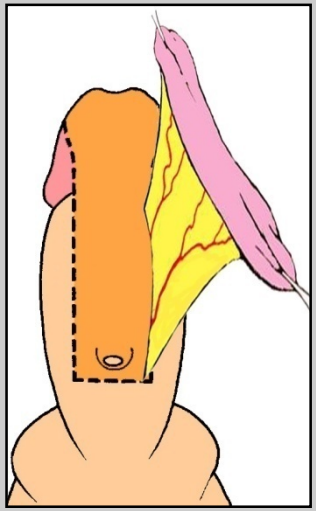
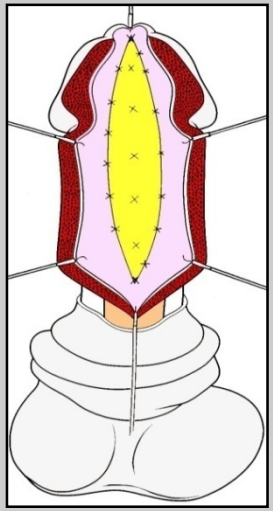
Guido Barbagli – Sava Perovic
Salvatore Sansalone

European Center for Failed Hypospadias Repair



Arezzo – Italy
Belgrade – Serbia
Rome - Italy



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Surgical Workoshop on Complex Uro-genital Reconstructive Surgery in Adult

Belgrade – Serbia

11-12 September 2009

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Hypospadias:

Problems in the adult patient

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International Congress on Hypospadias Surgery

Prishtina, 2 – 5 September 2007

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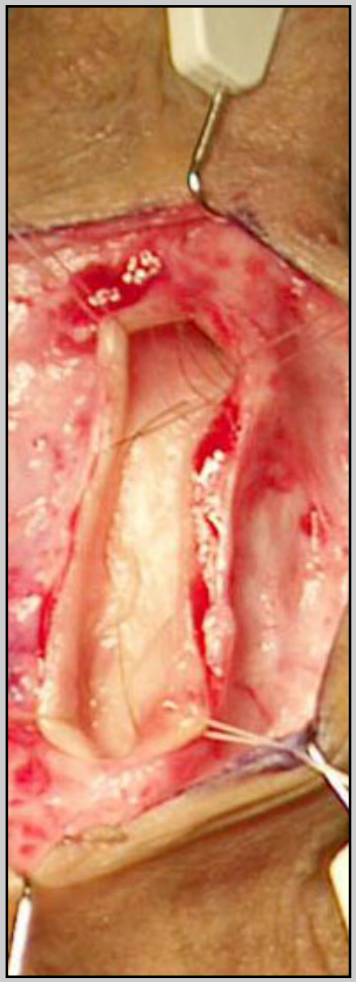
…the other side of the coin



“ Strictures in adults who had a hypospadias repair is a growing industry ”

Andrich DE and Mundy AR, Eur Urol 2008, 54: 1031

The aim of this lecture is to present data coming from our industry

1176 patients

The Center for Reconstructive Urethral Surgery

Arezzo - Italy

223 patients

The University Children's Hospital

Belgrade - Serbia

953 patients

Age range in 1176 patients

age (years)	N. patients
1 – 16	250 (21.2%)
16 – 20	451 (38.4%)
20 – 40	358 (30.5%)
40 – 60	112 (9.5%)
> 60	5 (0.4%)

< 16 years 250 (21.2%)

> 16 years 926 (78.8%)

Patients with urethral stricture diseases: 1510

Failed hypospadias repair: 223 (14.7%)

Patients with penile urethral stricture diseases: 437

→ **Failed hypospadias repair: 223 (51%)**

Site of primary hypospadias in 1176 patients

glandular: 193 (16.4%)

penile: 702 (59.7%)

peno-scrotal: 281 (23.9%)

Number of operations to repair primary hypospadias in 1176 patients

N. operations	N. patients
1	130 (11.1%)
2	347 (29.5%)
3	320 (27.2%)
4	159 (13.5%)
5	108 (9.2%)
> 5	112 (9.5%)

minimum: 1 maximum: 23 median: 3

Number of operations to repair complications following primary hypospadias repair in 1176 patients

N. operations	N. patients
1	760 (64.6%)
2	280 (23.8%)
3	82 (6.9%)
4	31 (2.7%)
5	9 (0.8%)
> 5	14 (1.2%)

minimum: 1 maximum: 8 median: 2

Total number of operations to repair primary hypospadias and complications in 1176 patients

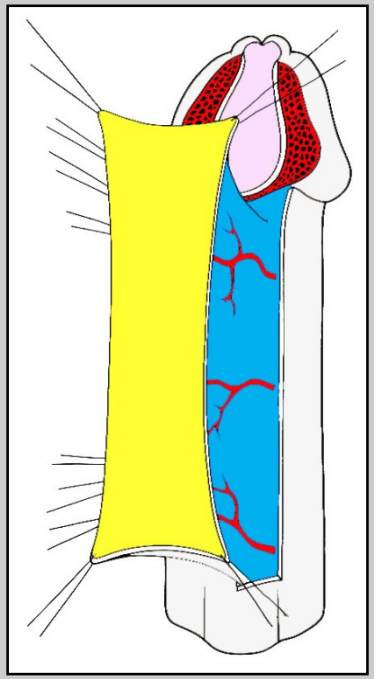
N. operations	N. patients
2	102 (8.7%)
3	289 (24.6%)
4	369 (31.4%)
5 – 10	311 (26.4%)
11 – 20	91 (7.7%)
> 20	14 (1.2%)

minimum: 2 maximum: 23 median: 5

In conclusion, 1176 patients underwent a median of 5 surgical operations to repair primary and failed hypospadias

