Center for Reconstructive Urethral Surgery

GUIDO BARBAGLI M.D.

Arezzo - ITALY

e-mail: info@urethralcenter.it Website: www.urethralcenter.it

23rd Saudi Urology Conference 2011

Dammam – South Arabia

21 – 24 February 2011

e-mail: info@urethralcenter.it website: www.urethralcenter.it

Surgical options in patients with failed hypospadias repair

Professor Sava Perovic – Belgrade - Serbia

Center for Reconstructive Urethral Surgery

e-mail: info@urethralcenter.it website: www.urethralcenter.it

Failed hypospadias repair

Part 1

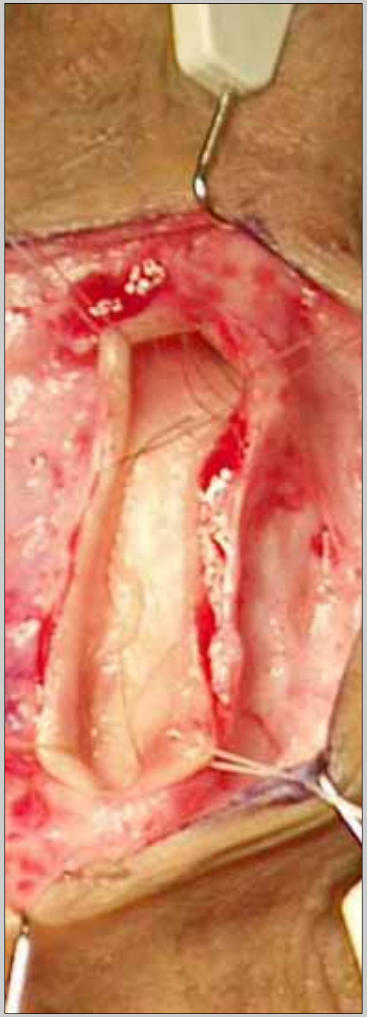
e-mail: info@urethralcenter.it website: www.urethralcenter.it

International Congress on Hypospadias Surgery

Prishtina, 2 – 5 September 2007

Center for Reconstructive Urethral Surgery
e-mail: info@urethralcenter.it website: www.urethralcenter.it

…the other side of the coin



Failed hypospadias repair

How often it is?

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

Andrich DE and Mundy AR, Eur Urol 2008, 54:1031-1041

Dear Colleagues,
The **European Center for Failed Hypospadias Repair** is pleased to invite you to the

1ST INTERNATIONAL CONFERENCE ON FAILED HYPOSPADIAS REPAIR

which will be held on
SEPTEMBER, 18th 2010 in **AREZZO, ITALY.**

We look forward to welcoming you.

EUROPEAN CENTER FOR
Failed Hypospadias Repair
www.failedhypospadias.com

Please fill the Contact form on the website **www.failedhypospadias.com** for the Conference registration

Center for Reconstructive Urethral Surgery
e-mail: info@urethralcenter.it website: www.urethralcenter.it

Patients with urethral stricture diseases: 1510

→ **Failed hypospadias repair: 223 (14.7%)**

Barbagli G et al., J Urol 2010, 183:207-211

Patients with penile urethral stricture diseases: 437

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

Barbagli G et al., J Urol 2010, 183: 207-211

Center for Reconstructive Urethral Surgery
e-mail: info@urethralcenter.it website: www.urethralcenter.it

The aim of this lecture is to present data coming from two specialized Centres

1176 patients

The Center for Reconstructive Urethral Surgery

Arezzo - Italy

223 patients

The University Children's Hospital

Belgrade - Serbia

953 patients

J Urol 2010, 183:207-211

Age range in 1176 patients

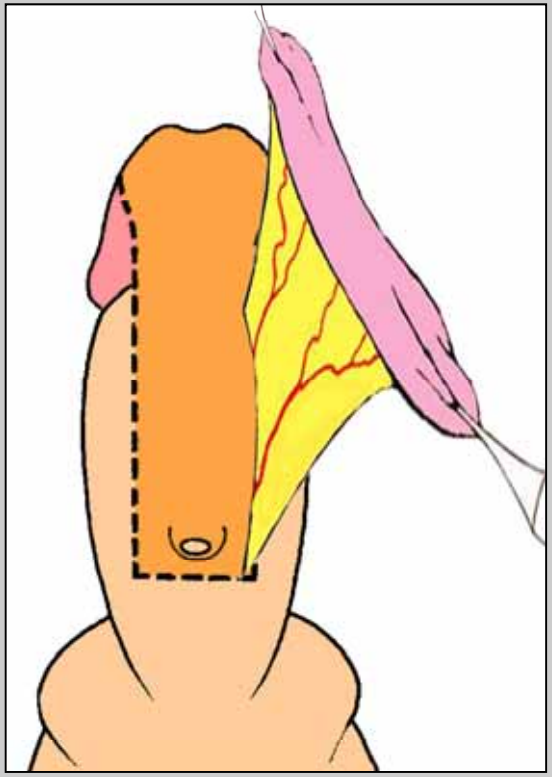
age (years)	N. patients
1 – 16	250 (21.2%)
17 – 20	451 (38.4%)
21 – 40	358 (30.5%)
41 – 60	112 (9.5%)
> 60	5 (0.4%)
< 16 years	250 (21.2%)
> 16 years	926 (78.8%)

Barbagli G et al., J Urol 2010, 183: 207-211

Pediatric urologists stated that the majority of patients with failed hypospadias are primary treated to repair

proximal hypospadias

“one-stage repair”



Site of primary hypospadias in 1176 patients

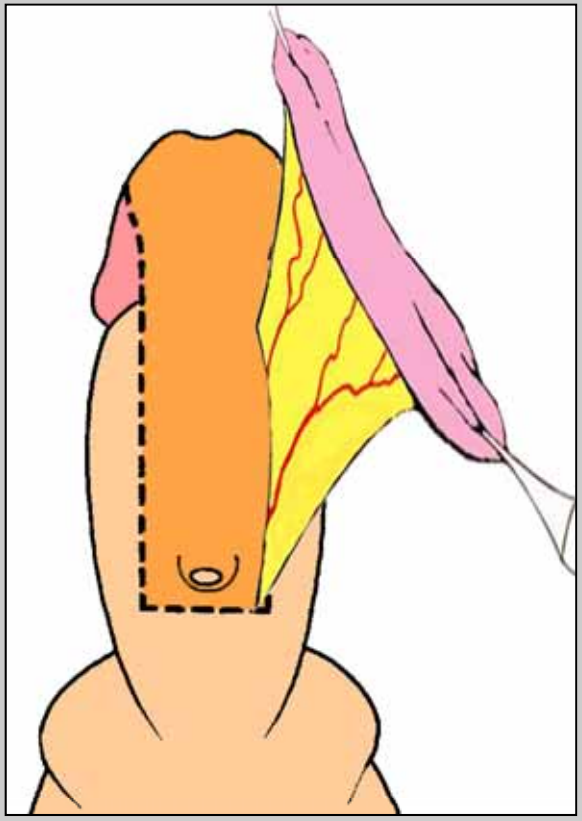
glandular : 193 (16.4%)

penile : 702 (59.7%)

peno-scrotal: 281 (23.9%)

Barbagli G et al., J Urol 2010, 183: 207-211

Pediatric urologists stated that the majority of patients with primary hypospadias are treated by using "one-stage repair"



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

Barbagli G et al., J Urol 2010, 183:207-211

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

Barbagli G et al., J Urol 2010, 183:207-211

Total number of operations to repair primary hypospadias repair 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

Barbagli G et al., J Urol 2010, 183:207-211

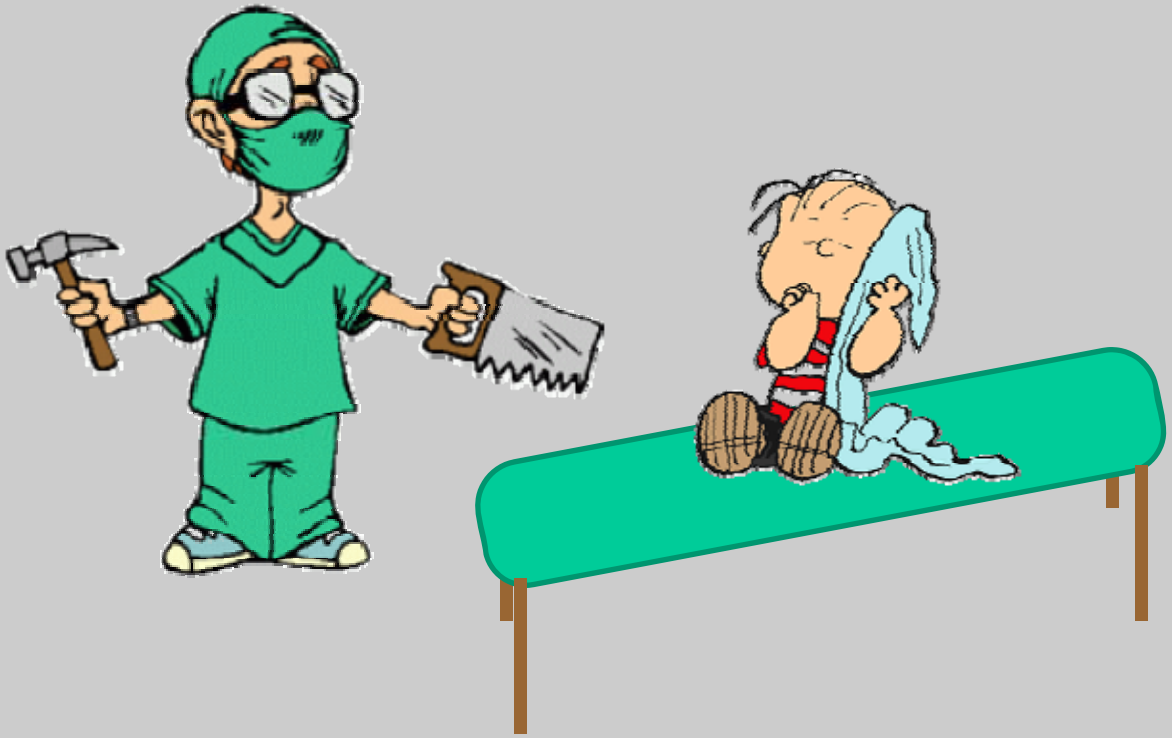
e-mail: info@urethralcenter.it website: www.urethralcenter.it

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 !

Center for Reconstructive Urethral Surgery
e-mail: info@urethralcenter.it website: www.urethralcenter.it

Surgical options



e-mail: info@urethralcenter.it website: www.urethralcenter.it

Our experience on 1176 patients showed four different types of surgical options:

1. **Patient requiring only urethroplasty**
2. **Patient requiring only corporoplasty**
3. **Patient requiring urethroplasty and corporoplasty**
4. **Patient requiring complete resurfacing of the genitalia**

Urol Int 2011, in press

Group	Type of complication	Type of repair	N° patients
1	meatal-urethral stricture, retrusive meatus, fistula diverticulum, other	urethroplasty	301 (25.5%)
2	residual penile curvature, corpora cavernosa deformity, penile shortening or torsion	corporoplasy	60 (5.2%)
3	stricture, fistula, diverticulum associated with residual glans or penile curvature or deformity	urethroplasty corporoplasty	166 (14.1%)
4	glans dehiscence, glans necrosis, glans torsion or curvature, loss of penile/srcotal skin, midline septum, abnormal peno.scrotal or peno.pubic junction, buried penis, trapped penis, other	genitalia resurfacing	649 (55.2%)
total			1176

