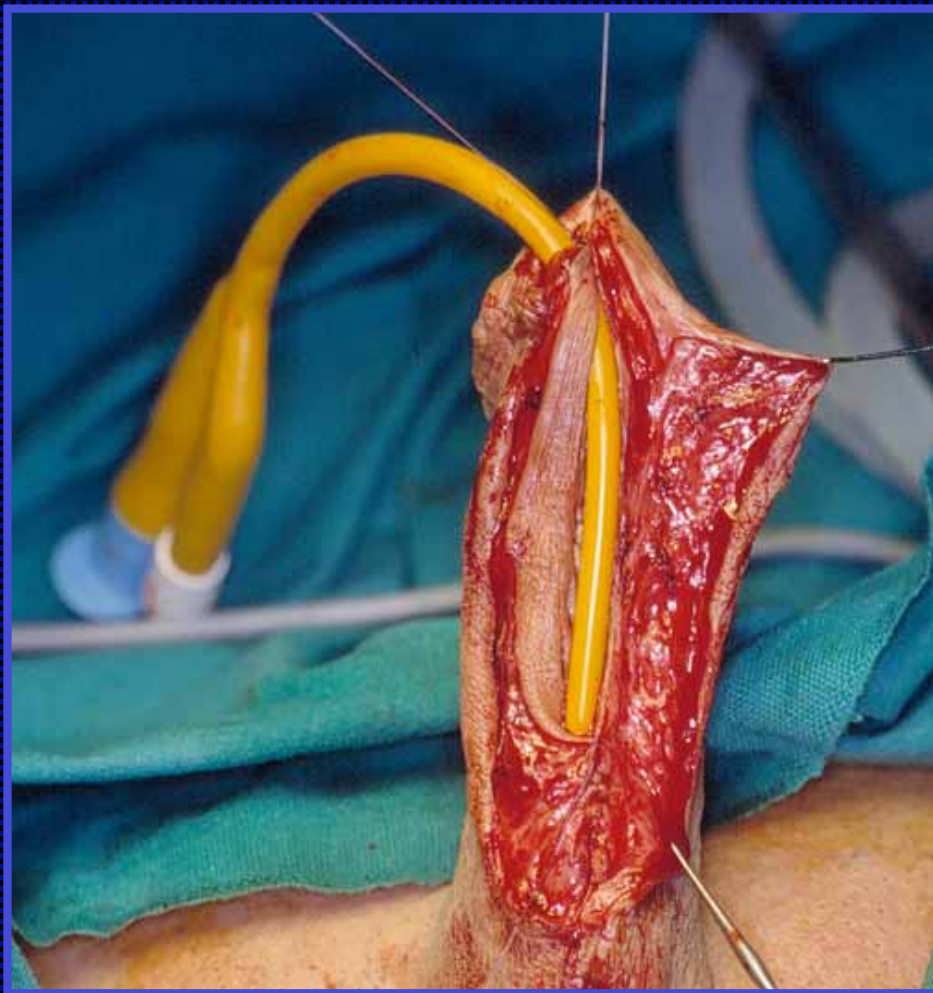


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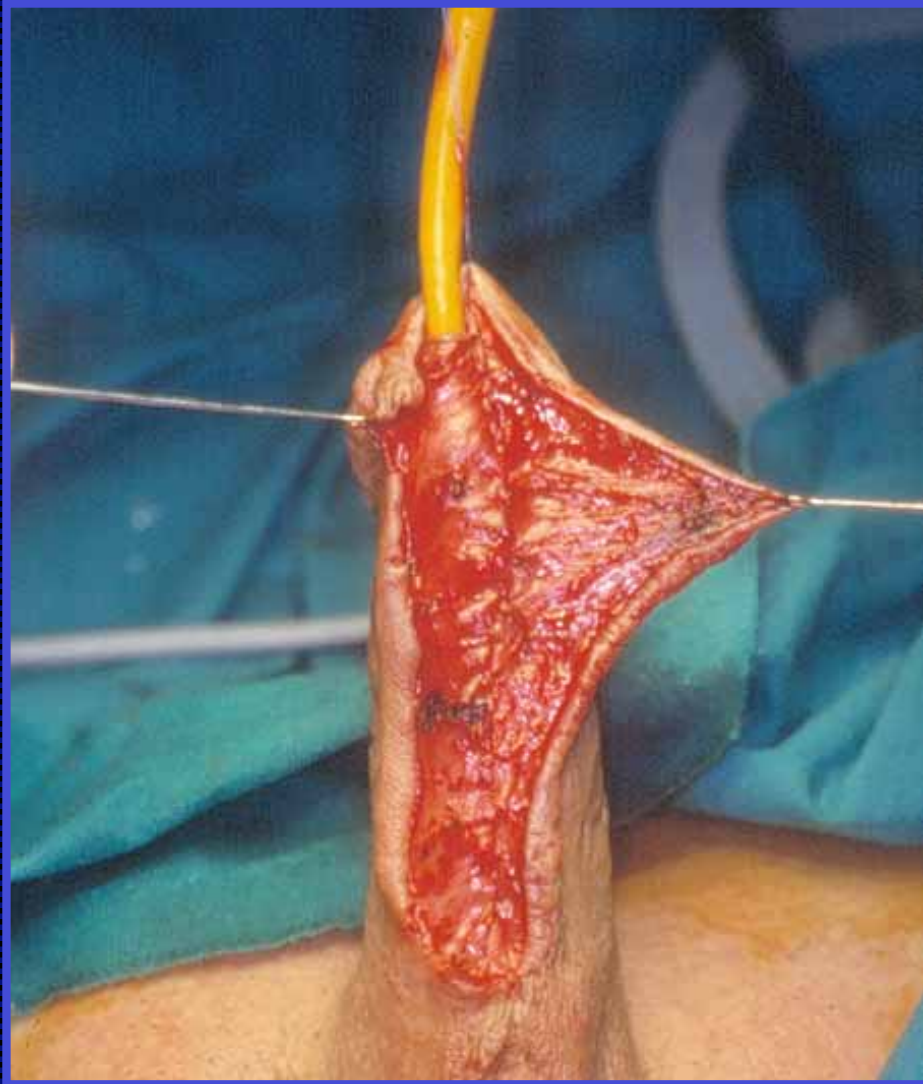




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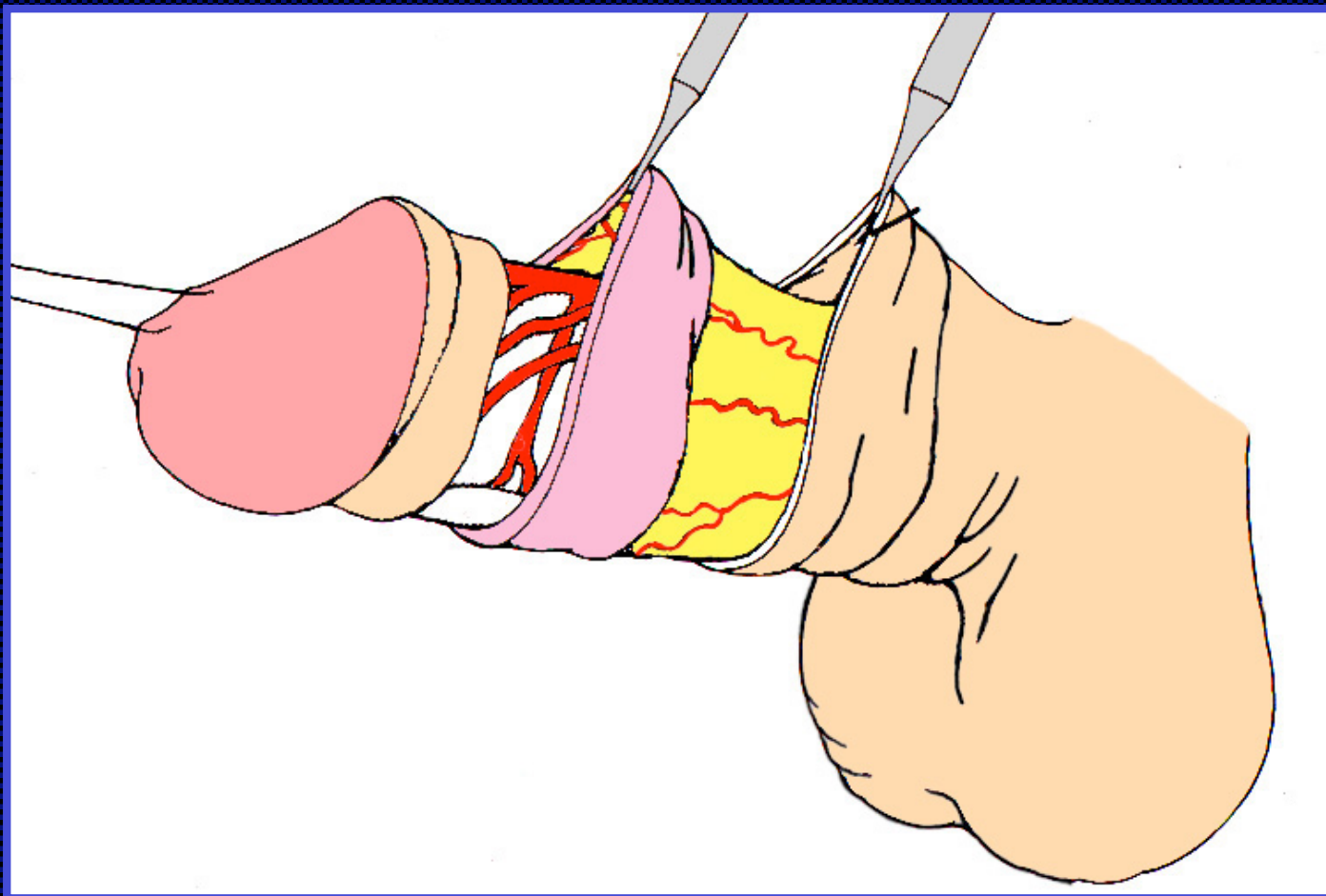