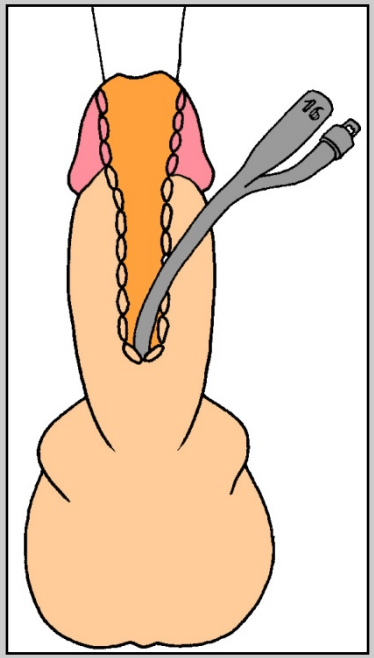
No other congenital abnormality of the body requires a median of 5 surgical operations to be cured !

Surgical techniques in 1176 patients

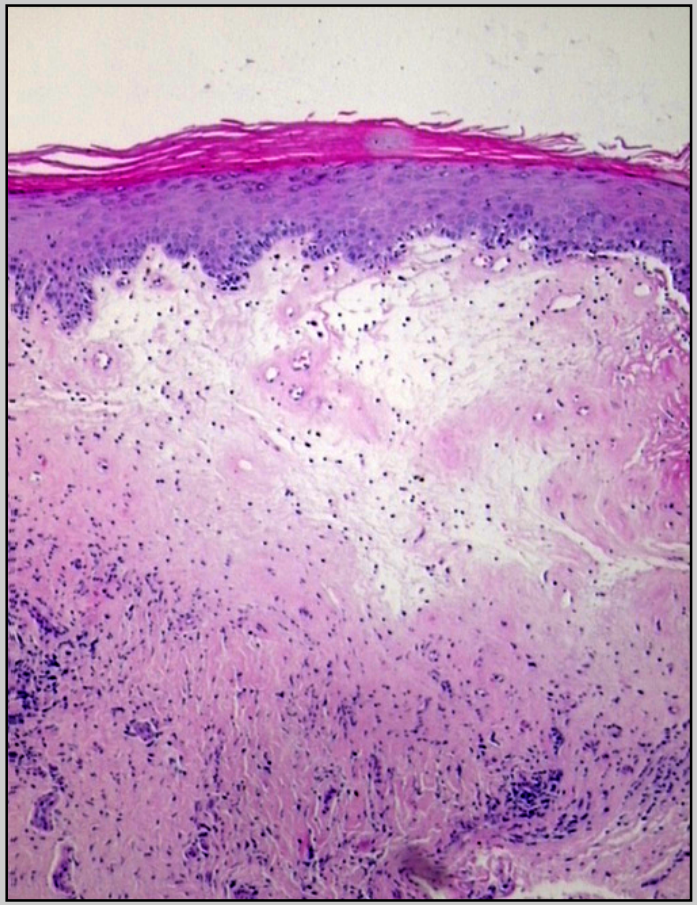


One-stage repair: 760

(64.6%)



Staged repair: 416 (35.4%)