Urol Int 2011, in press

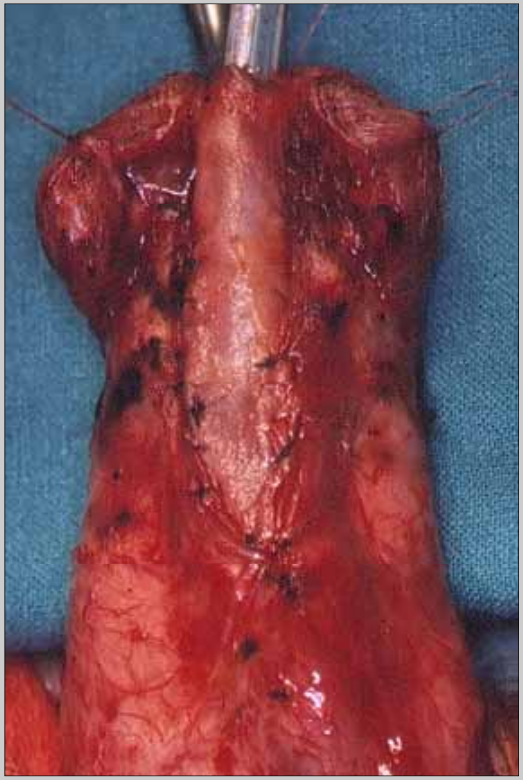
Urethroplasty

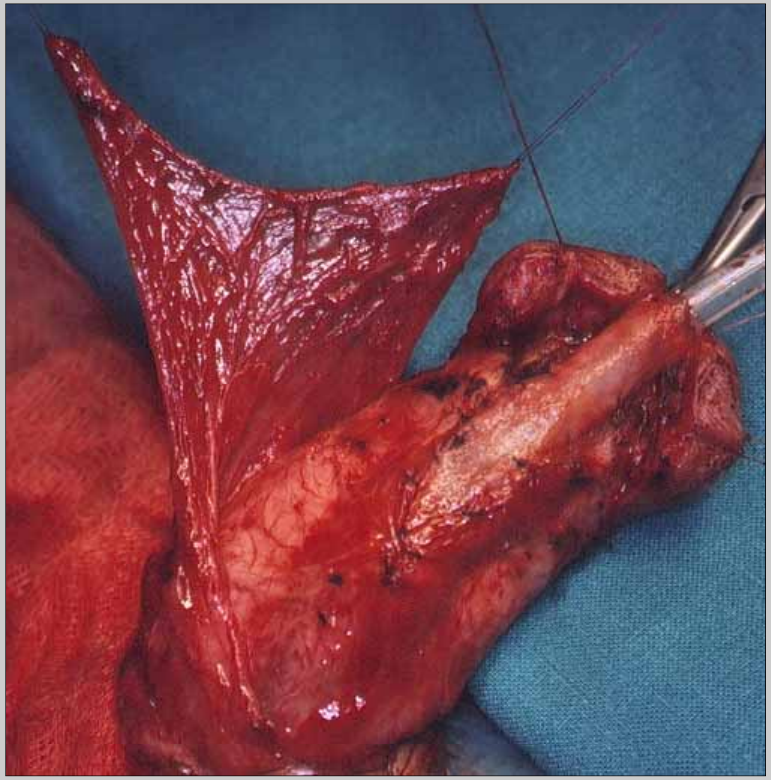
Group	Type of complication	Type of repair	N° patients
1	meatal-urethral stricture, retrusive meatus, fistula diverticulum, other	urethroplasty	301 (25.5%)

Urol Int 2011, in press

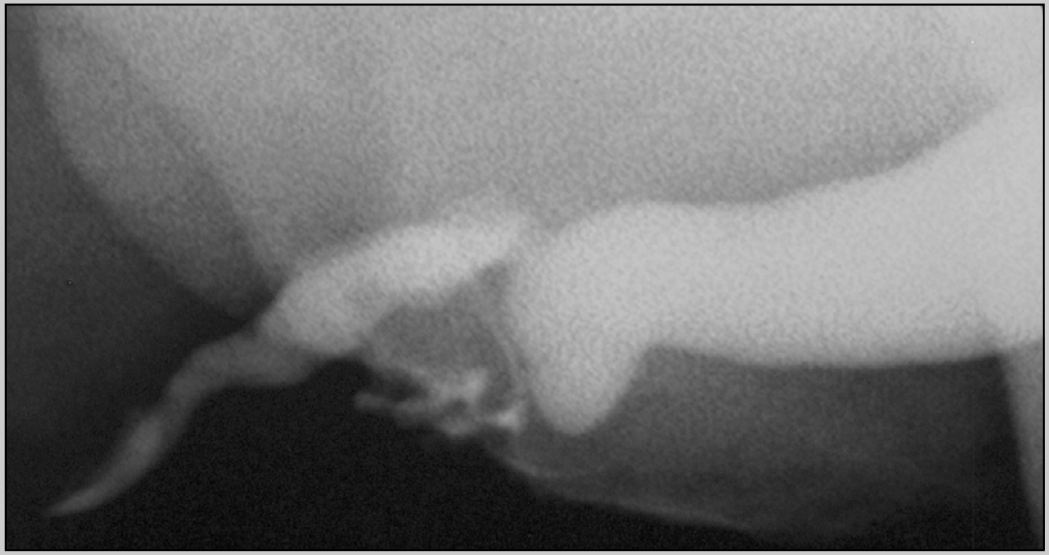
e-mail: info@urethralcenter.it website: www.urethralcenter.it

Ventral onlay oral mucosa graft





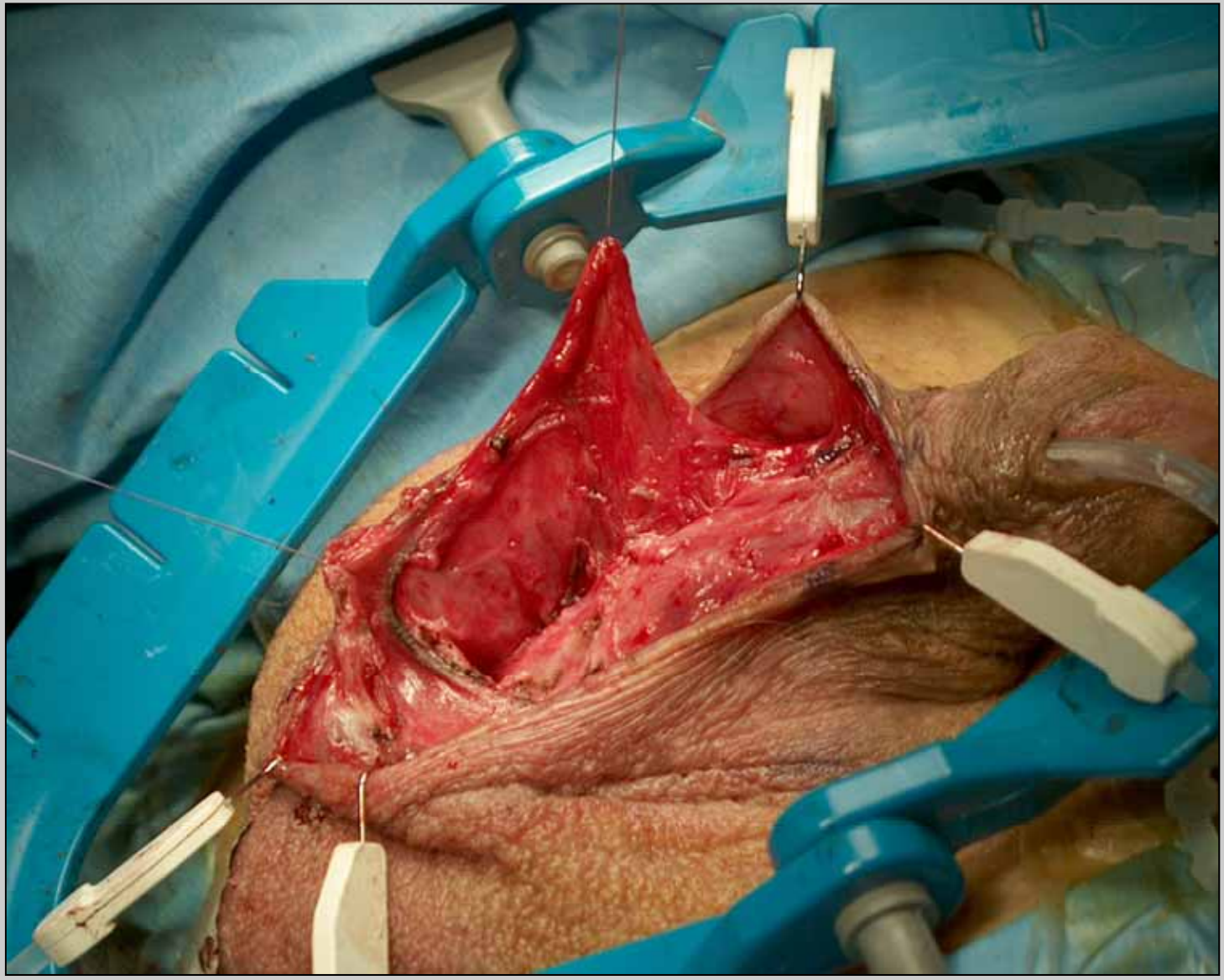
Dorsal onlay oral mucosa graft



e-mail: info@urethralcenter.it

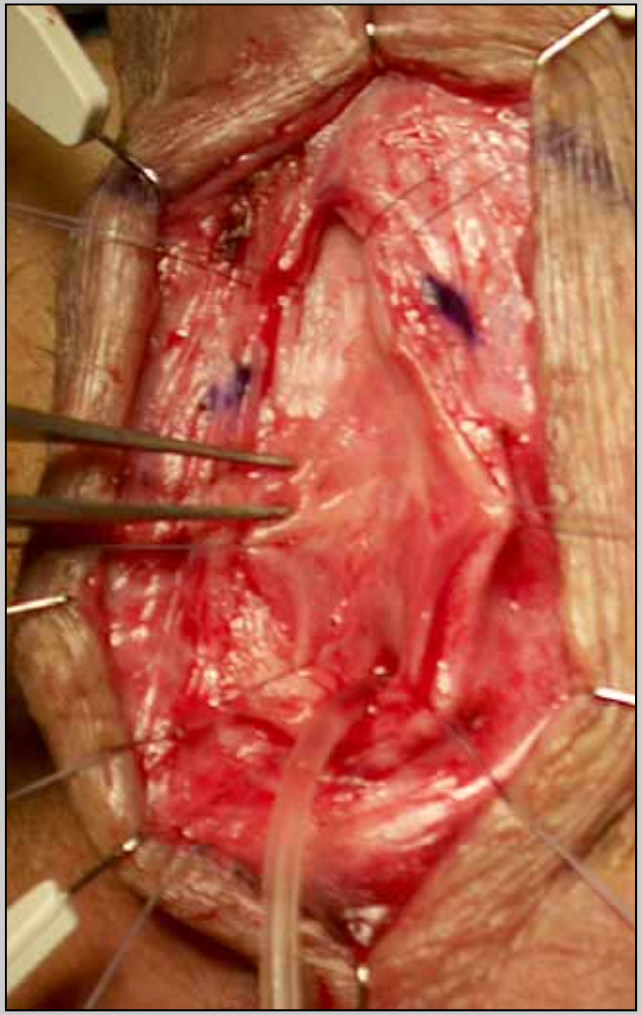
website: www.urethralcenter.it

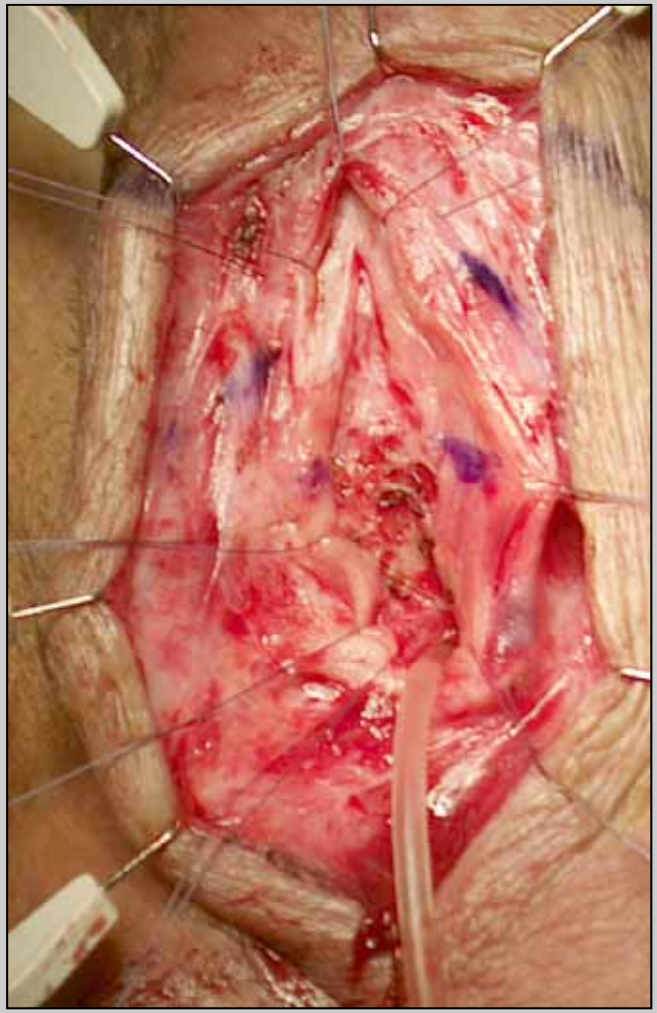
e-mail: info@urethralcenter.it website: www.urethralcenter.it