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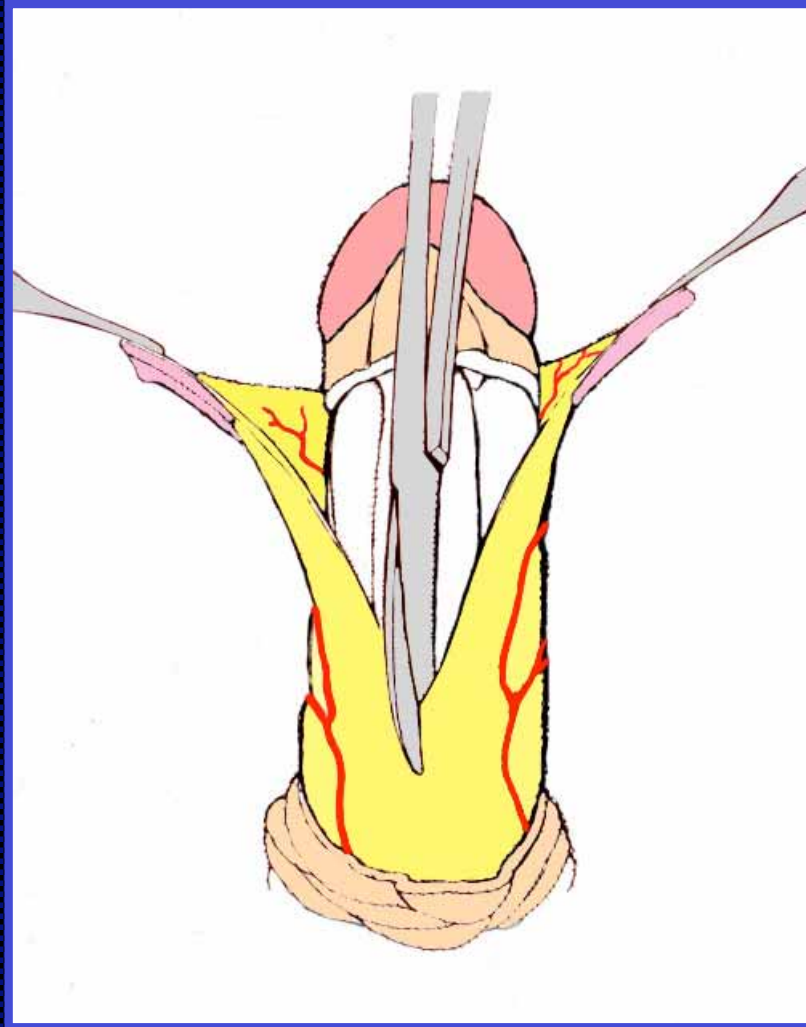




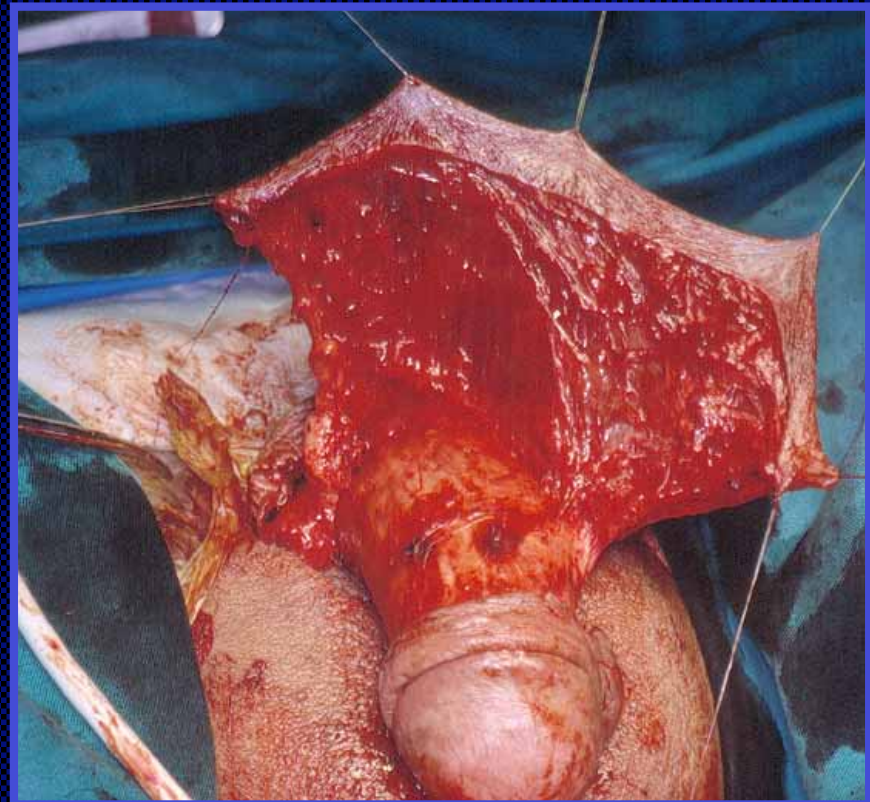
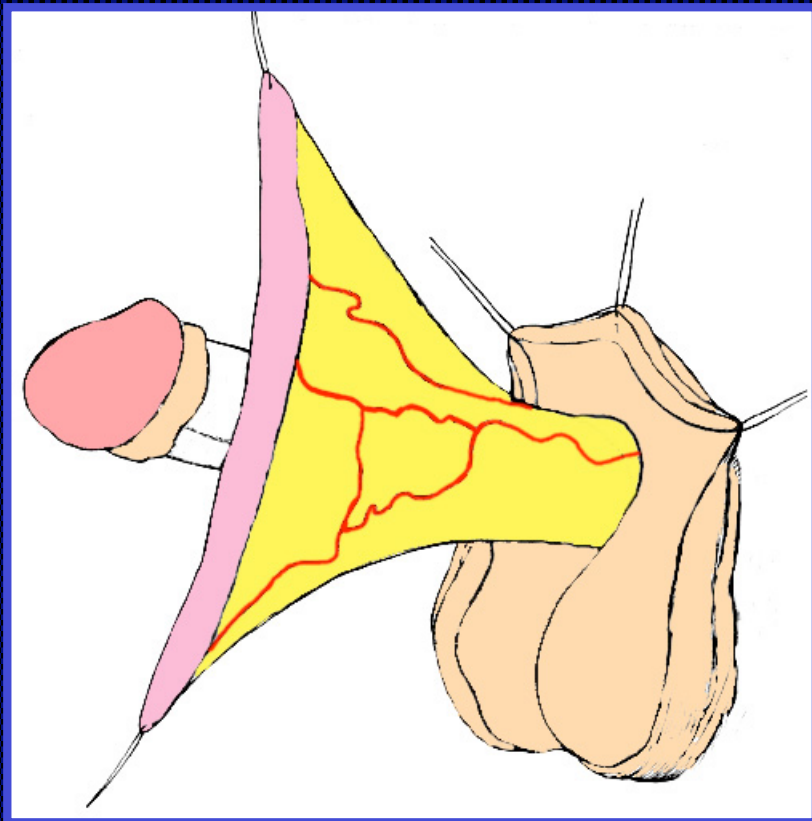
# McAninch