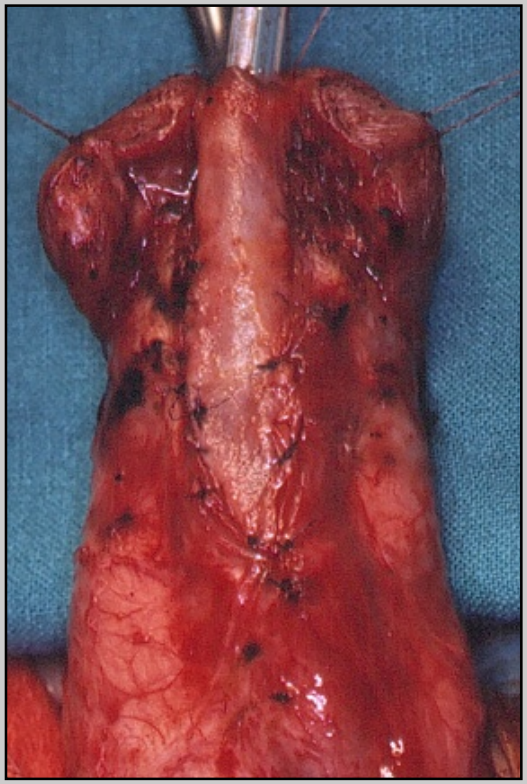


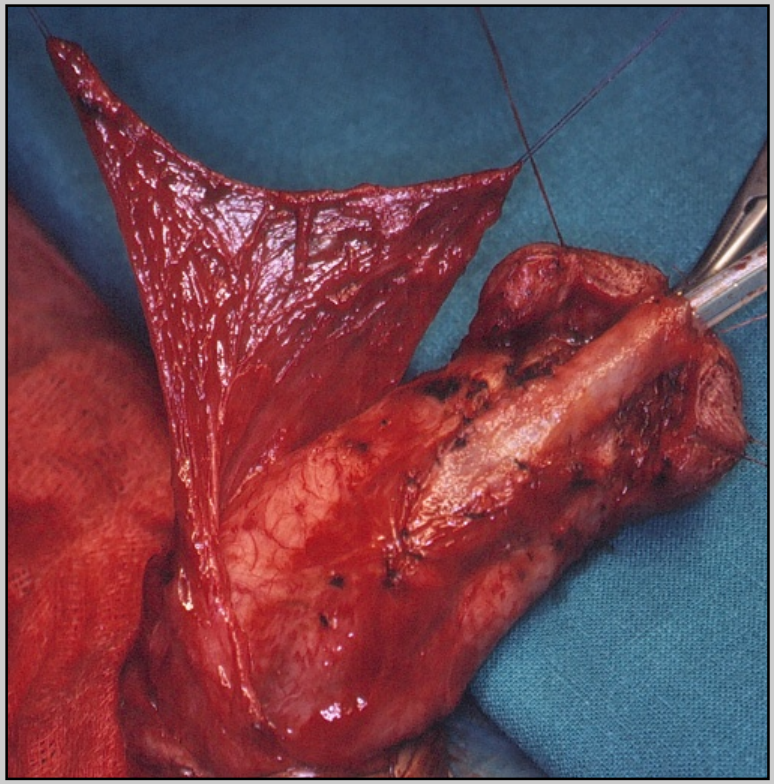
Out of 1176 patients, 89 (7.6%) showed histologically proven lichen sclerosus

Total number of surgical procedures in 760 patients who underwent one-stage repair

Surgical technique	N°
Meatoplasty or meatotomy	31
Fistula closure	244
End-to-end anastomosis	18
One-stage repair using skin flap	179
One-stage repair using oral mucosa graft	211
One-stage repair using skin graft	10
Corporoplasty	84
Definitive perineal urethrostomy	9
Glans reconstruction	58
Other procedures	64
TOTAL	908

Ventral onlay graft





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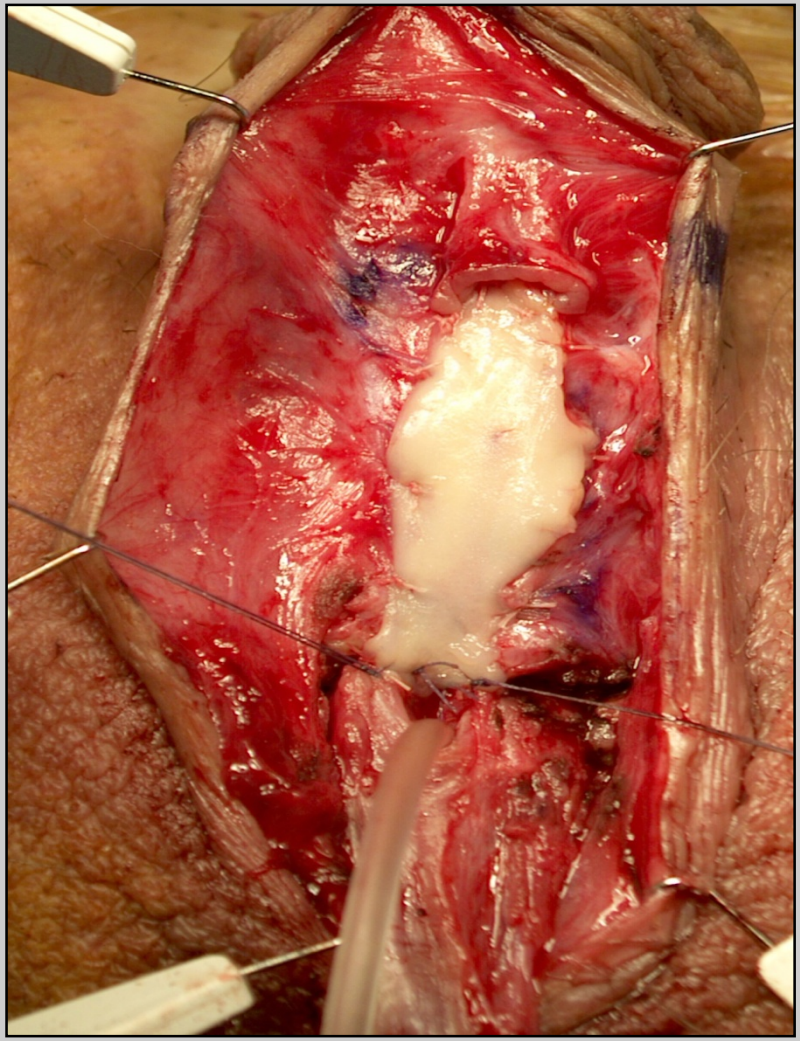
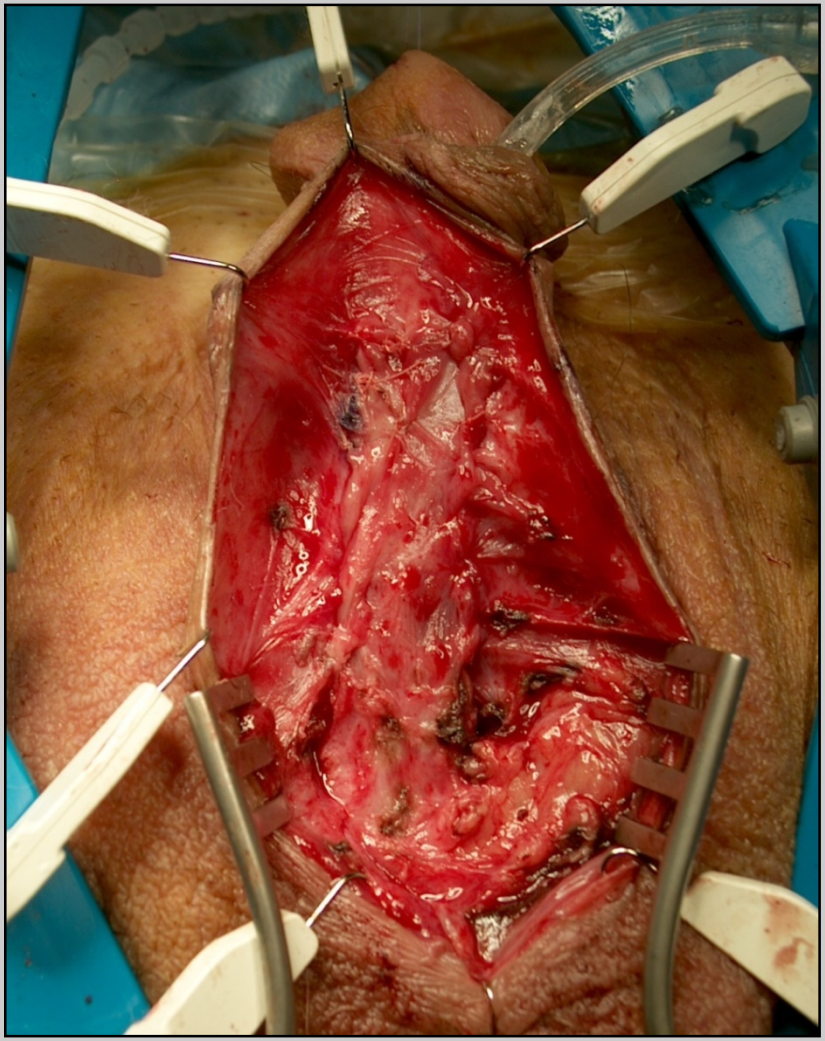
Dorsal onlay graft