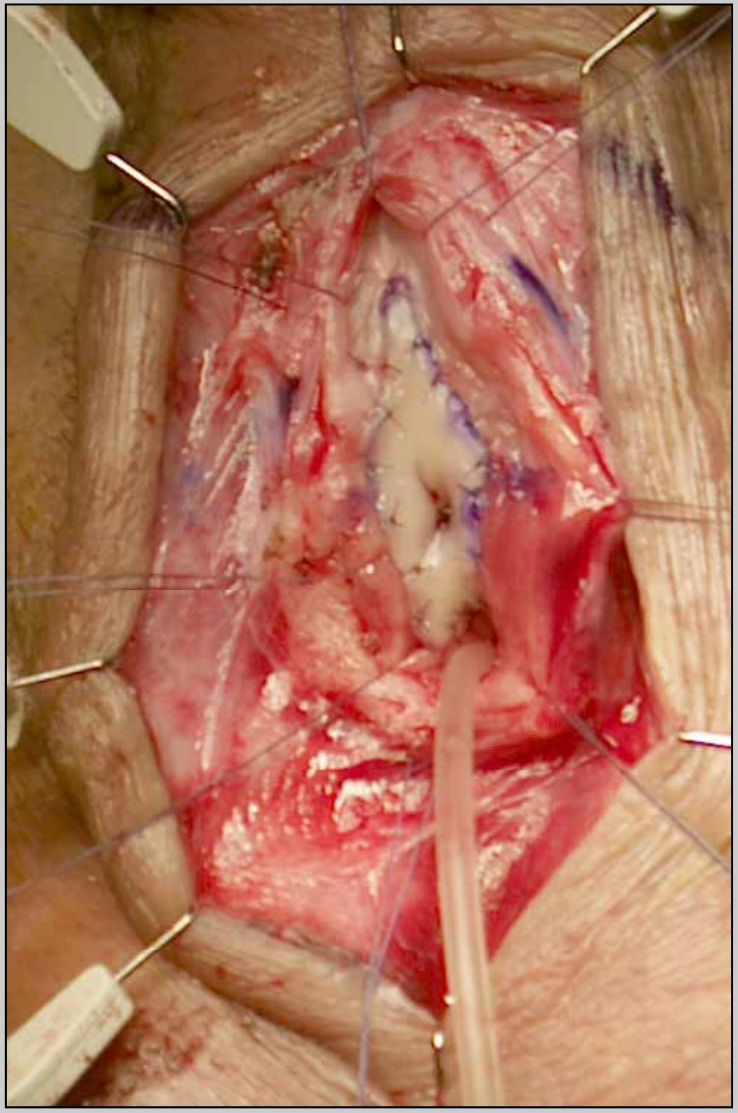
e-mail: info@urethralcenter.it website: www.urethralcenter.it