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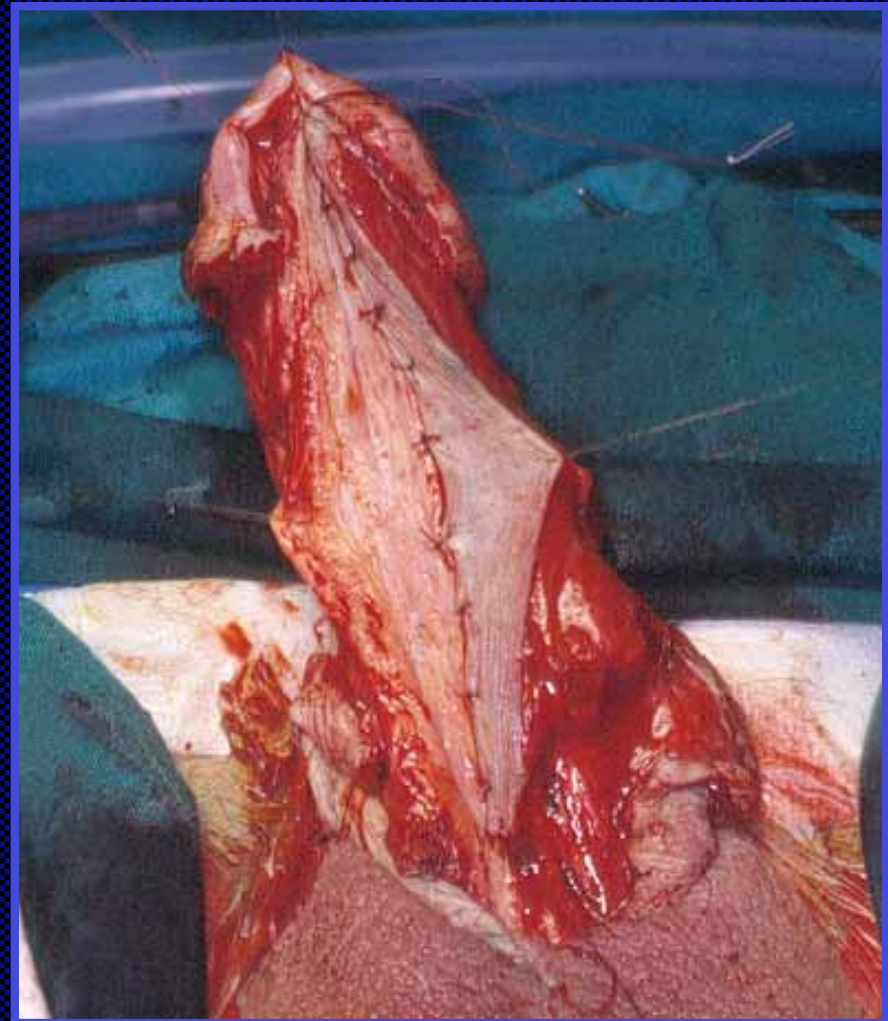
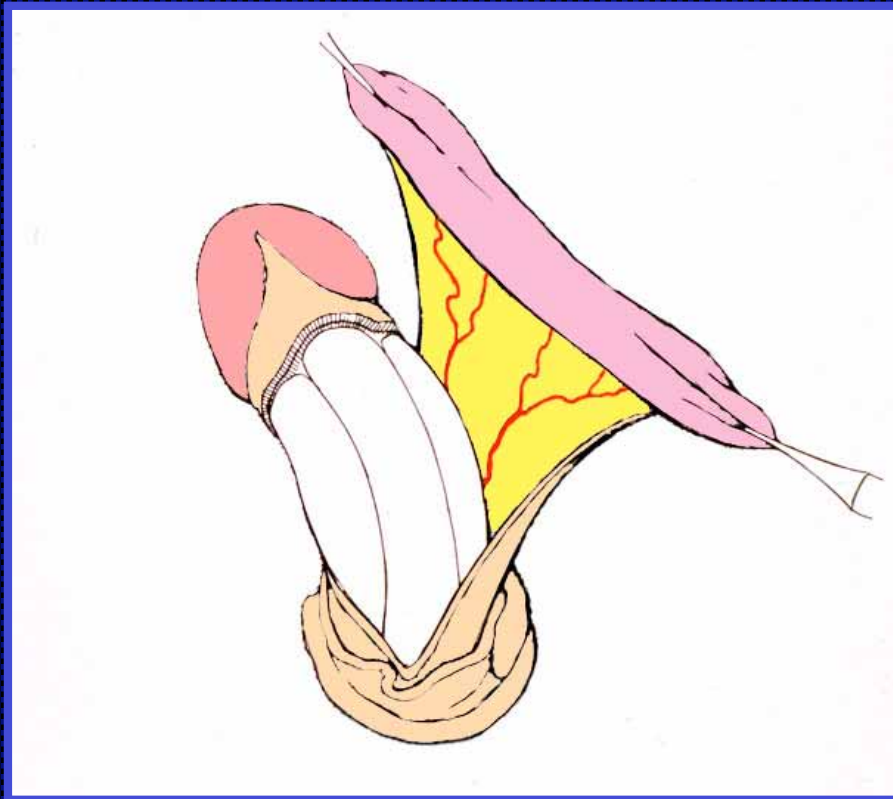


# McAninch



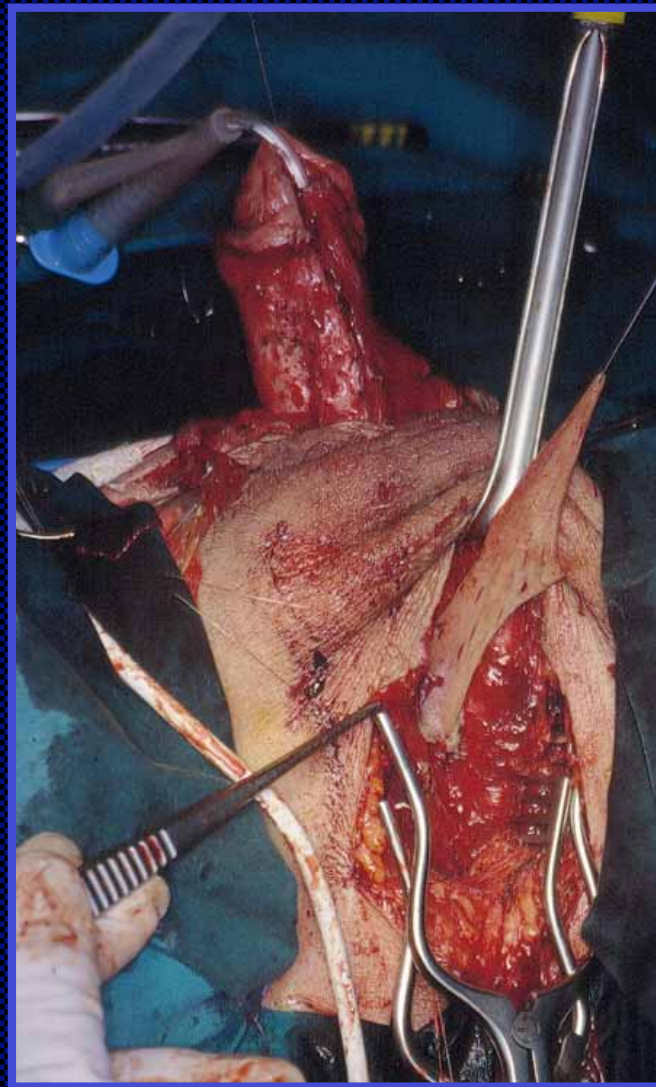
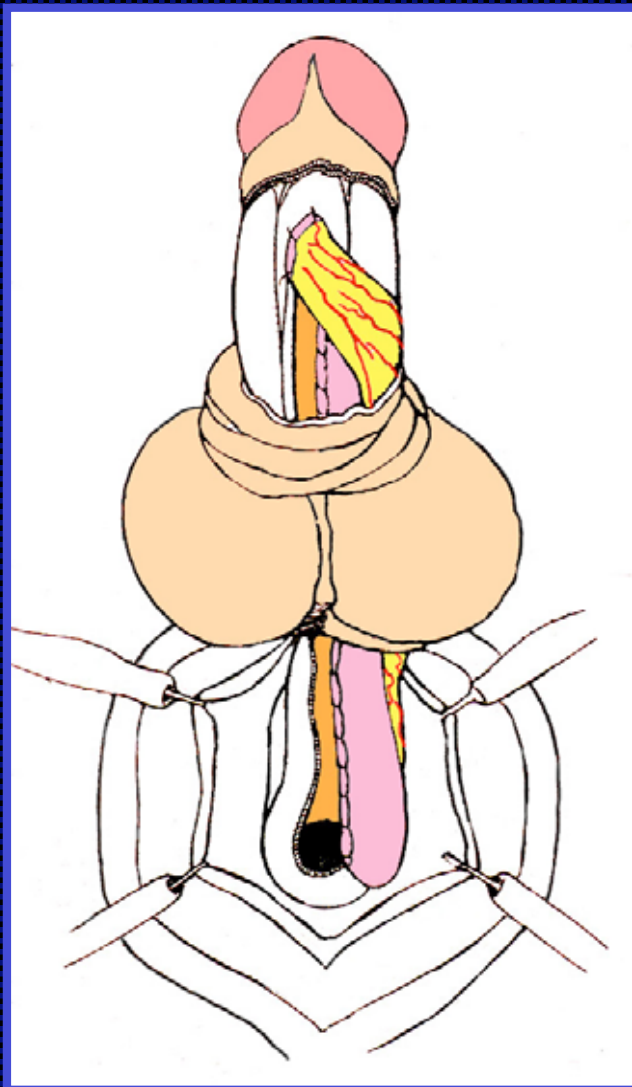