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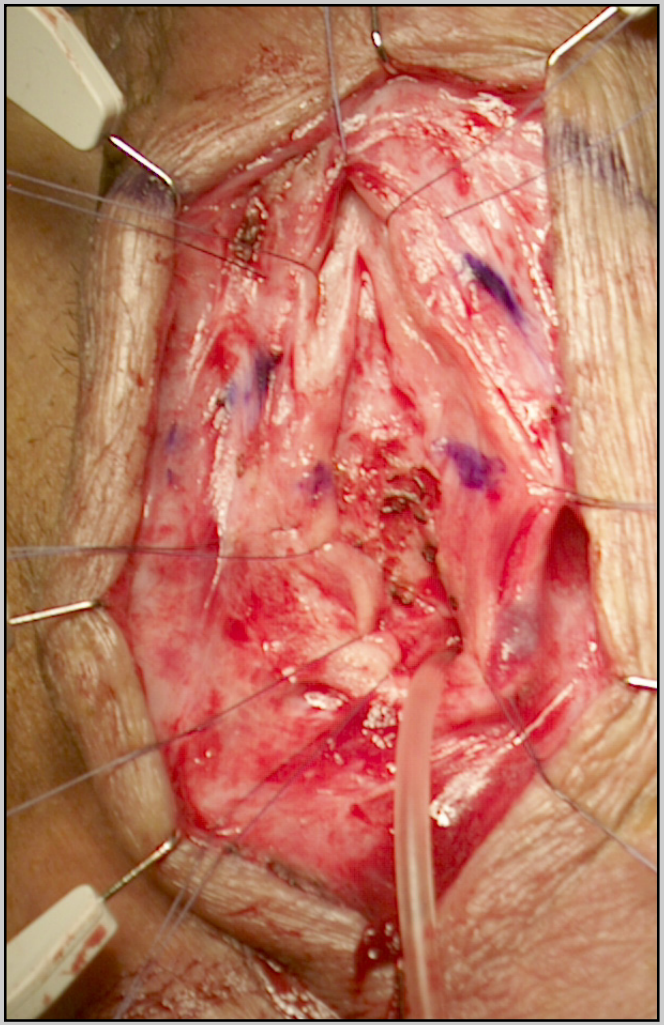
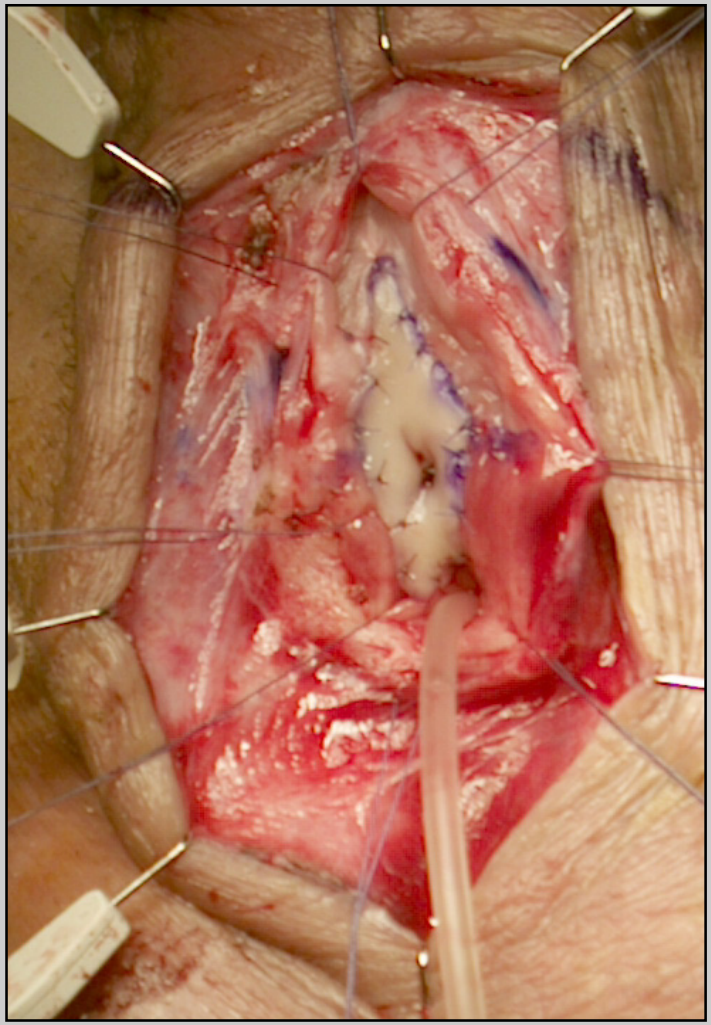
Dorsal inlay graft