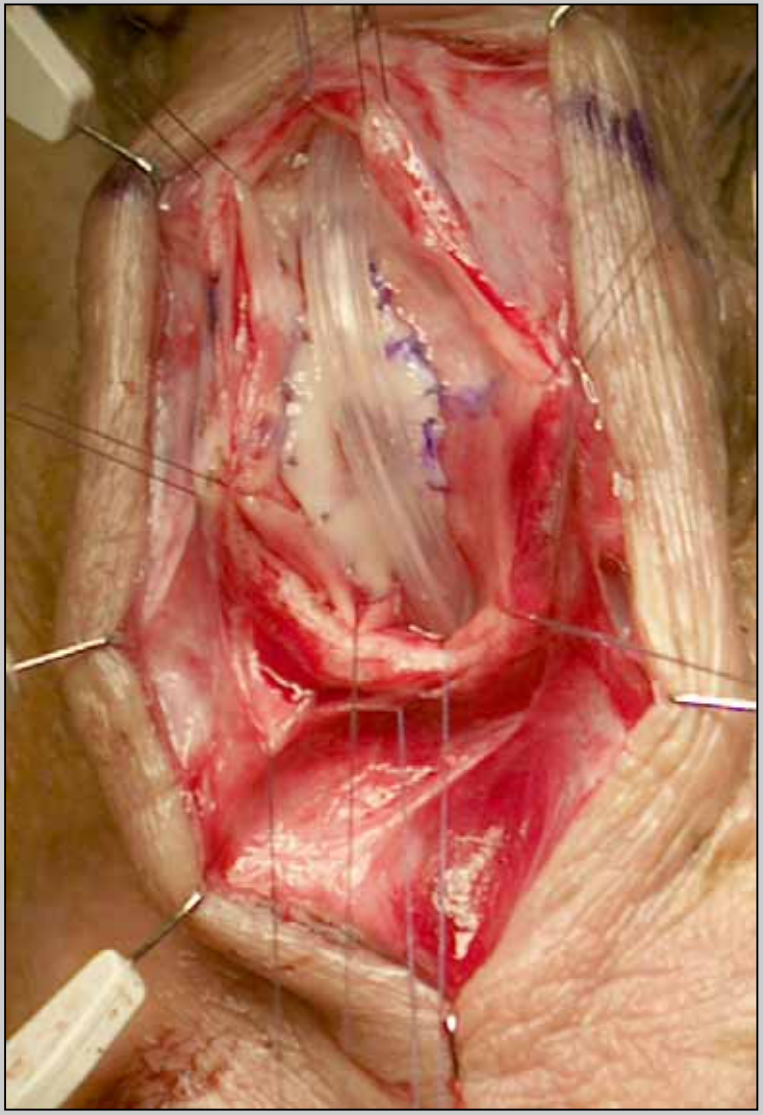
Dorsal inlay oral mucosa graft



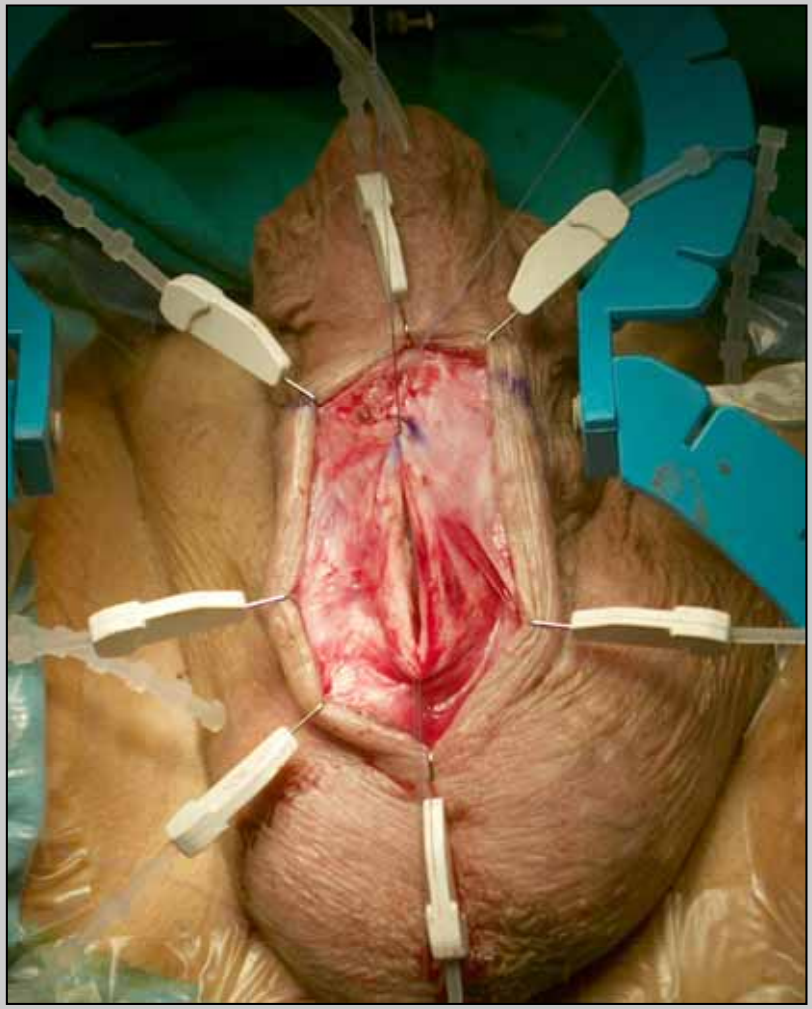


e-mail: info@urethralcenter.it website: www.urethralcenter.it



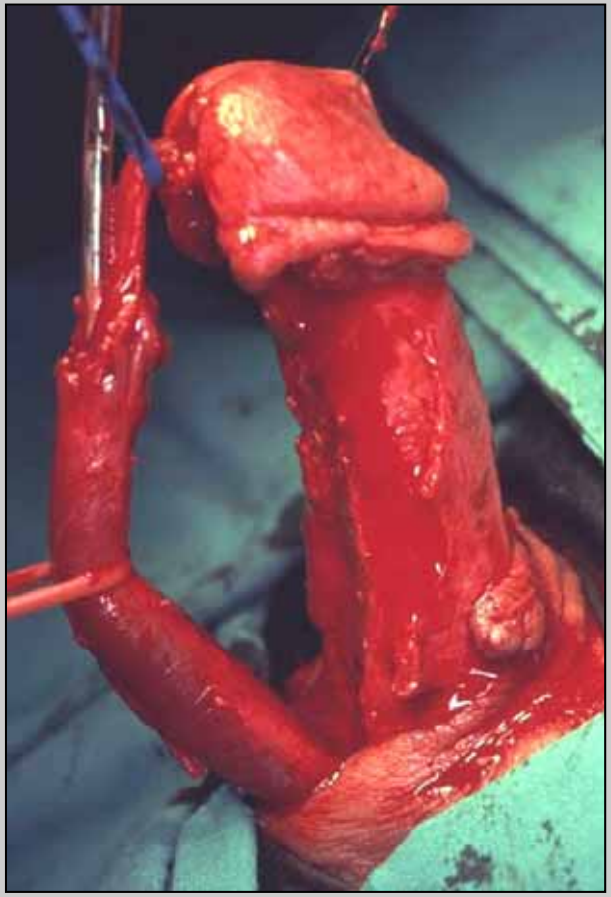


e-mail: info@urethralcenter.it website: www.urethralcenter.it

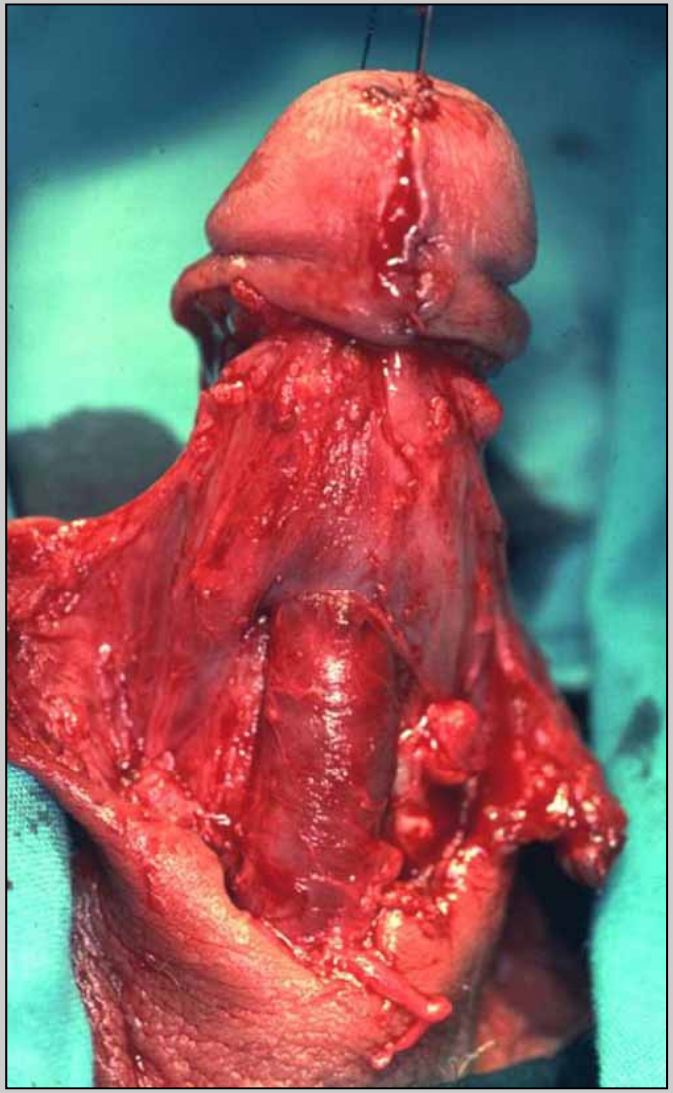


e-mail: info@urethralcenter.it website: www.urethralcenter.it

Dartos fascial flap urethroplasty



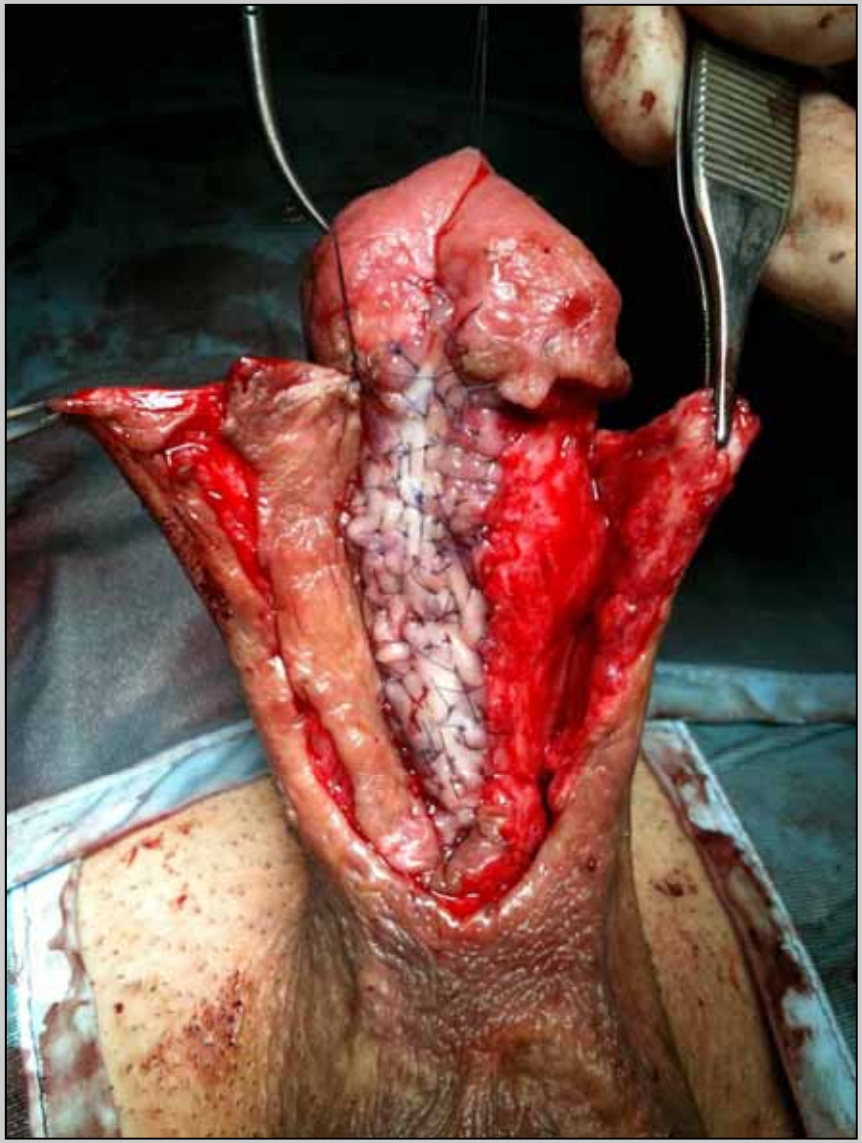
e-mail: info@urethralcenter.it website: www.urethralcenter.it

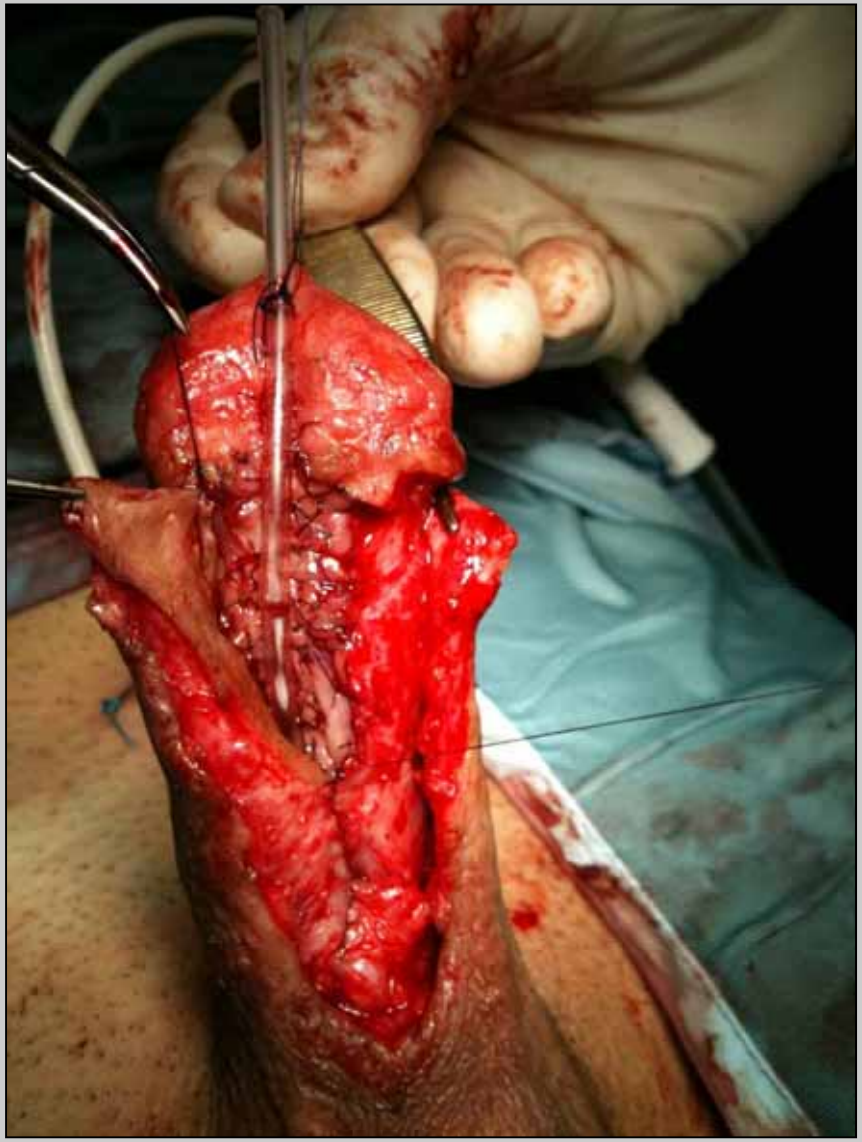


e-mail: info@urethralcenter.it website: www.urethralcenter.it

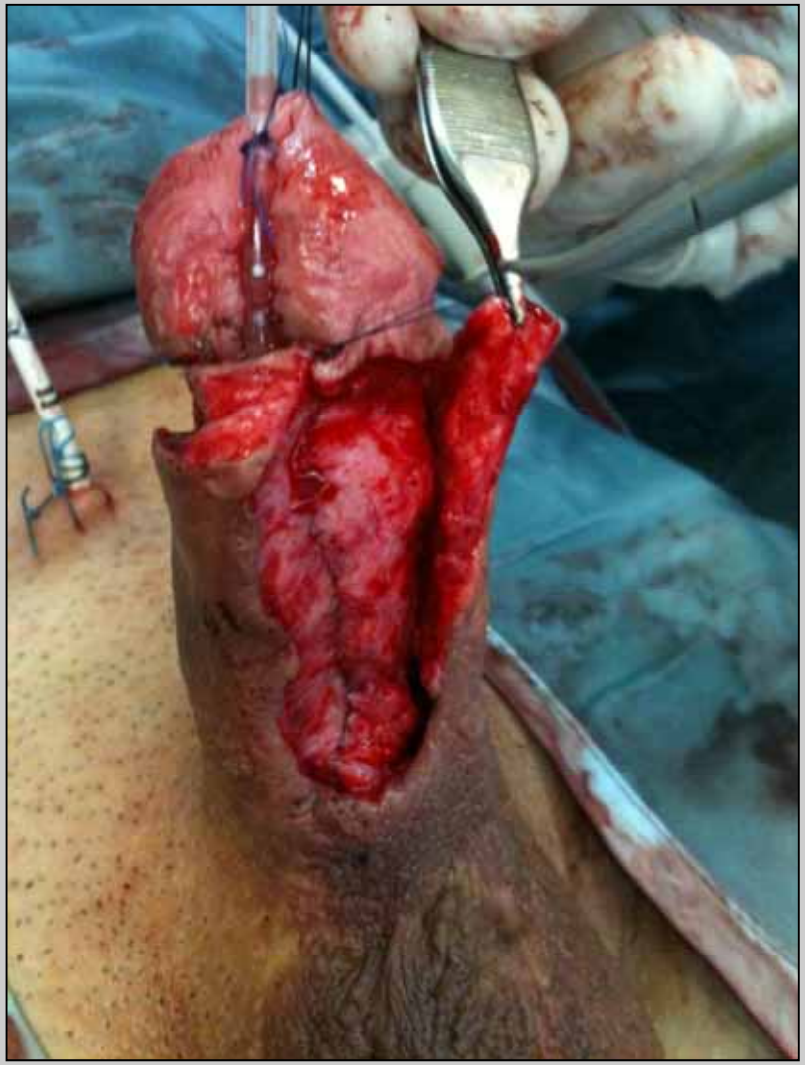
Dartos fascial flap and oral mucosal graft combined urethroplasty

e-mail: info@urethralcenter.it website: www.urethralcenter.it





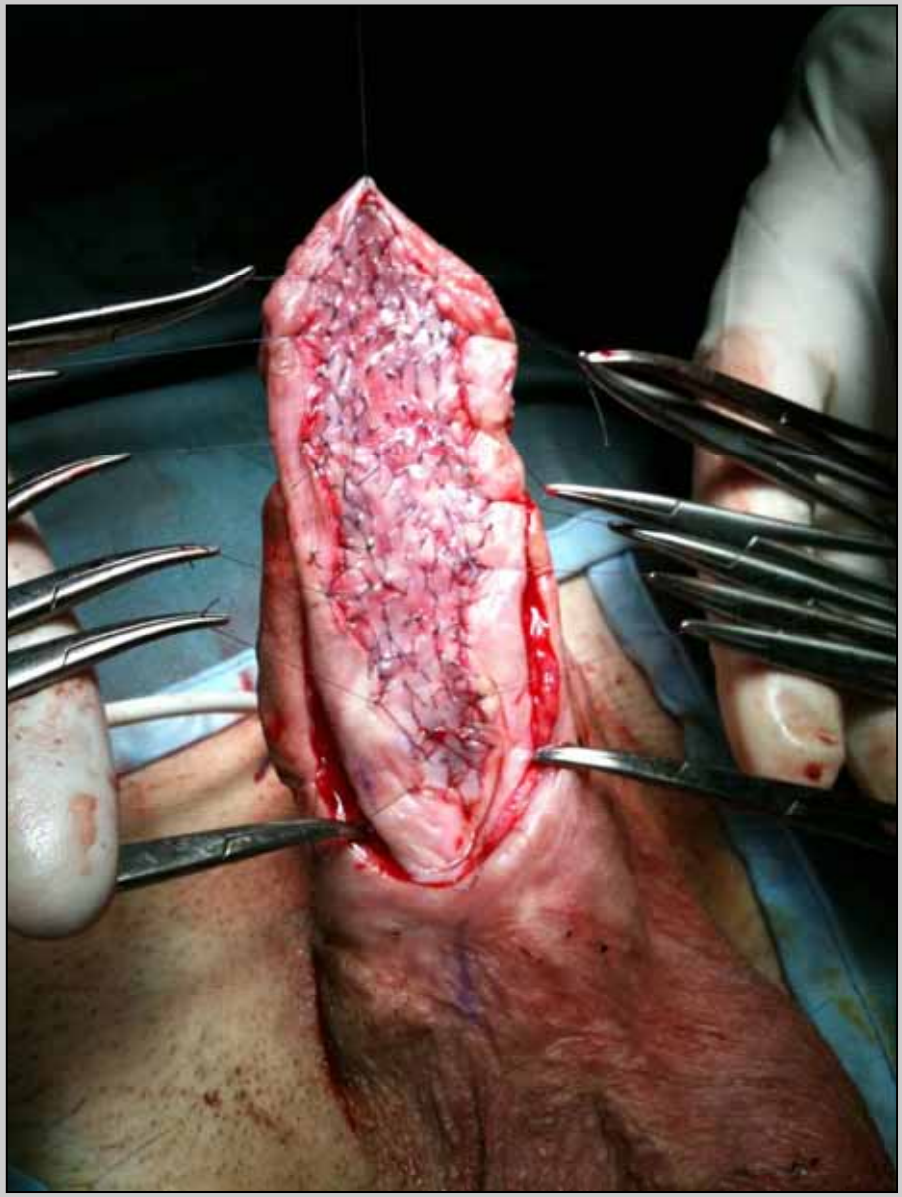
Center for Reconstructive Urethral Surgery
e-mail: info@urethralcenter.it website: www.urethralcenter.it