# McAninch





# McAninch



# Possible complications following flap urethroplasty



**penile hematoma**



**skin necrosis**

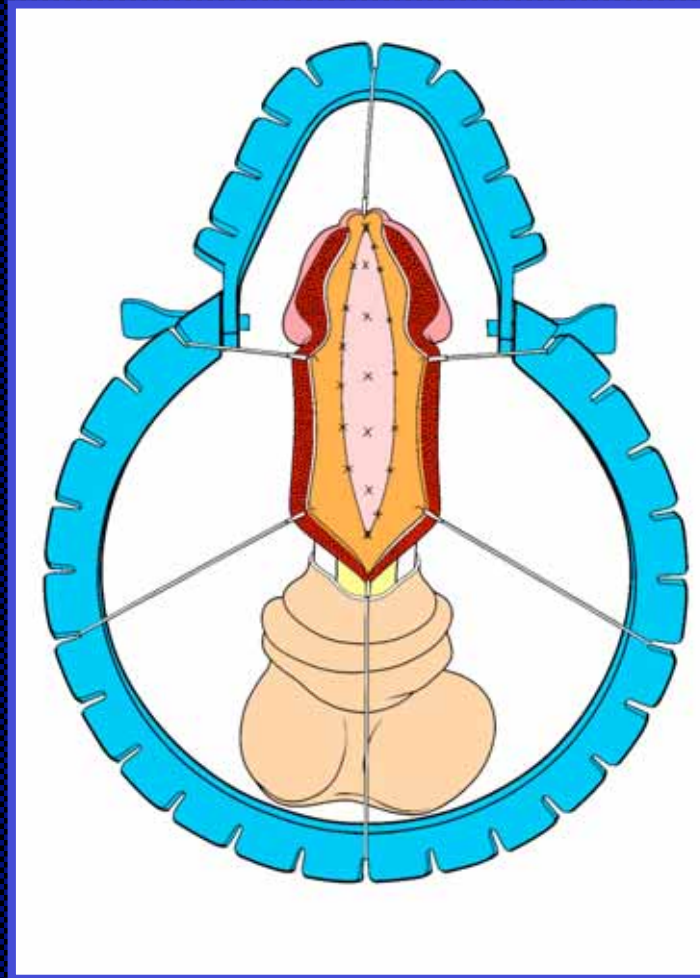


**fistula**

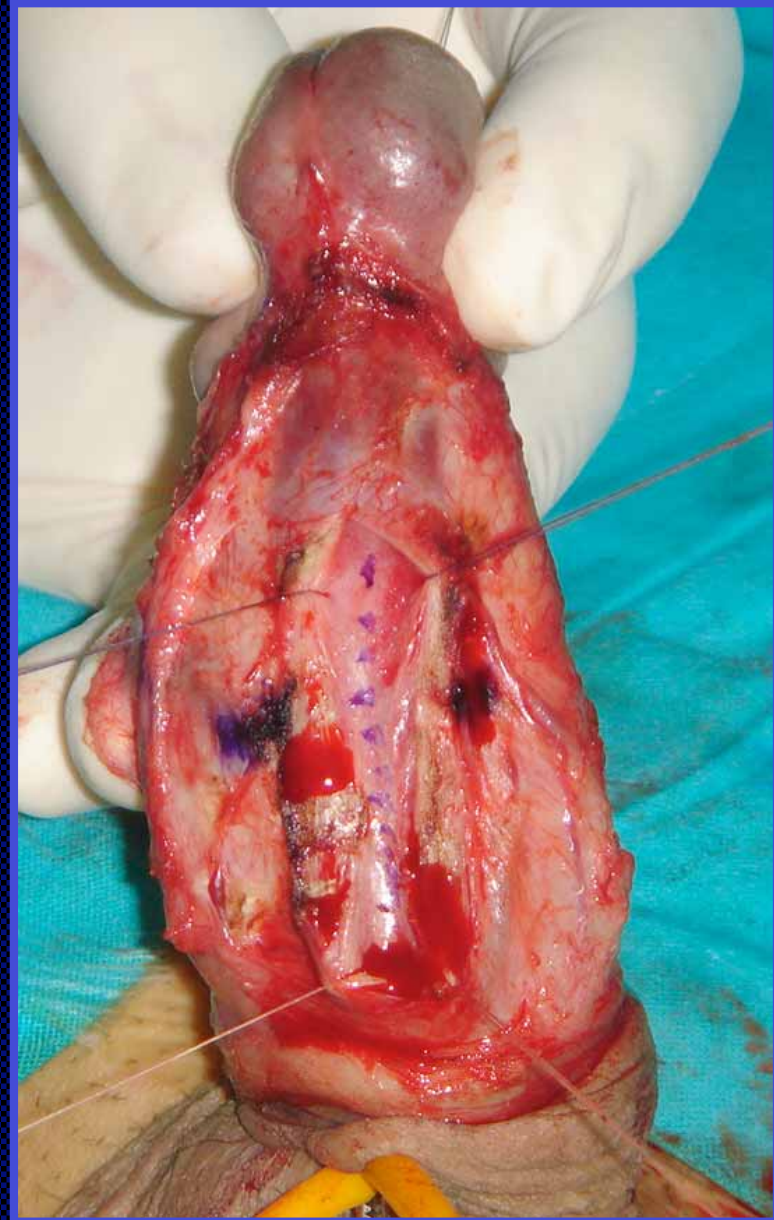


**penile-glans torsion**

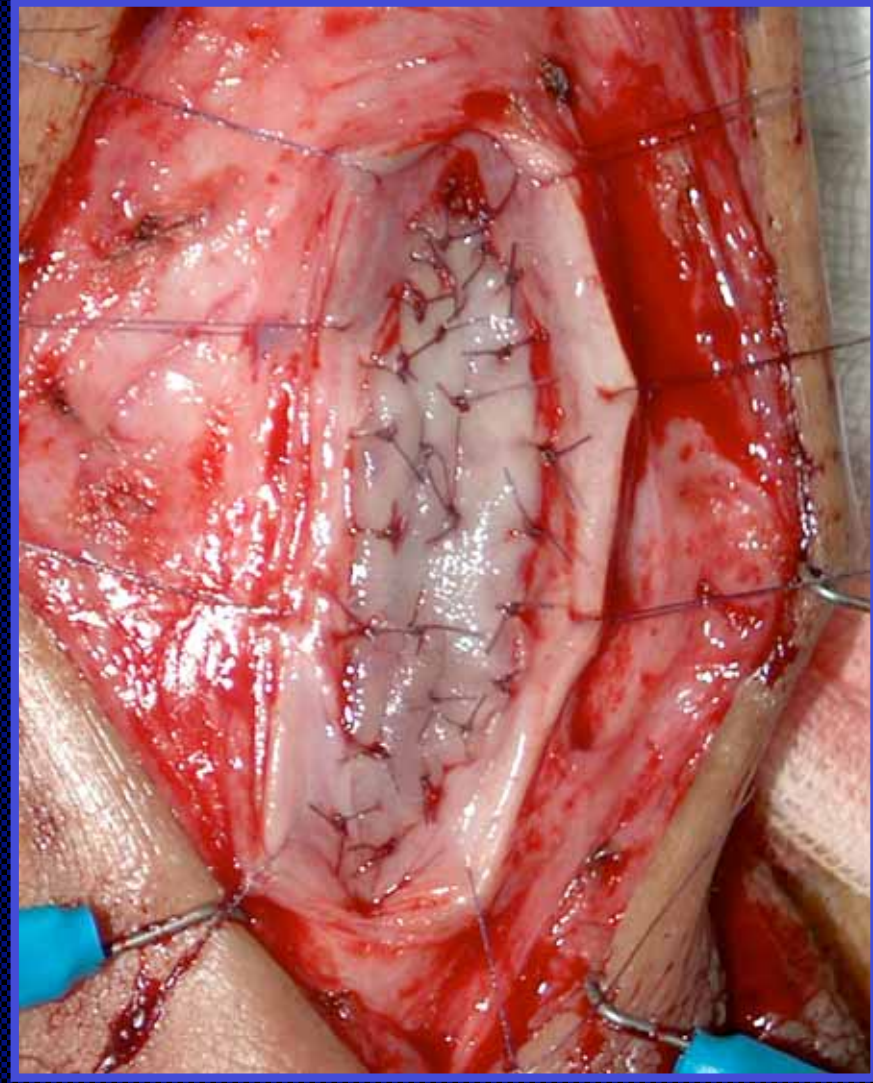
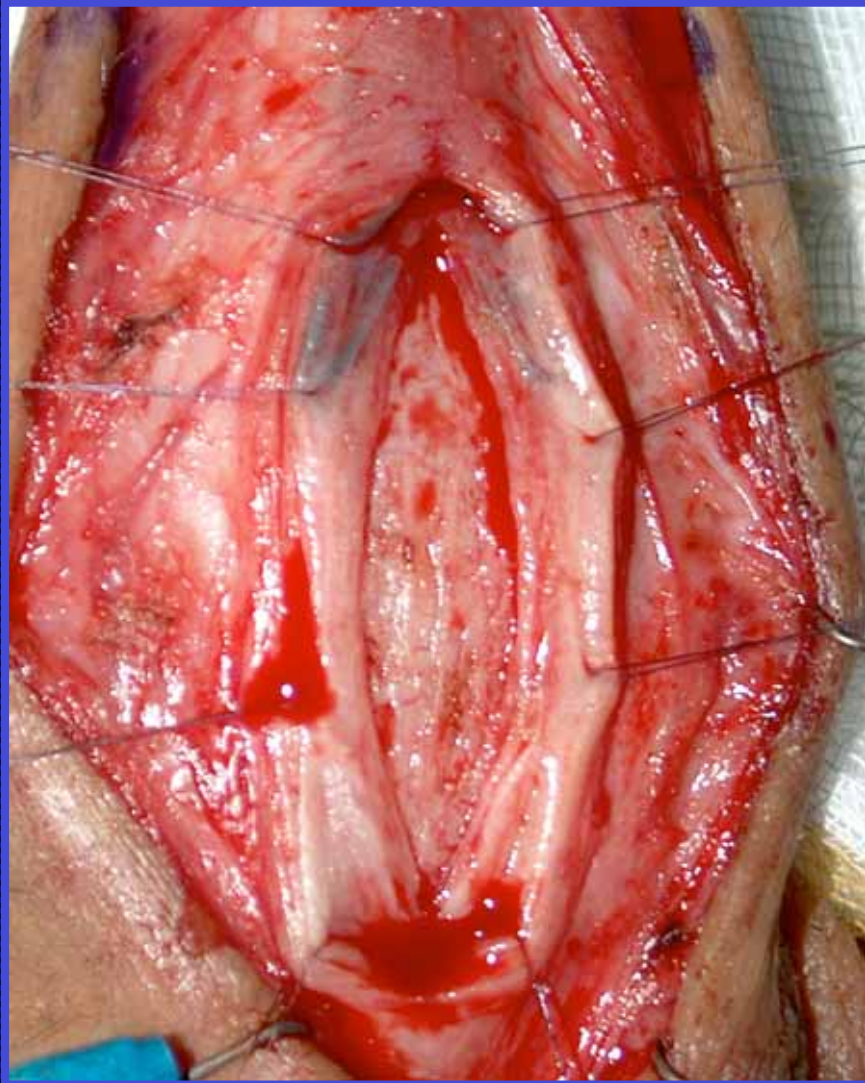
# One-stage urethroplasty using dorsal inlay buccal mucosal graft

