Total number of surgical procedures in 416 patients who underwent staged repair

Staged repair	N°
Staged repair using oral mucosal graft	357
Staged repair using skin graft	11
First stage Johanson procedure	18
Two-stage Johanson procedure	30
Glans reconstruction	305
Penile skin reconstruction	305
Corporoplasty	230
TOTAL	1256

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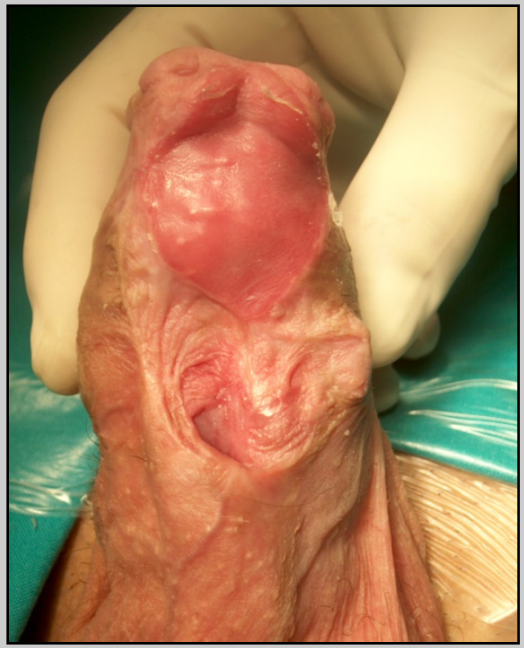

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In conclusion, 1176 patients underwent a total number of 2164 surgical procedures:

908 surgical procedures on 760 patients who underwent one-stage repair

1256 surgical procedures on 416 patients who underwent staged repair

Results

evaluation

objective

subjective

Success or failure ?

Success or failure ?

- **End-point of the reconstructive surgical itinerary**
- **No meatal or urethral dilation**
- **Absence of complications or poor aesthetic outcome requiring revision**

Failed hypospadias repair in 1176 patients

Results

N° Patients	success		failure	
1176	1036	88.1%	140	11.9%

follow-up: 12-237 months (mean 60.4)

Failed hypospadias repair in 1176 patients

Results

surgical repair	success		failure	
	N.	%	N.	%
ONE-STAGE 760 patients	687	90.4%	73	9.6%
STAGED 416 patients	349	83.9%	67	16.1%

follow-up: 12-237 months (mean 60.4)

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Our experience showed two different populations in which attempts at hypospadias surgical correction failed

Patients showing multiple penile deformities caused by:

- Error in evaluation
- Error in design
- Error in surgical technique
- Error in postoperative care

Patients showing a satisfactory final outcome having:

- **Cosmetically acceptable meatus**
- **No evident penile deformities such as fistula or chordee**

- **Urethral stricture**

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Why ?