e-mail: info@urethralcenter.it website: www.urethralcenter.it

Two-stage urethroplasty with oral mucosal graft

e-mail: info@urethralcenter.it website: www.urethralcenter.it



Center for Reconstructive Urethral Surgery
e-mail: info@urethralcenter.it
website: www.urethralcenter.it

e-mail: info@urethralcenter.it website: www.urethralcenter.it

e-mail: info@urethralcenter.it website: www.urethralcenter.it

Corporoplasty

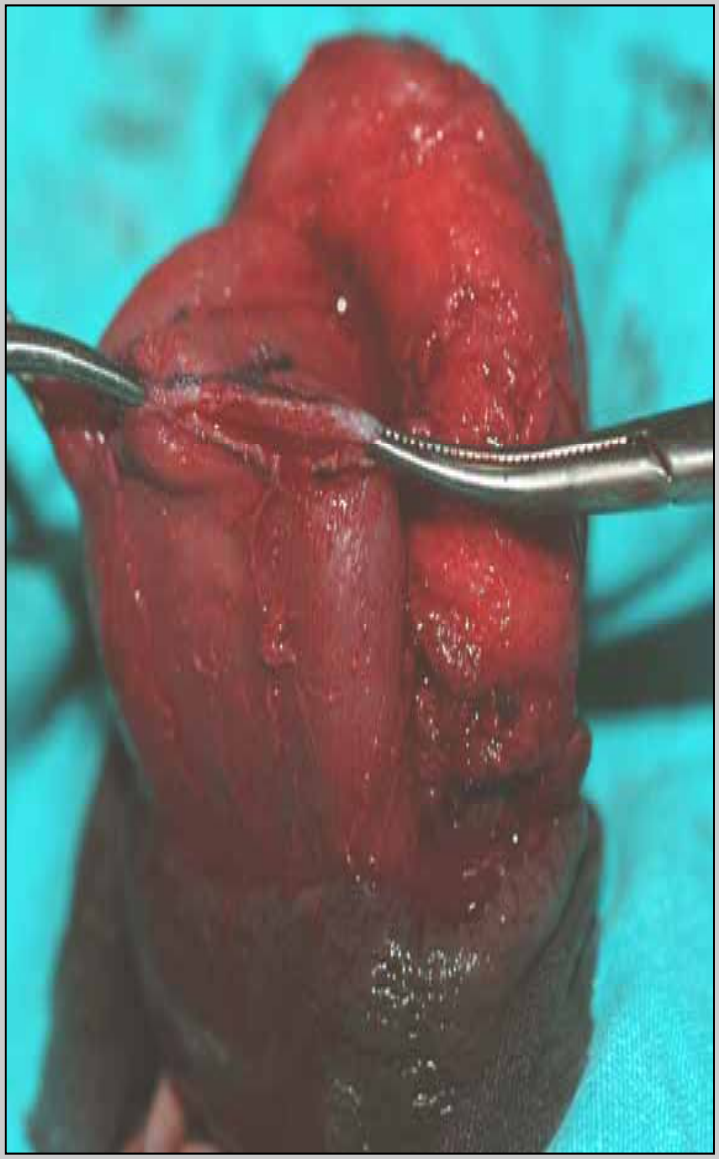
Group	Type of complication	Type of repair	N° patients
2	residual penile curvature, corpora cavernosa deformity, penile shortening or torsion	corporoplasy	60 (5.2%)

Urol Int 2011, in press

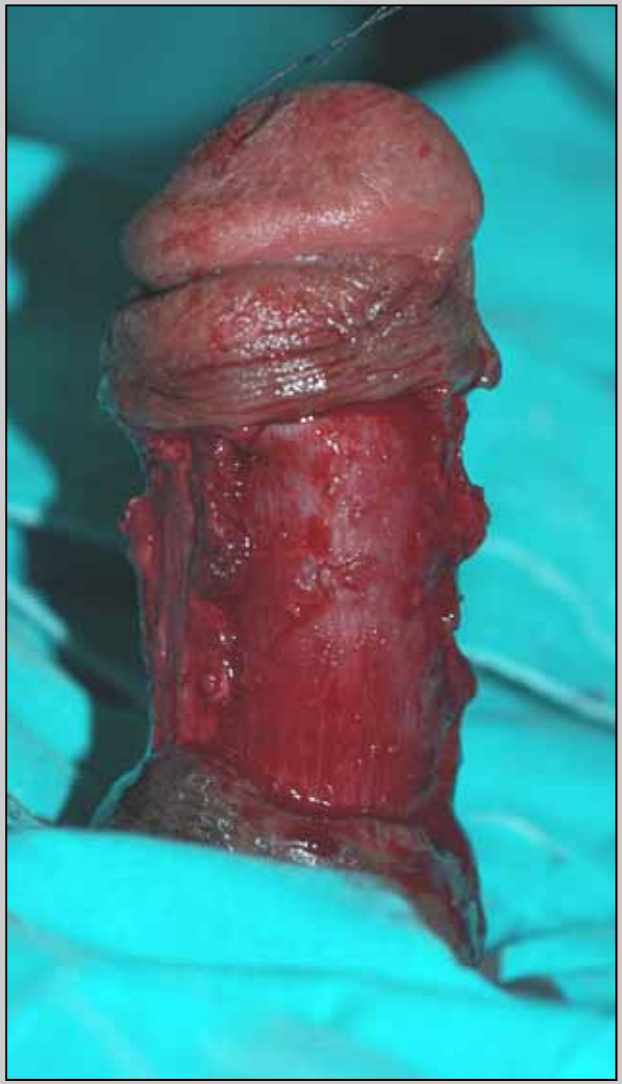
Shorthening technique using multiple small incision and suture