# Possible complications following graft urethroplasty



**infection**



**meatal stenosis**



**fistula**

# In patients with penile urethral strictures due to:



**failed hypospadias  
repair**



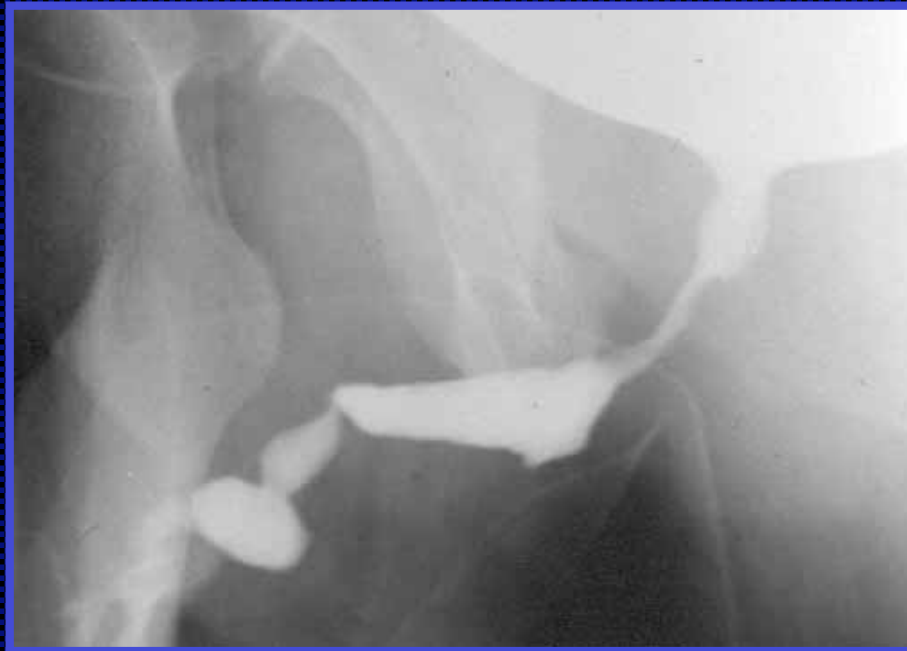
**lichen sclerosus**



**penis is abnormal**

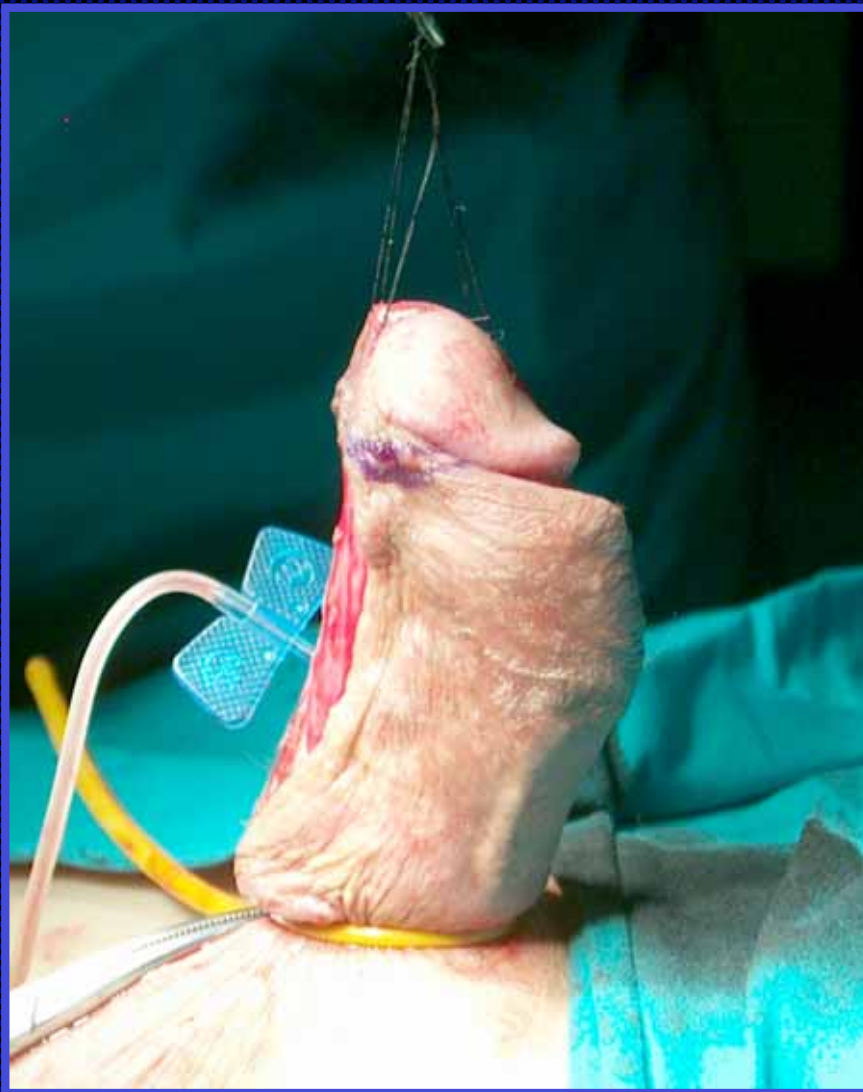


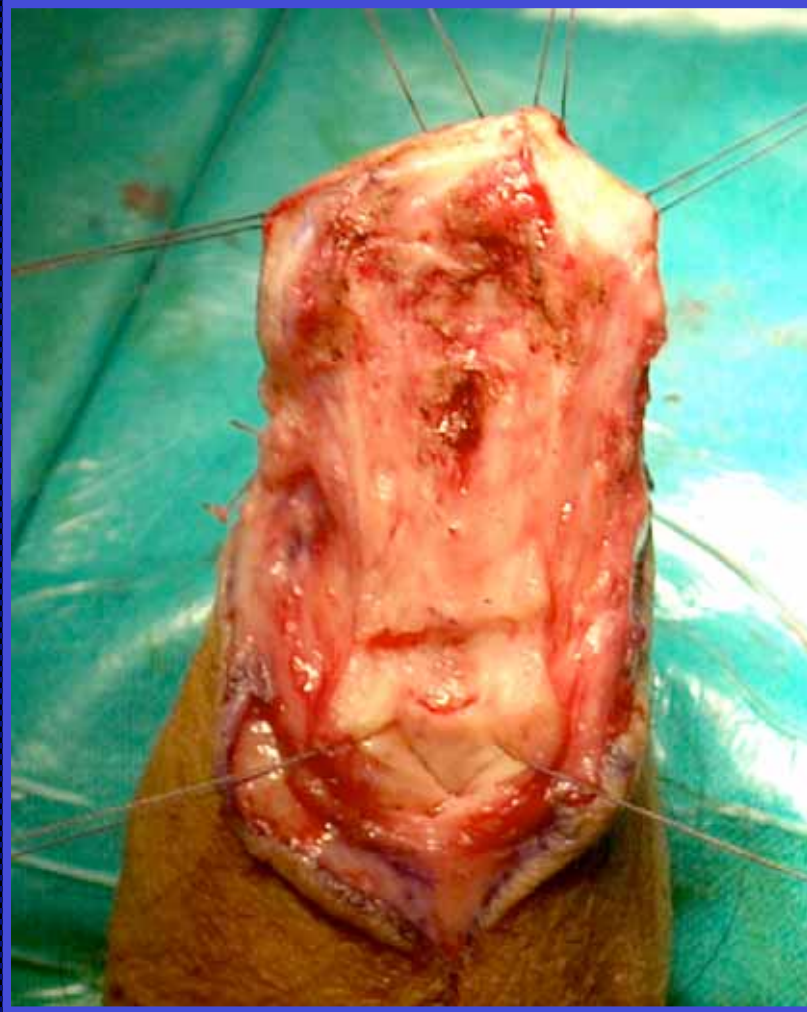
# Multi-stage urethroplasty using buccal mucosal graft





# First stage











# Possible complications following the first stage of urethroplasty



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

**These repeated surgical revisions might have a tremendous psychological impact on the patient**

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



# Second stage











# Possible 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**



# Evaluation of surgical outcome

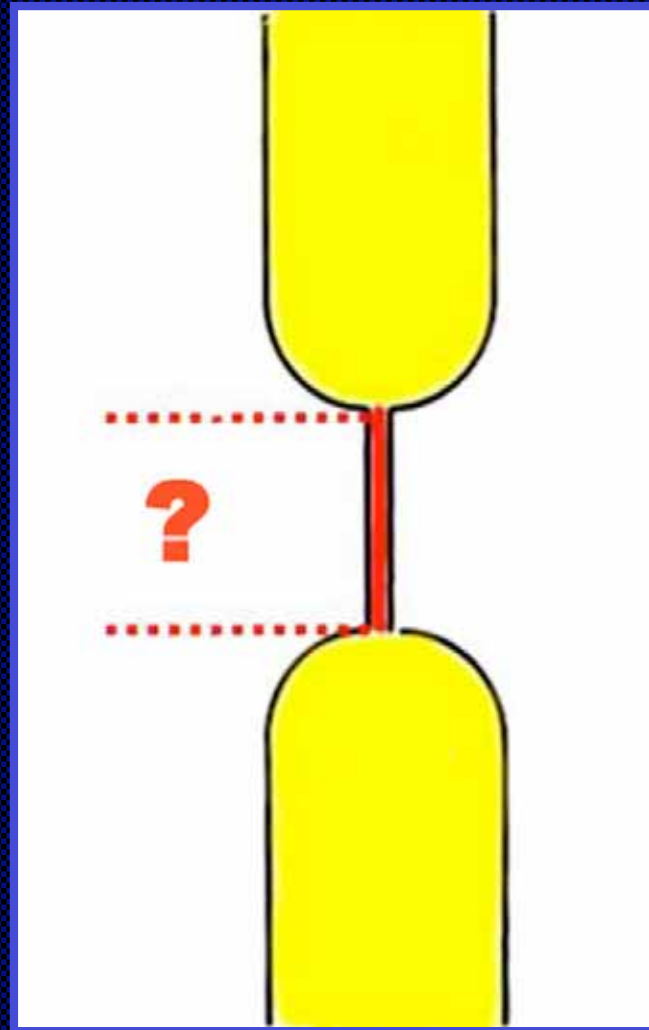
- Patients with penile urethral stricture disease are treated with so many various surgical approaches that it is really impossible to evaluate and standardize the long-term outcome of all these techniques
- The literature dealing with this argument is still terribly confused and does not furnish reliable interpretation of the available data





# Bulbar urethroplasty

Which type of  
urethroplasty ?