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The pediatric urologist maintains that:

" The neo-urethra I construct in the child will follow the growth of the penis into adulthood "

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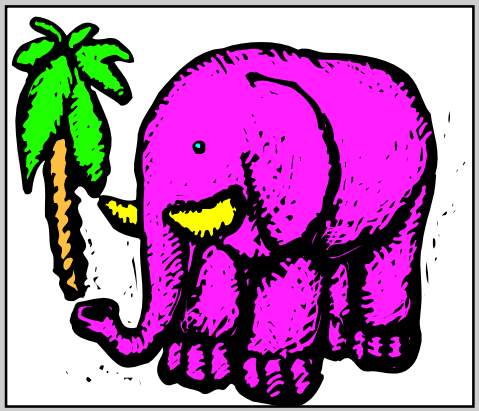
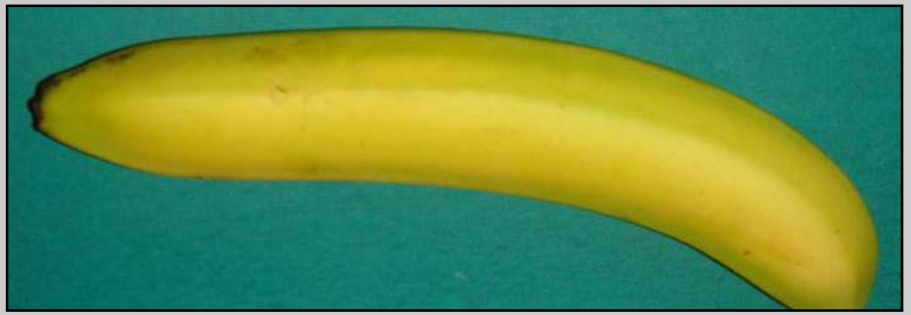
Have you ever seen an ant become an elephant ?



18 months old



18 years old

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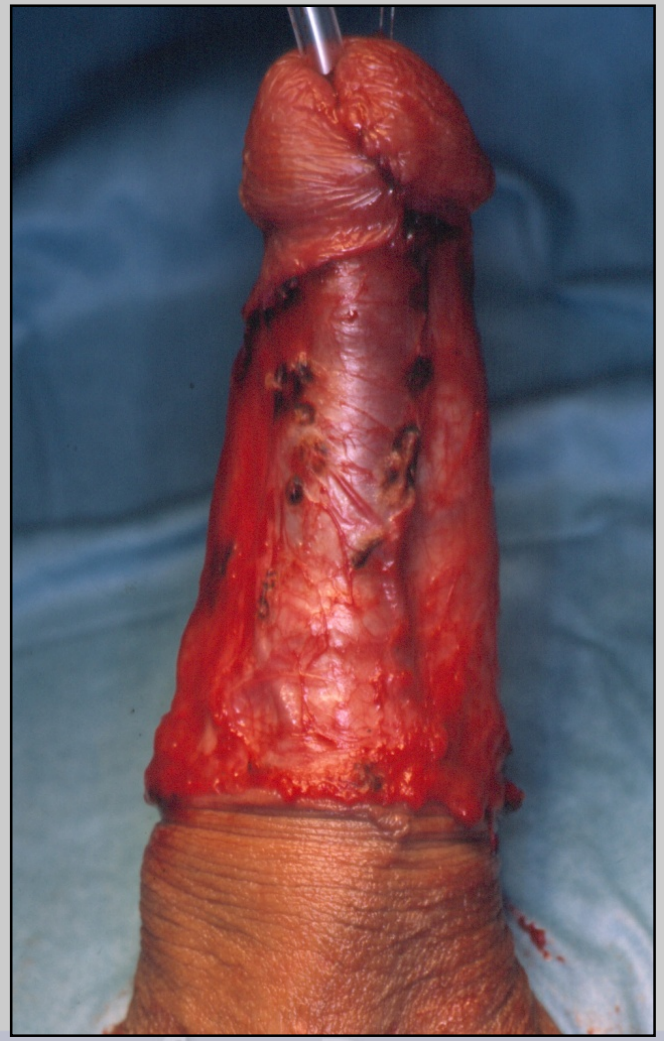
The normal urethra is a spongiosum-made urethra



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The urethra in the patient who underwent hypospadias reconstruction is a skin-made urethra

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What is the the difference between the spongiosum-made urethra and the skin-made urethra

?

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As far as urinary function is concerned, the reconstructed skin-made urethra is able to work as a normal spongiosum-made urethra

Pediatric surgeons and parents are very satisfied with the outcome…….

….but, unfortunately, the urethra is a part of the penis…

…and when children reach full sexual maturity, problems come …

…and the skin-made urethra over time will be

KO!