Shorthening technique using penile disassembly and incision corporoplasty

e-mail: info@urethralcenter.it website: www.urethralcenter.it

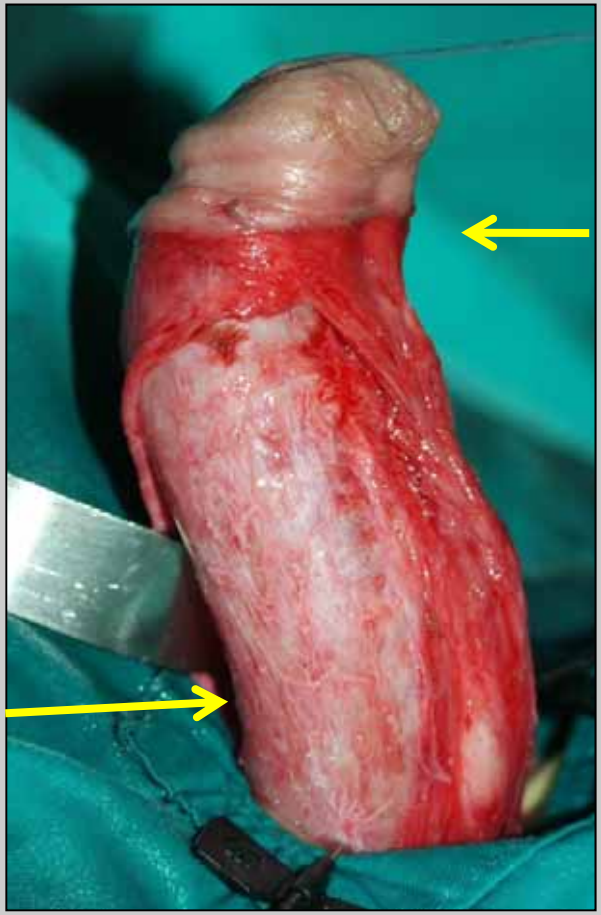


e-mail: info@urethralcenter.it website: www.urethralcenter.it

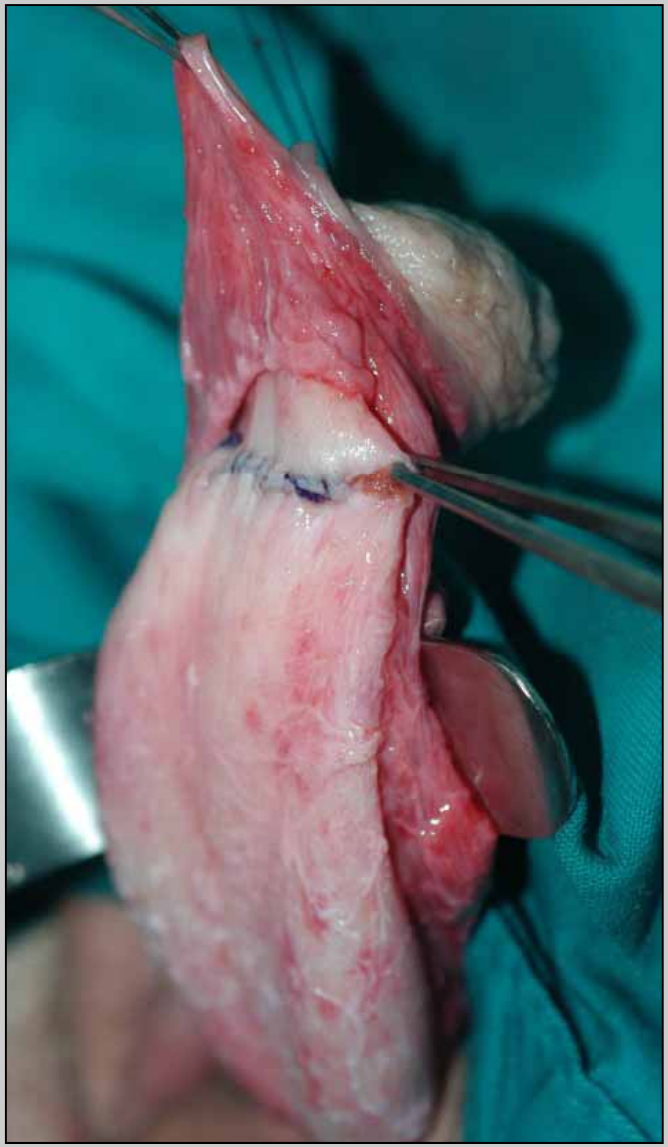


e-mail: info@urethralcenter.it website: www.urethralcenter.it

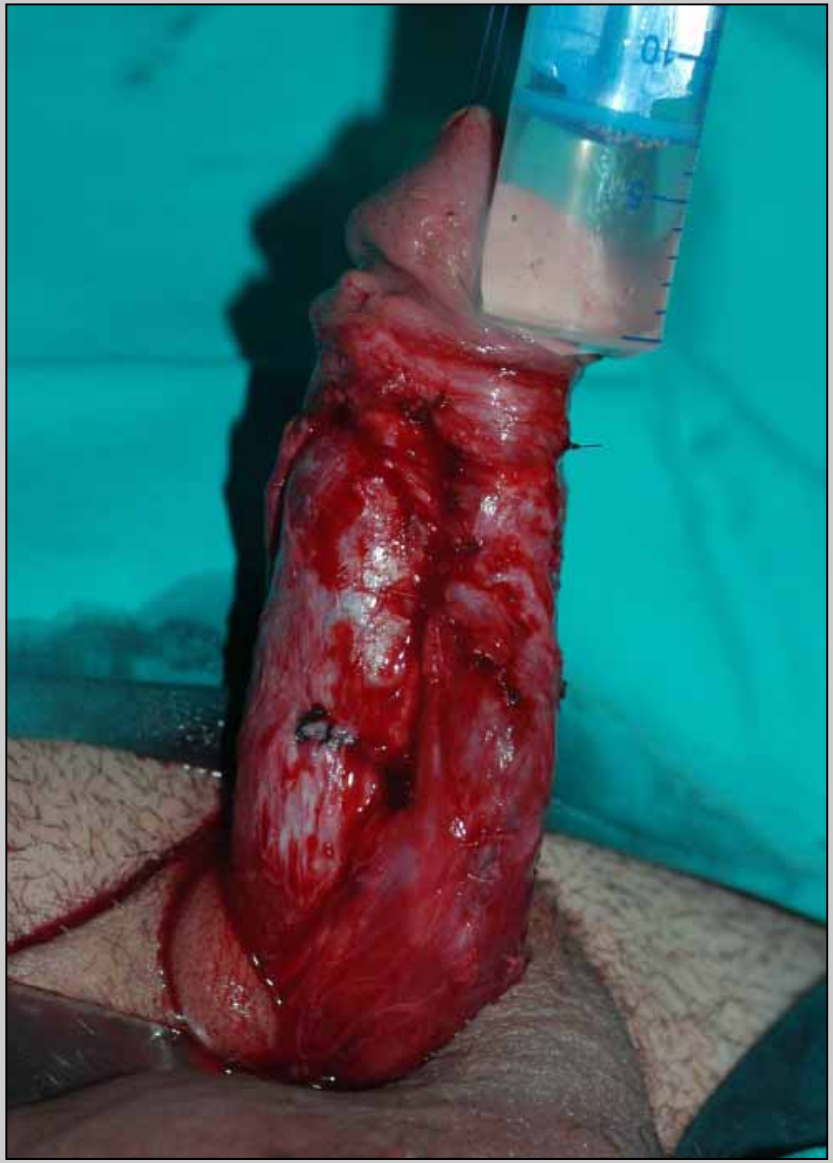
Double “S” curvature (arrows) modified using double incision and corporoplasty



e-mail: info@urethralcenter.it website: www.urethralcenter.it



e-mail: info@urethralcenter.it website: www.urethralcenter.it



e-mail: info@urethralcenter.it website: www.urethralcenter.it

Urethroplasty and corporoplasty

Group	Type of complication	Type of repair	N° patients
3	stricture, fistula, diverticulum associated with residual glans or penile curvature or deformity	urethroplasty corporoplasty	166 (14.1%)

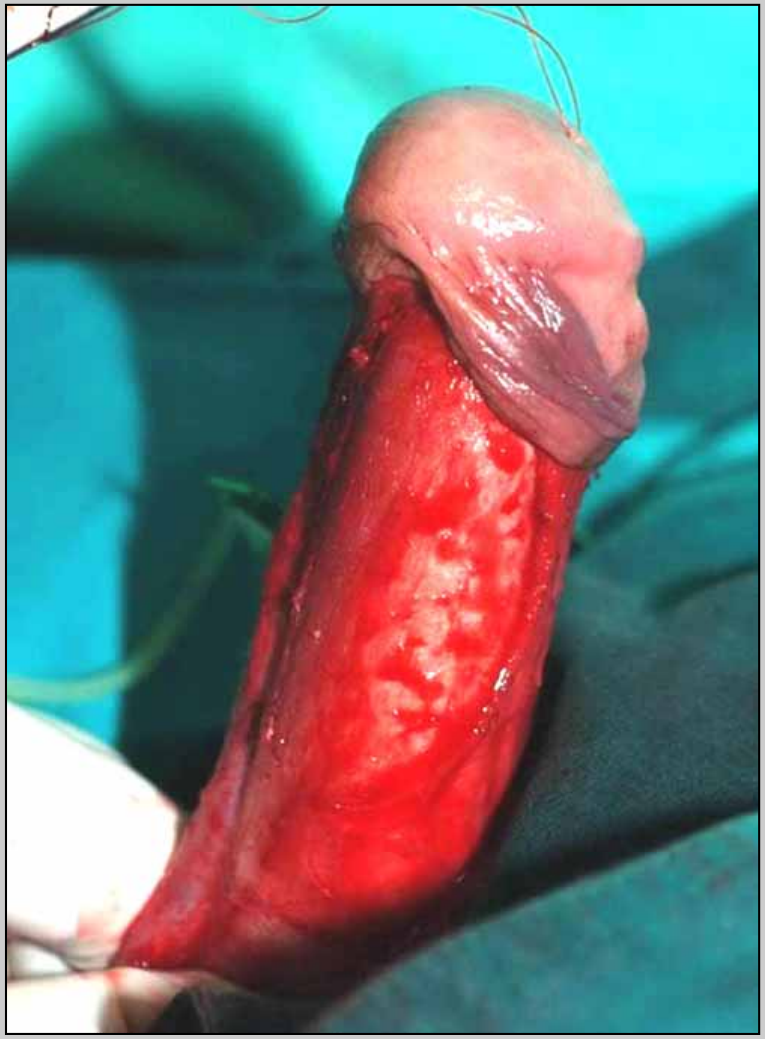
Urol Int 2011, in press

Urethral fistula and residual distal curvature

Multiple incisions and suture corporoplasty

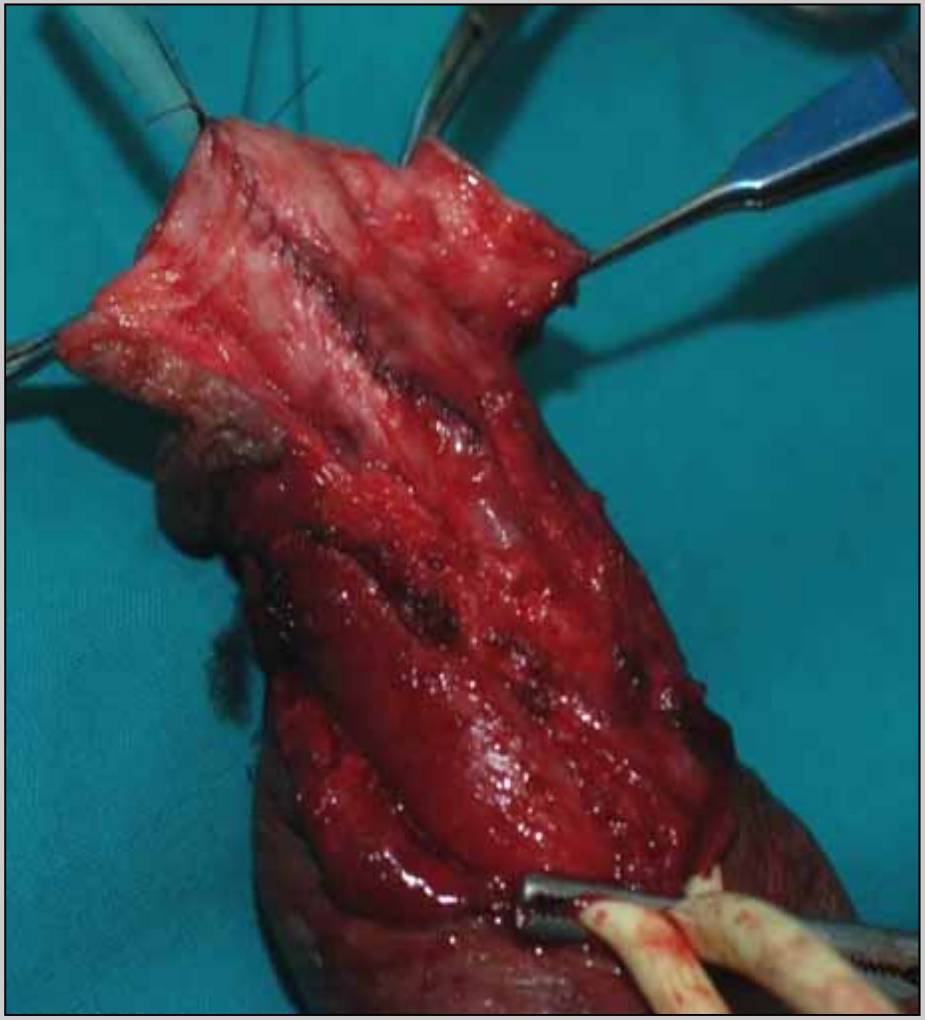
e-mail: info@urethralcenter.it website: www.urethralcenter.it

Multiple incisions and suture corporoplasty



e-mail: info@urethralcenter.it website: www.urethralcenter.it

One-stage urethroplasty covered by dartos fascial flap



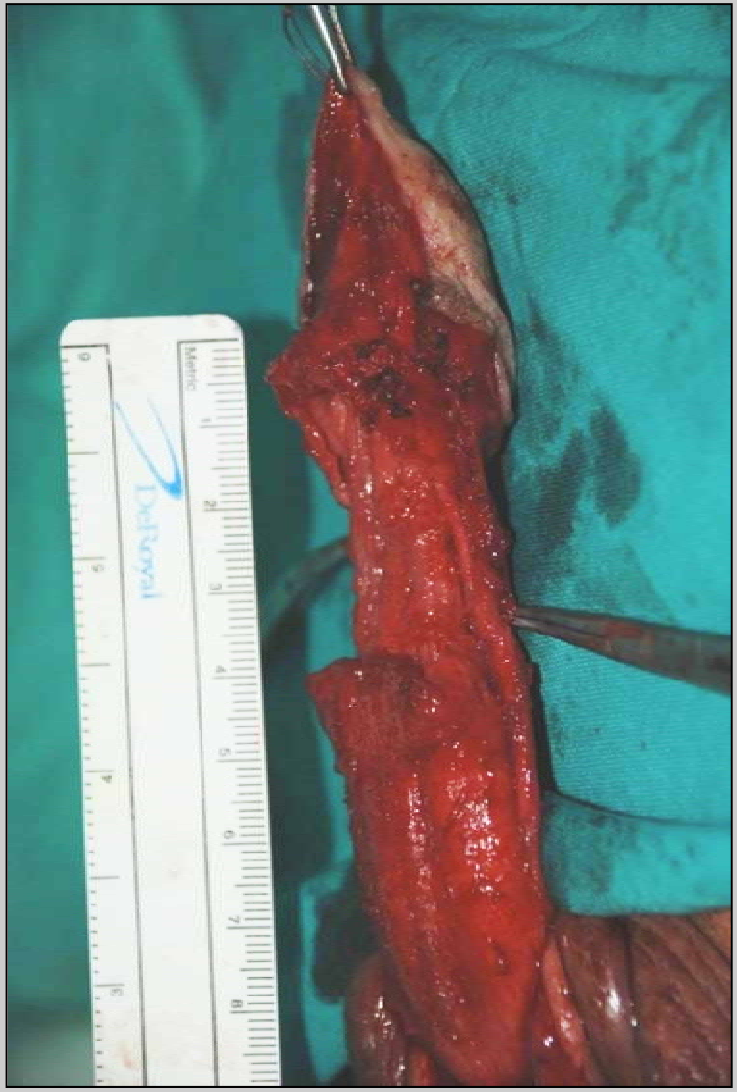
e-mail: info@urethralcenter.it website: www.urethralcenter.it