## Anastomotic urethroplasty

- end-to-end anastomosis
- augmented roof-strip anastomosis

## Substitution urethroplasty

- dorsal onlay graft urethroplasty
- ventral onlay graft urethroplasty



# Anastomotic or substitution urethroplasty ?

patients	type of repair	success	failure	complications *
28	end-to-end	26 ( 83% )	2 ( 70% )	18%
19	buccal graft	19 ( 100% )	0	0

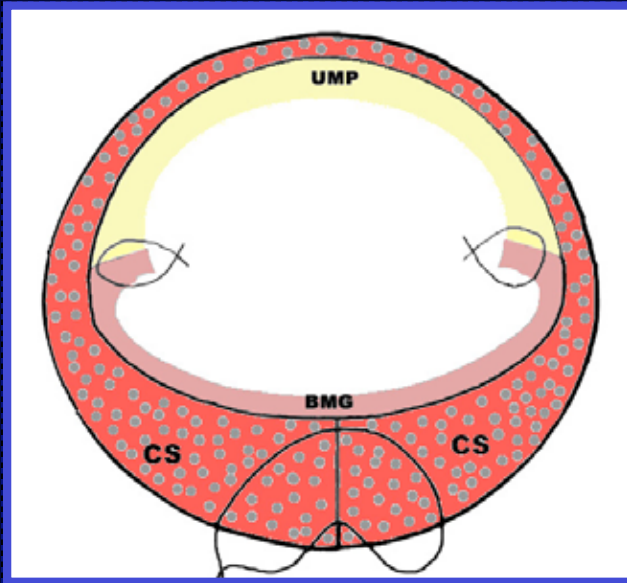
\* penile chordee or erectile dysfunction

Al-Qudah et al., J Urol, 2006



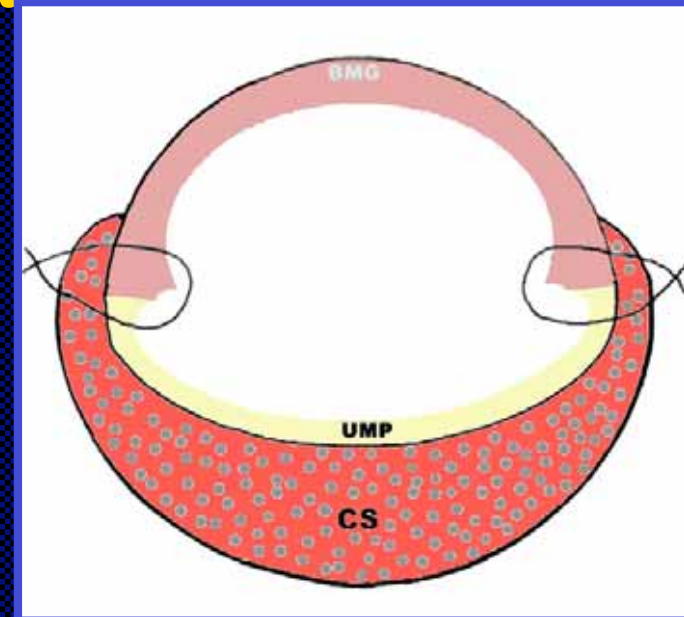


# Which type of substitution urethroplasty



**ventral**

?



**dorsal**



# Dorsal onlay graft urethroplasty

## published results

authors	patients	mean follow-up	success rate
Barbagli et al. J Urol 1998	37	21	92%
Iselin et al. J Urol 1999	12	19	100%
Andrich et al. B J U Int 2001	42	60	88%
Barbagli et al. J Urol 2004	45	71	73%
Delvecchio et al. J Urol 2004	11	\	90%
Barbagli et al. J Urol 2005	17	42	85%



# Ventral onlay graft urethroplasty

published results

authors	patients	mean follow-up	success rate
Kane et al. J Urol 2002	53	25	94%
Elliot et al. J Urol 2003	60	47	90%
Kellner et al. J Urol 2004	18	50	88%
Barbagli et al. J Urol 2005	17	42	83%





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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?