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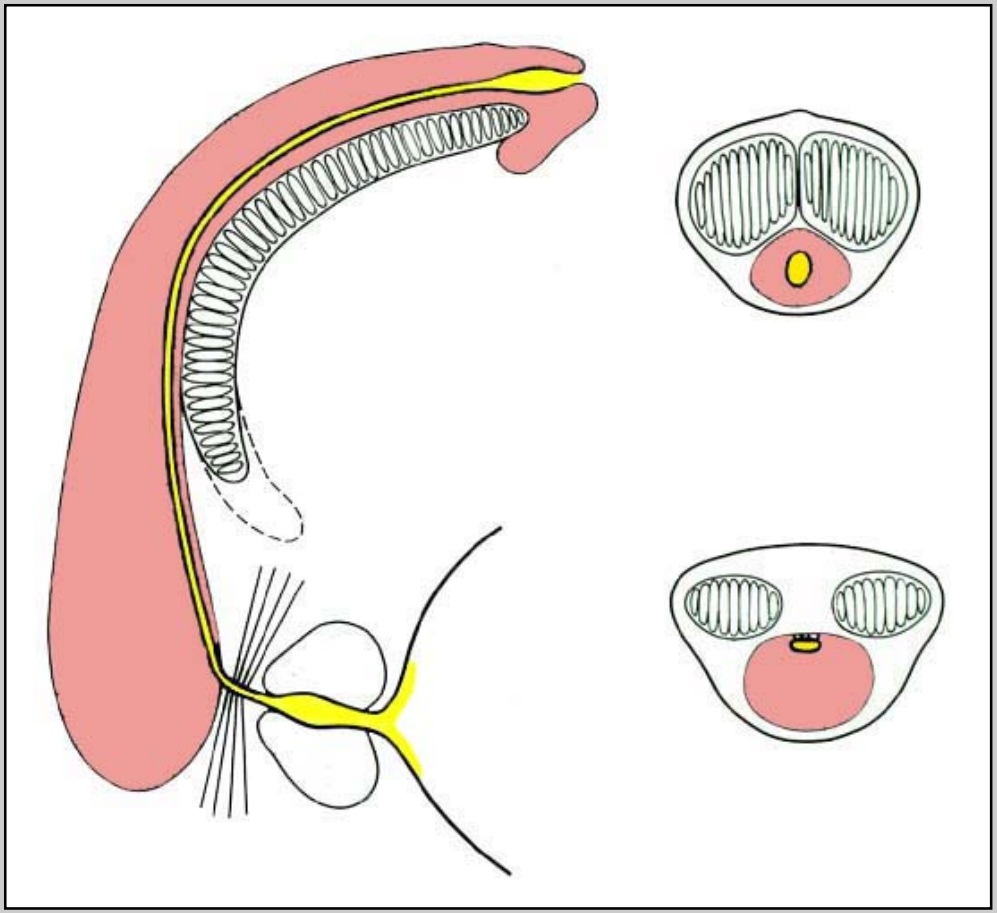
Why ?

The skin-made urethra is not surrounded by the soft, well vascularized corpus spongiosum …



… and this skin-made urethra does not tolerate the repeated mechanical stretch and trauma during erection and sexual activity

During sexual activity, the corpus spongiosum is to the urethra what the airbag is to the body during a car accident

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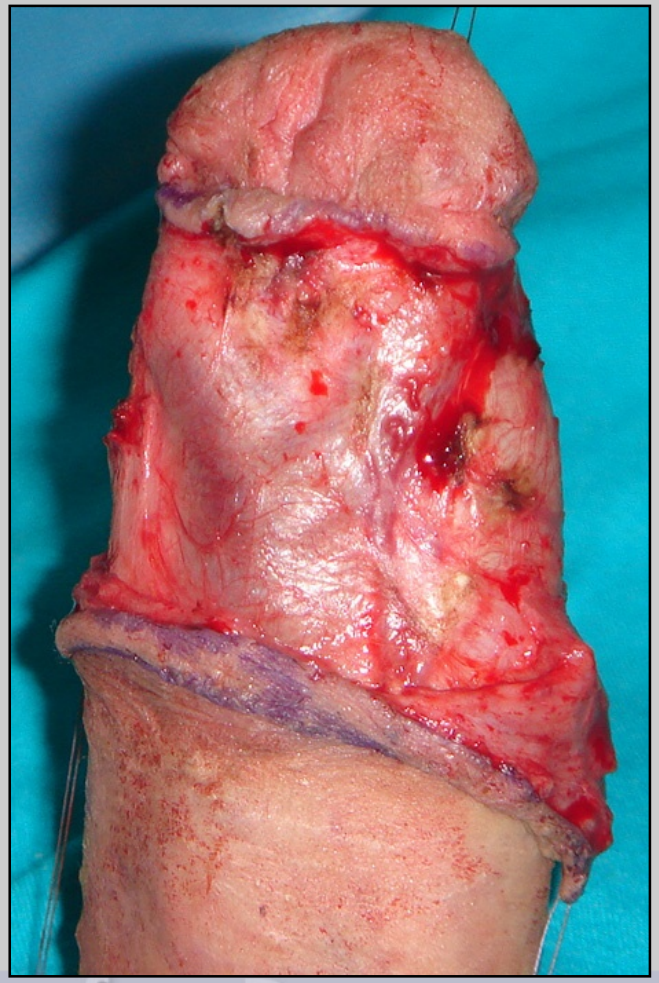
The lack of spongiosum tissue promotes urethral deterioration over time



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Hypospadias surgery is now at its end-point

Pediatric urologists' triumph over the results of hypospadias repair in childhood is not justified

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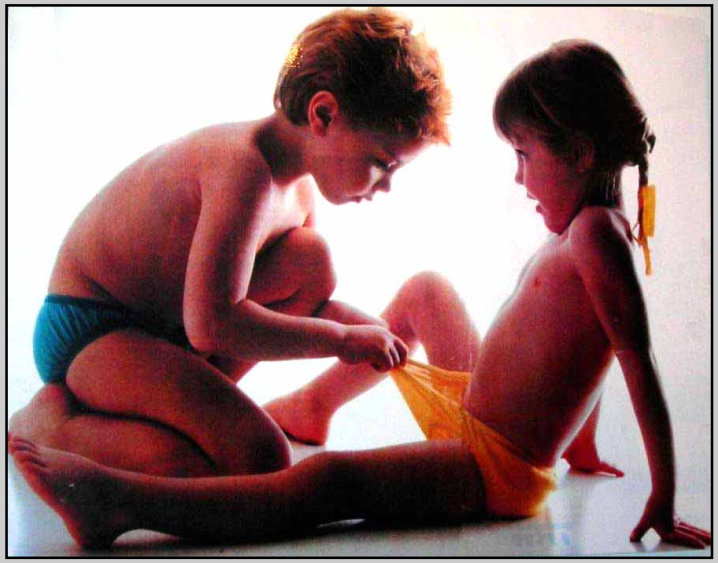
Success in hypospadias surgery is not measured in one or even in five years