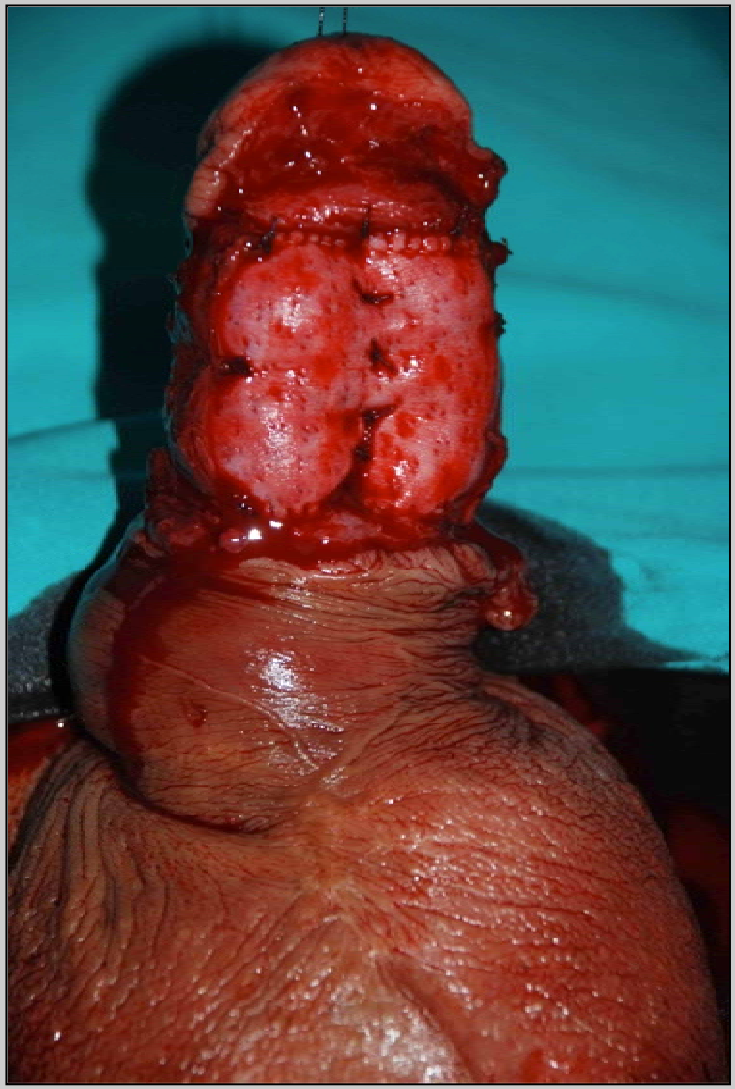
e-mail: info@urethralcenter.it website: www.urethralcenter.it

Short urethra fistula and residual distal curvature

e-mail: info@urethralcenter.it website: www.urethralcenter.it

Ventral graft for penile lenghtening

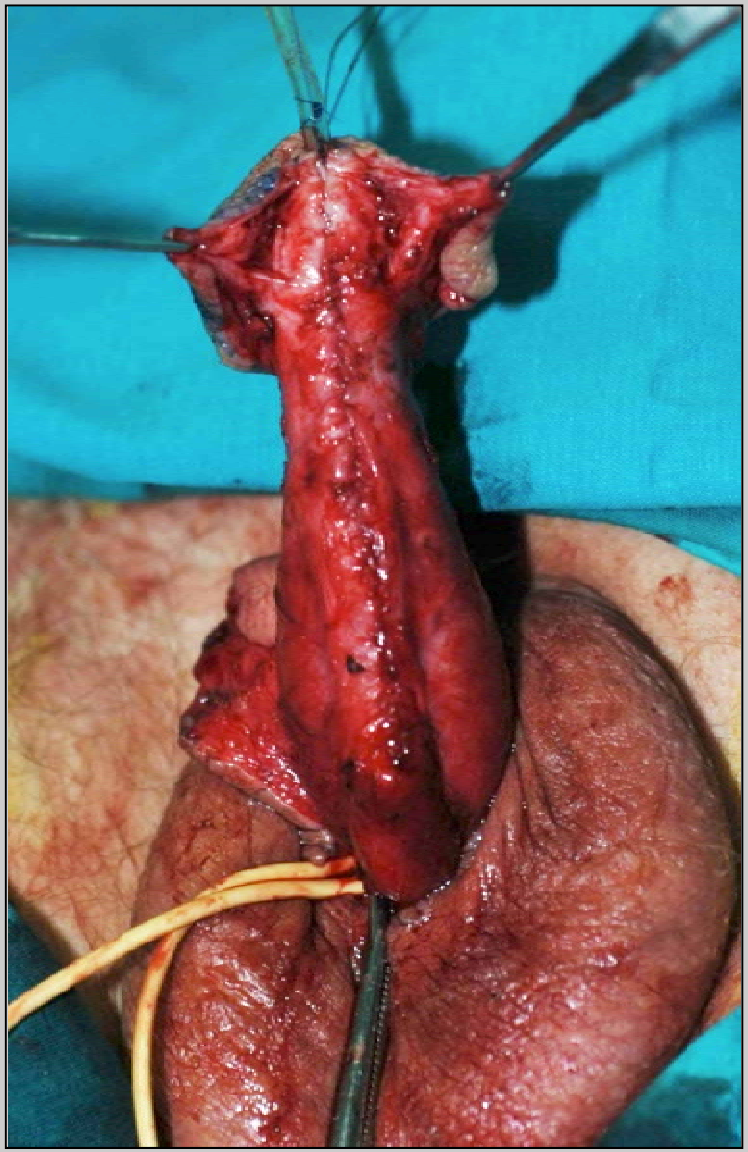




e-mail: info@urethralcenter.it website: www.urethralcenter.it

Two-stage urethroplasty using oral graft

e-mail: info@urethralcenter.it website: www.urethralcenter.it



e-mail: info@urethralcenter.it

website: www.urethralcenter.it

Center for Reconstructive Urethral Surgery

e-mail: info@urethralcenter.it website: www.urethralcenter.it

Genitalia resurfacing

Group	Type of complication	Type of repair	N° patients
4	glans dehiscence, glans necrosis, glans torsion or curvature, loss of penile/srcotal skin, midline septum, abnormal peno.scrotal or peno.pubic junction, buried penis, trapped penis, other	genitalia resurfacing	649 (55.2%)

Urol Int 2011, in press

e-mail: info@urethralcenter.it website: www.urethralcenter.it

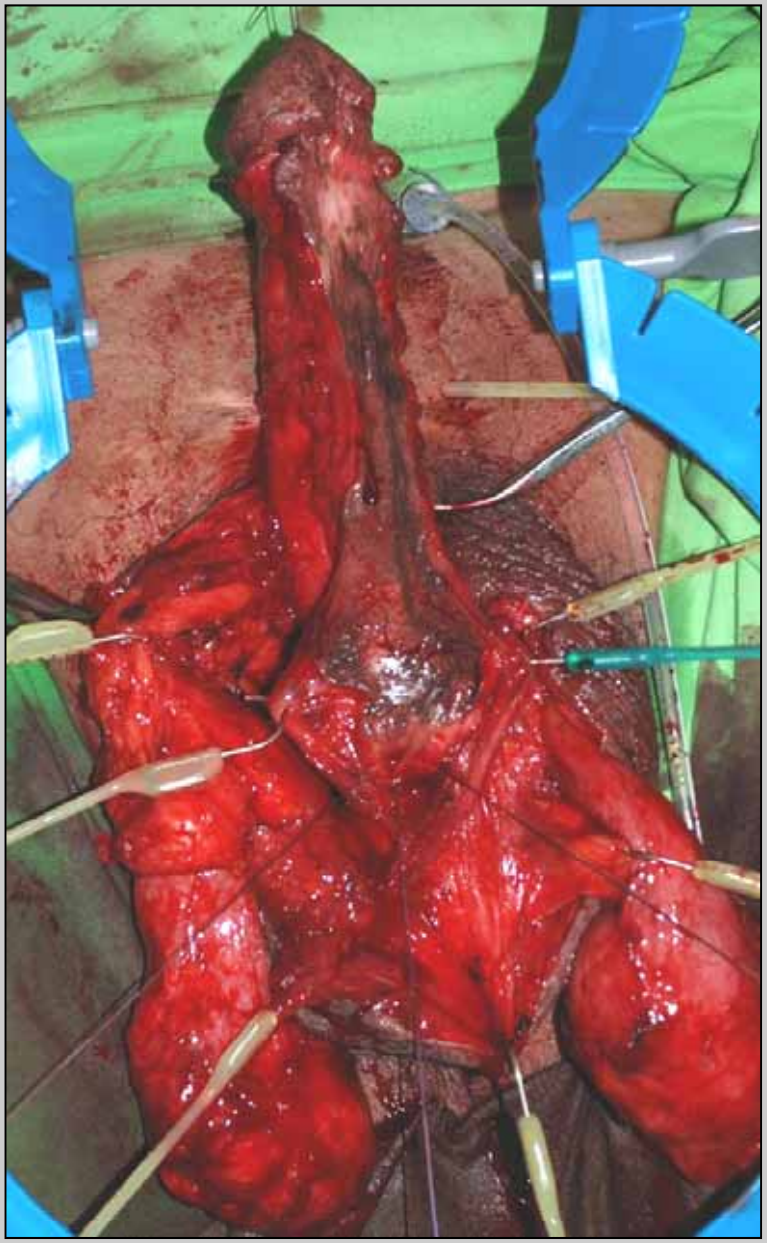
Center for Reconstructive Urethral Surgery
e-mail: info@urethralcenter.it website: www.urethralcenter.it

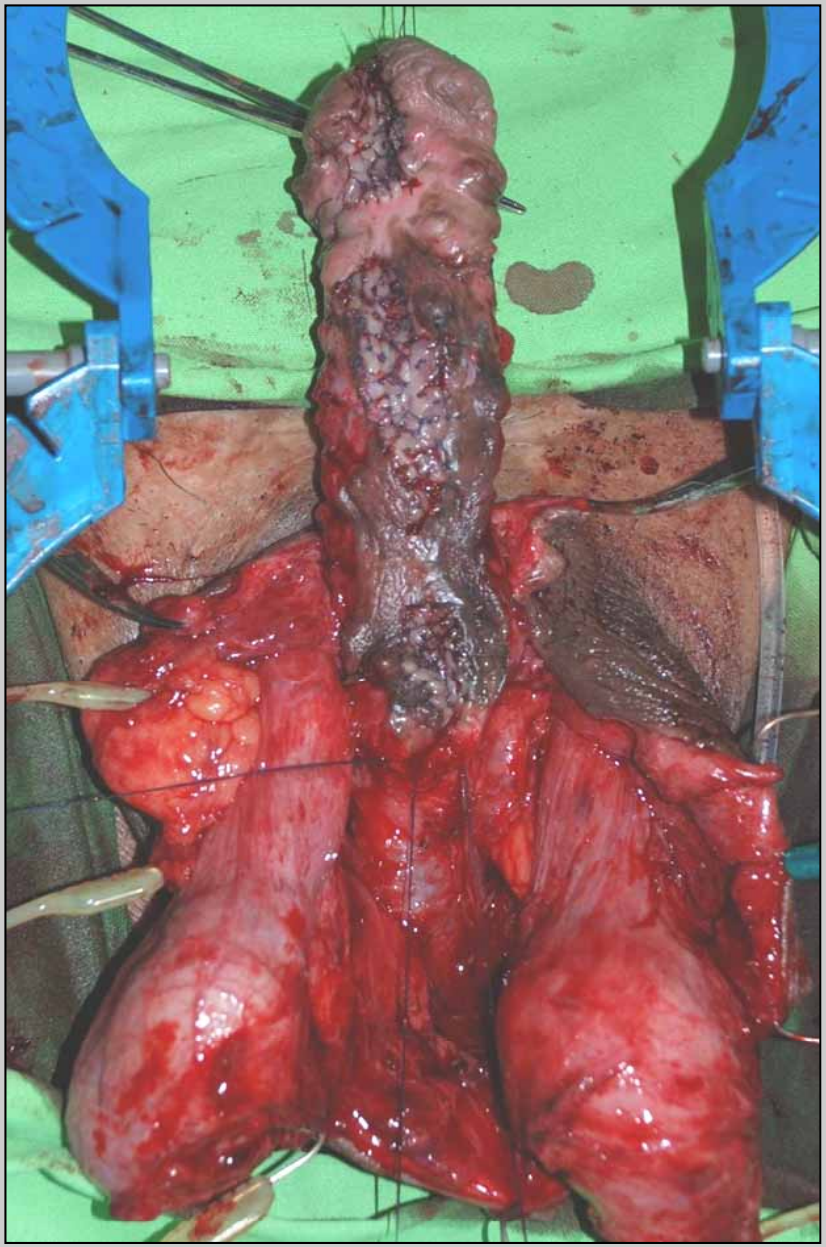
Center for Reconstructive Urethral Surgery
e-mail: info@urethralcenter.it website: www.urethralcenter.it