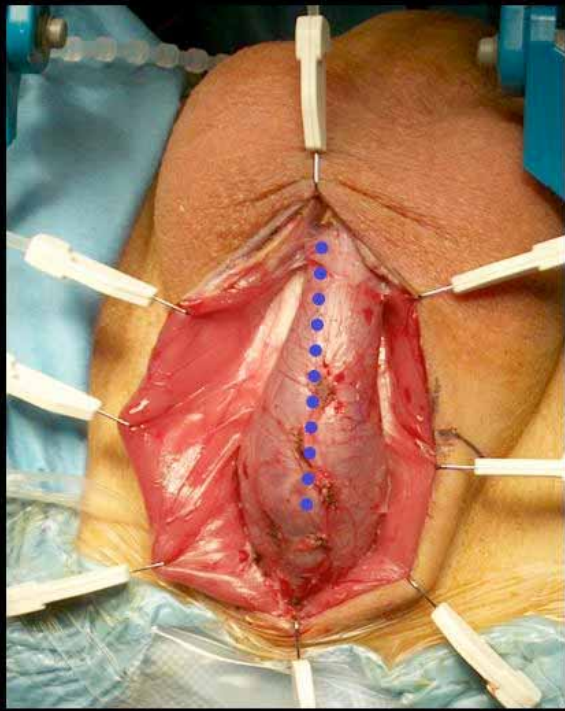
GUIDO BARBAGLI, ENZO PALMINTERI, GIORGIO GUAZZONI, FRANCESCO MONTORSI,  
DAMIANO TURINI AND MASSIMO LAZZERI\*

*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**

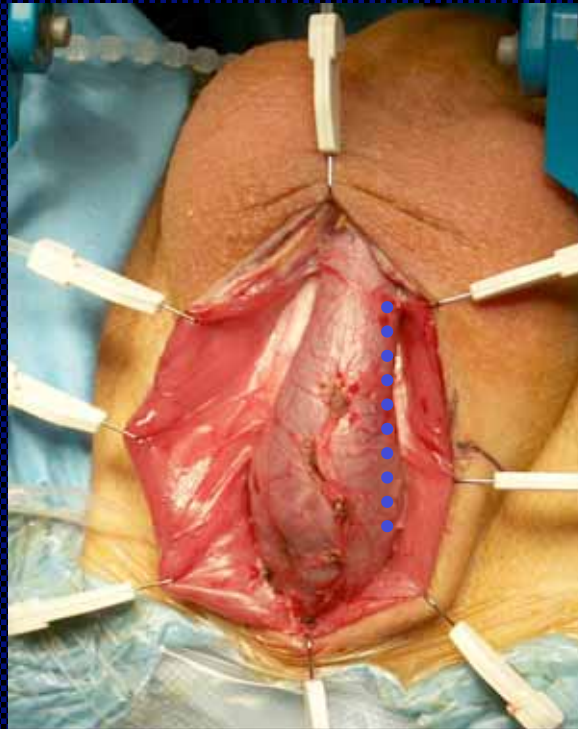


# Results



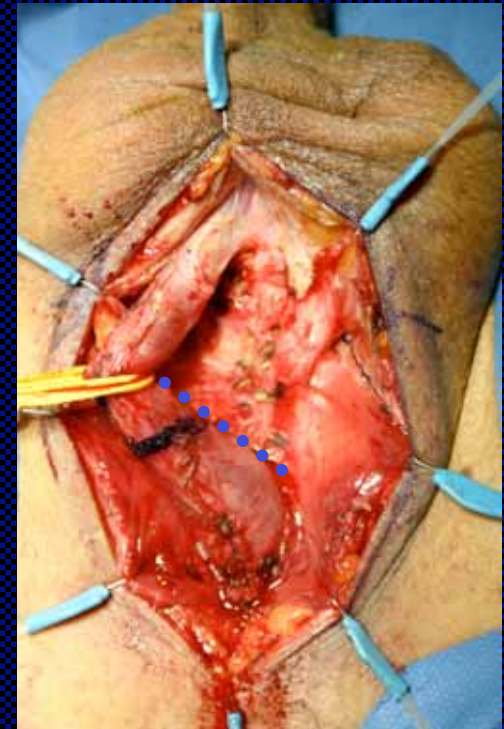
**Ventral**

83% success



**Lateral**

83% success



**Dorsal**

85% success





# Results

## **Anastomotic Fibrous Ring as Cause of Stricture Recurrence After Bulbar Onlay Graft Urethroplasty**

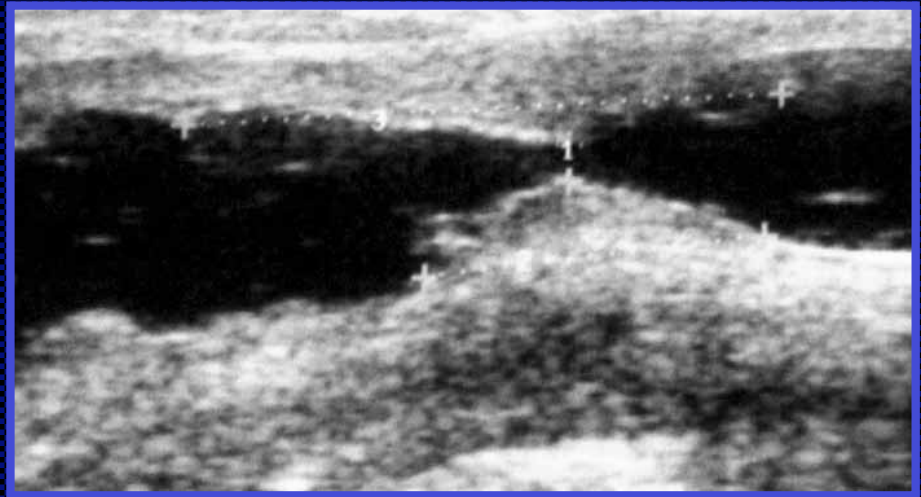
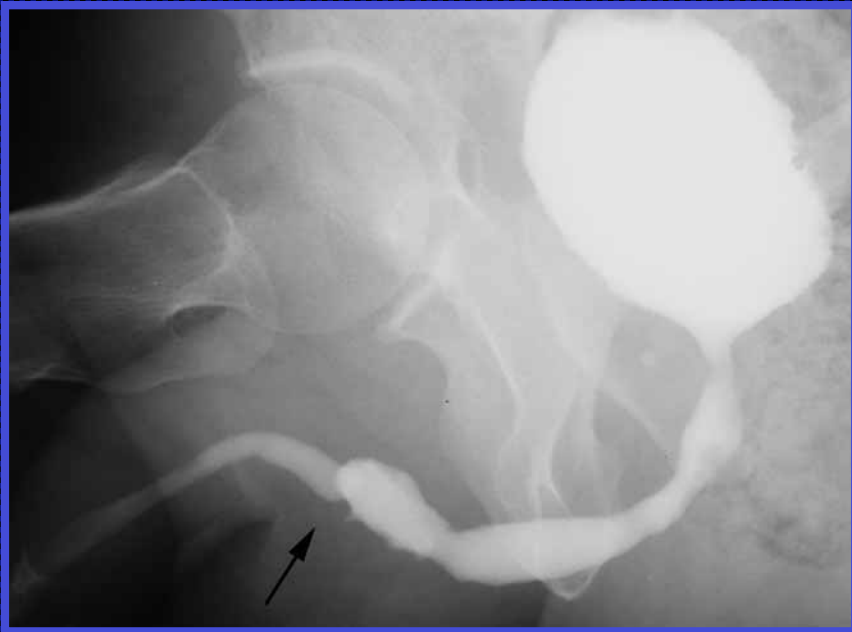
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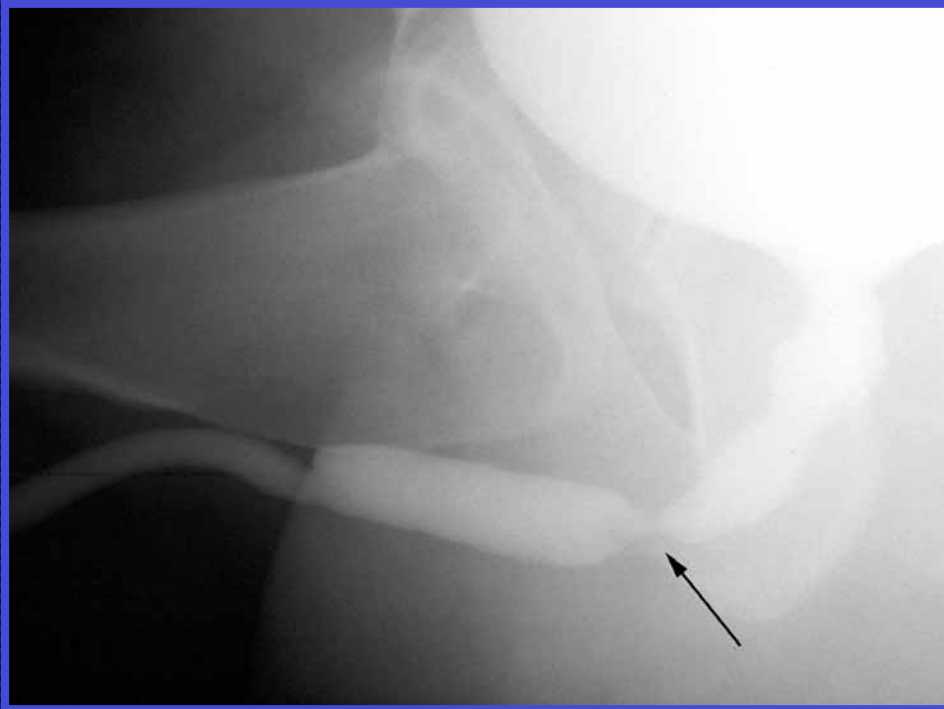
**J Urol 2006**