In order to collect more detailed epidemiological data, pediatric surgeons are invited to publish the long-term results (> 20 years) of hypospadias surgery performed in their hospitals



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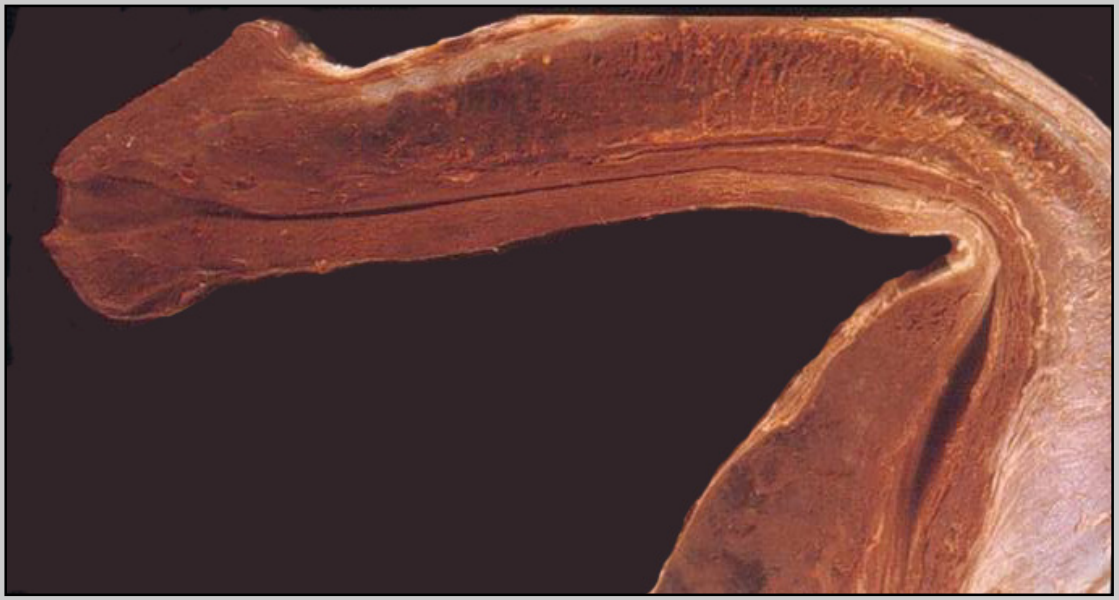
Surgeons involved in hypospadias surgery are warmly invited to develop new studies in tissue engineering and transplant research



Hypospadias surgery will have improved only when corpus spongiosum is made available, and a new spongiosum-made urethra can be transplanted in the patient

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Failed hypospdais repair is one of the most difficult problems to face and requires full collaboration between surgeons involved in this issue

Arezzo – Italy

Belgrade – Serbia

European Center for Failed Hypospadias Repair

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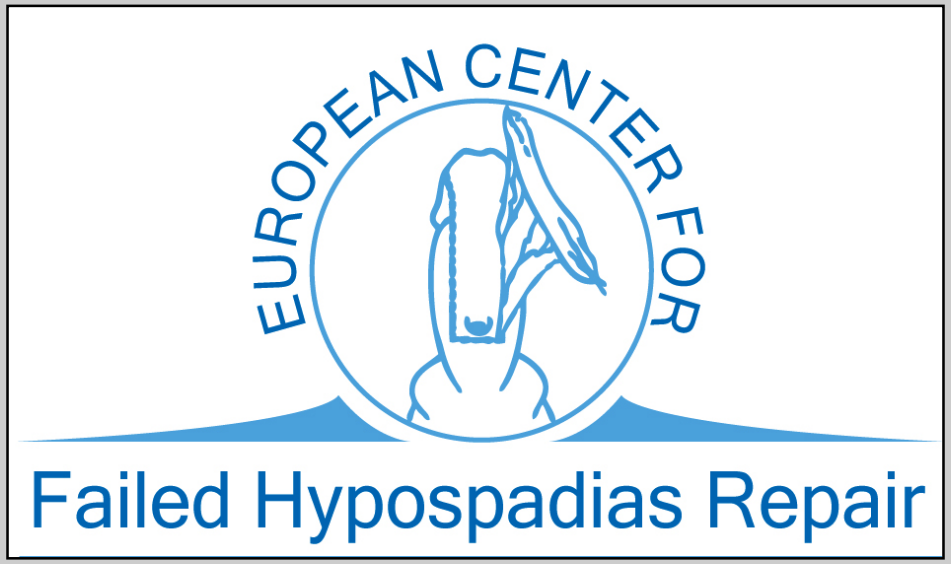
Next month, this lecture will be fully available on our websites



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Thank you !