# Distal anastomotic ring

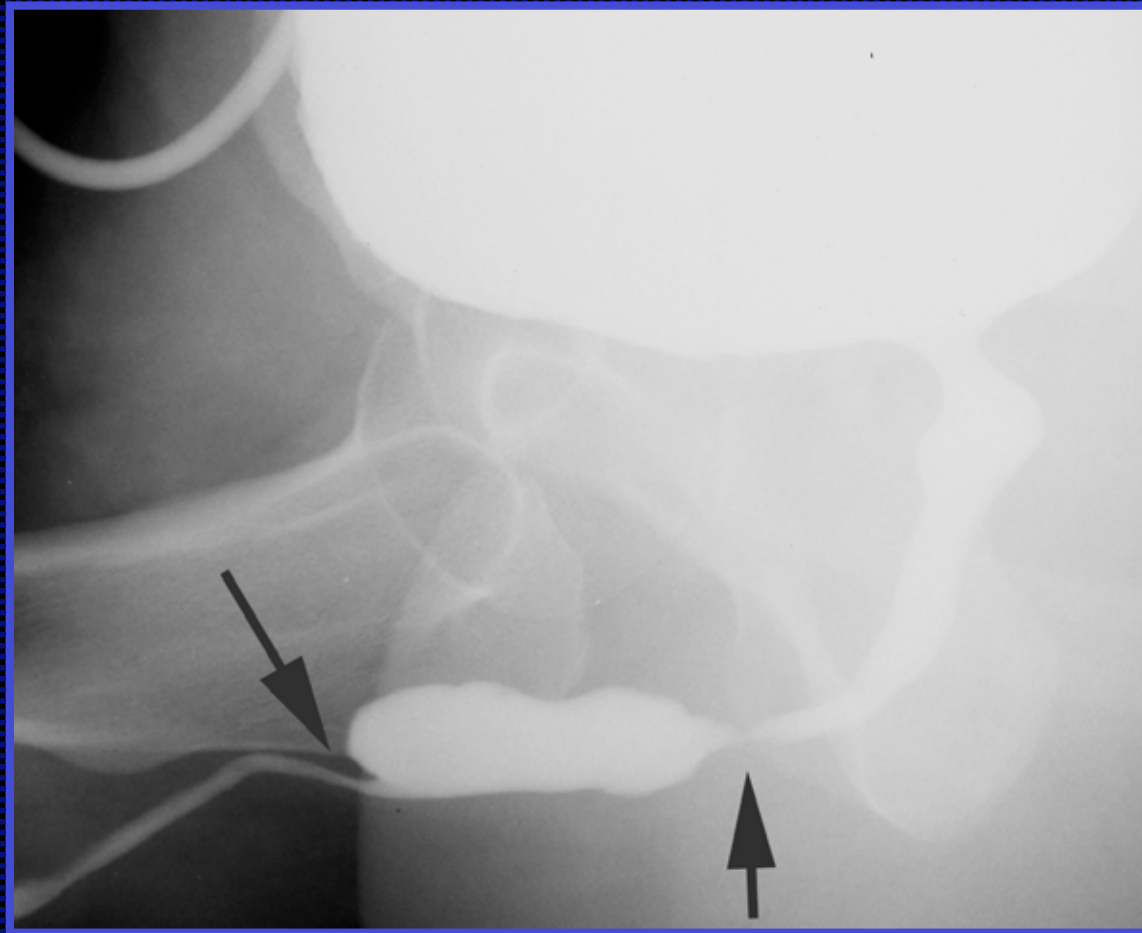


# Proximal anastomotic ring





# Distal and proximal anastomotic rings



# Anastomotic rings after bulbar urethroplasty

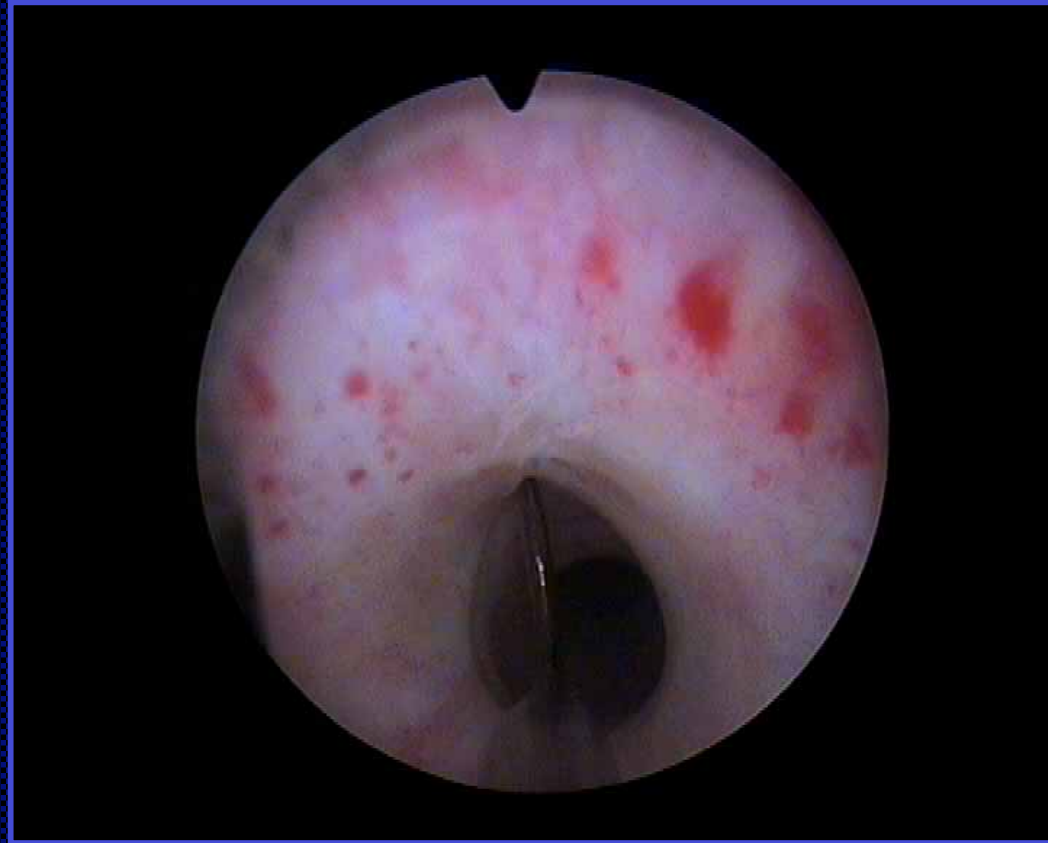
type of urethroplasty substitute material	patients	success rate	type of failure		
			entire grafted area	anastomotic ring	ring site
dorsal onlay skin graft urethroplasty	45	73%	17%	8%	2 distal 2 proximal
buccal mucosa onlay graft urethroplasty	50	84%	6%	10%	2 distal 3 proximal
augmented end-to-end urethroplasty with buccal mucosa	12	84%	8%	8%	1 proximal
<b>total</b>	<b>107</b>	<b>80%</b>	<b>11%</b>	<b>9%</b>	<b>4 distal 6 proximal</b>

## Prevalence of anastomotic rings following bulbar urethroplasty

authors	patients	substitute material	success rate	rings	site	treatment	outcome
Iselin et al. <i>J Urol</i> 1999	29	skin (27) buccal mucosa (2)	97%	1	proximal	dilation	S
Guralnick et al. <i>J Urol</i> 2001	29	skin (26) buccal mucosa (3)	93%	2	distal (1) proximal (1)	dilation (1) urethrotomy (1)	S
Chapple et al. <i>J Urol</i> 2002	122	buccal mucosa and other	79%	12	\	dilation urethrotomy	S
Elliot et al. <i>J Urol</i> 2003	60	buccal mucosa	90%	4	distal	urethrotomy	S
Kellner et al. <i>J Urol</i> 2004	23	buccal mucosa	87%	3	distal	urethrotomy	S
Berglund et al. <i>J Urol</i> 2004	18	pedicled skin with buccal mucosa	94%	1	\	dilation	S
Abouassaly et al. <i>J Urol</i> 2005	100	buccal mucosa	92%	8	\	dilation (3) urethrotomy (2) none (3)	S
<b>Total</b>	<b>381</b>		<b>87%</b>	<b>31</b>			<b>31</b>



# Treatment of the anastomotic ring



**Internal urethrotomy**



# 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**





## **Madonna del Parto - Piero della Francesca**

**Monterchi - Arezzo**



**Center for Reconstructive Urethral Surgery**