Center for Reconstructive Urethral Surgery

e-mail: info@urethralcenter.it website: www.urethralcenter.it

e-mail: info@urethralcenter.it website: www.urethralcenter.it





Center for Reconstructive Urethral Surgery

e-mail: info@urethralcenter.it website: www.urethralcenter.it

e-mail: info@urethralcenter.it

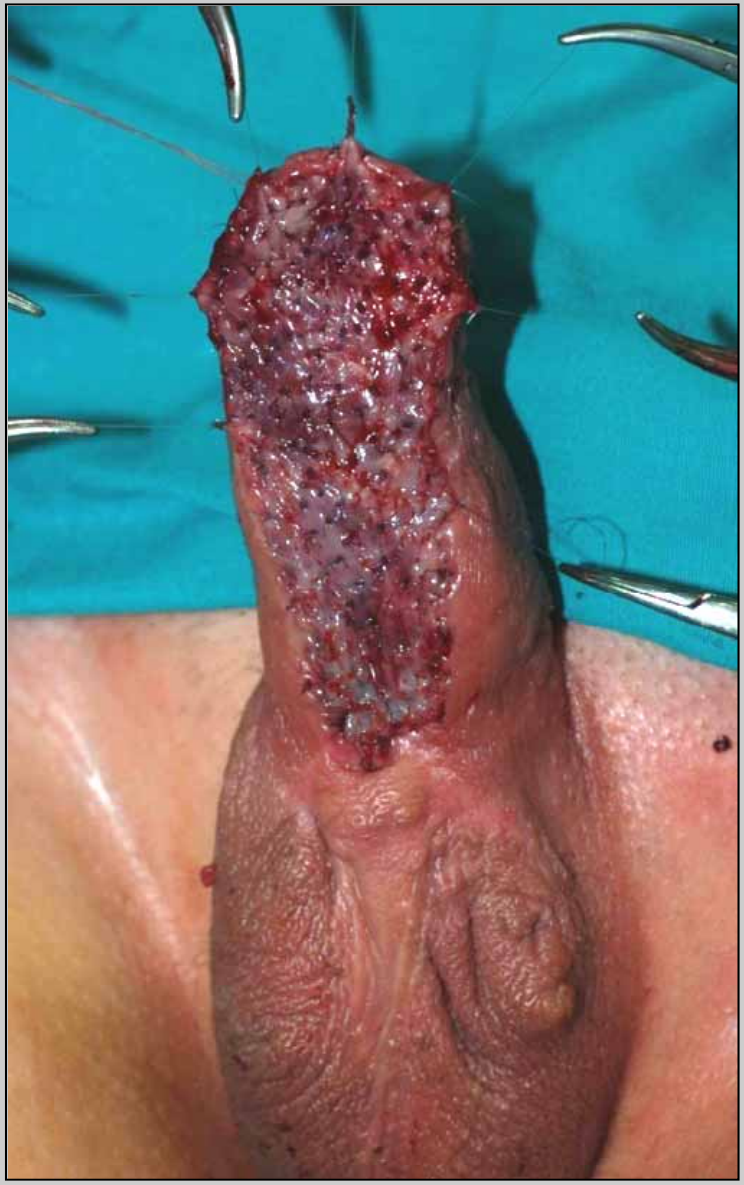
website: www.urethralcenter.it

e-mail: info@urethralcenter.it website: www.urethralcenter.it

e-mail: info@urethralcenter.it website: www.urethralcenter.it

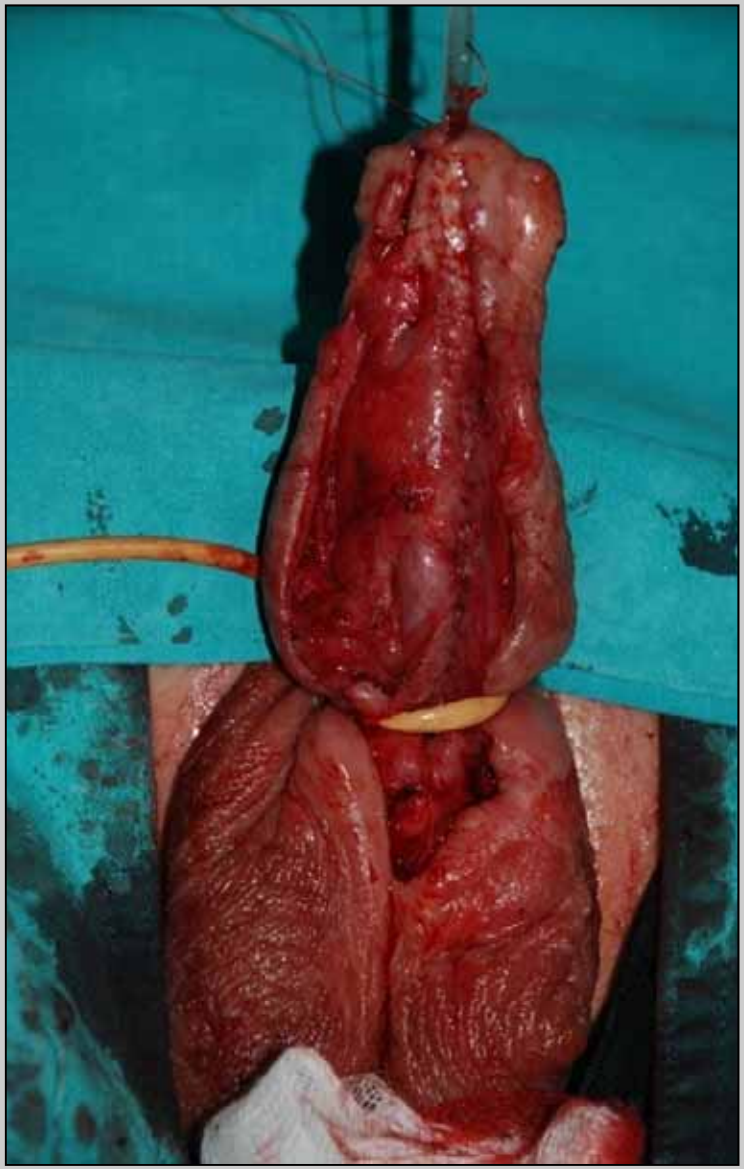
Center for Reconstructive Urethral Surgery

e-mail: info@urethralcenter.it website: www.urethralcenter.it



e-mail: info@urethralcenter.it website: www.urethralcenter.it

Completely straightened and lenghtened penis



e-mail: info@urethralcenter.it website: www.urethralcenter.it

e-mail: info@urethralcenter.it website: www.urethralcenter.it

e-mail: info@urethralcenter.it website: www.urethralcenter.it

e-mail: info@urethralcenter.it website: www.urethralcenter.it

e-mail: info@urethralcenter.it website: www.urethralcenter.it

e-mail: info@urethralcenter.it website: www.urethralcenter.it

Center for Reconstructive Urethral Surgery
e-mail: info@urethralcenter.it website: www.urethralcenter.it

Success or failure ?

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

Results in 1176 patients

Type of repair	N° patients	Mean follow-up months	Success rate %	Failure rate %
urethroplasty	301 (25.5%)	58.6 (12-186)	270 (89.7%)	31 (10.3)
corporoplasy	60 (5.2%)	63.2 (12-237)	58 (96%)	2 (3.3%)
urethroplasty corporoplasty	166 (14.1%)	60 (12-210)	147 (88.5%)	19 (11.5%)
genitalia resurfacing	649 (55.2%)	59.8 (12-192)	561 (86.4%)	88 (13.6%)
total	1176	60.4 (12-237)	1036 (88.1%)	140 (11.9%)

Urol Int 2011, in press

Results

evaluation

objective

subjective

Success or failure ?

Conclusions

Failed hypospadias repair is not a problem for the pediatric urologist, because the mean age of patients was 31 years.

Failed hypospadias repair is not a problem for the urethral surgeon, because only in 25.5% of cases the reoperative surgery was restricted only to the urethra.

Failed hypospadias repair involves, in the majority of patients (55.2%), the urethra, corpora cavernosa, glans, penile shaft and skin, requiring complete resurfacing of the genitalia.

Conclusions

Failed hypospadias repair is a complex problem requiring full collaboration between the urethral surgeon and the surgeon widely skilled in reconstructive surgery of the genitalia (penile prosthesis implant, surgery for Peyronie's disease, surgery for male to female transition, surgery for complex defects of the corpora cavernosa).

Conclusions

Shouldn’t patients with complex failed hypospadias repair be referred to a Center of expertise?

Dr. Rados Djinovic – Perovic Foundation

Belgrade - Serbia

e-mail: info@urethralcenter.it website: www.urethralcenter.it

Failed hypospadias repair

Part 2

e-mail: info@urethralcenter.it website: www.urethralcenter.it

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

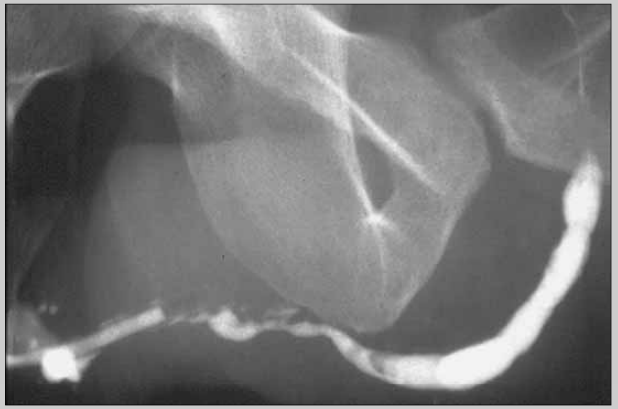
Patients showing multiple penile deformities caused by:

- 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**



Why ?

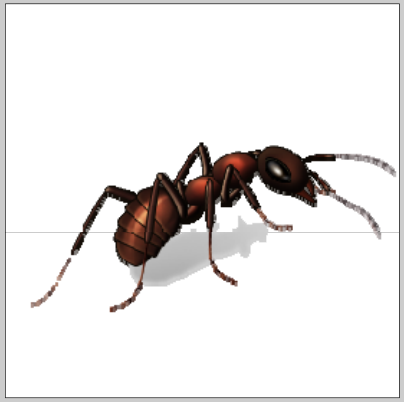
e-mail: info@urethralcenter.it website: www.urethralcenter.it

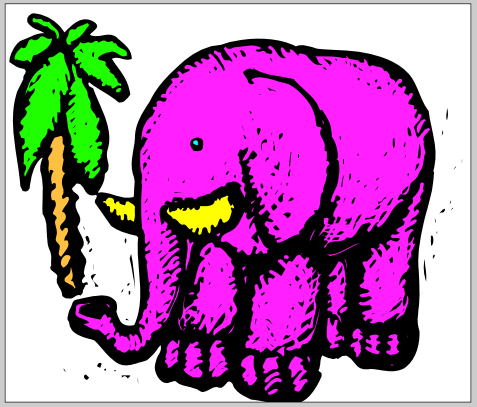
The pediatric urologist maintains that:

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

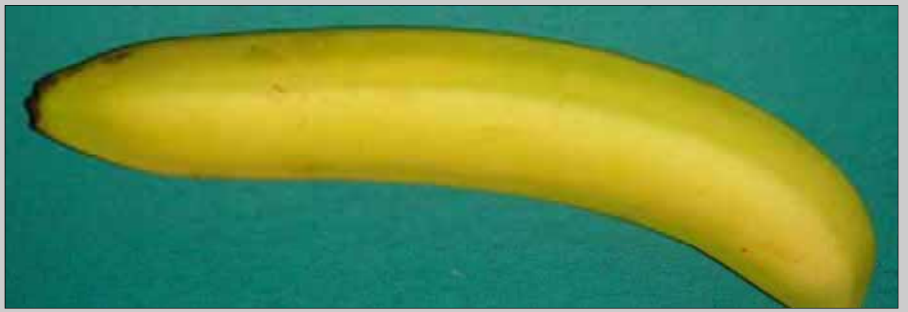
Center for Reconstructive Urethral Surgery
e-mail: info@urethralcenter.it website: www.urethralcenter.it

Have you ever seen an ant become an elephant ?





18 months old



18 years old

e-mail: info@urethralcenter.it website: www.urethralcenter.it

The normal urethra is a spongiosum-made urethra

e-mail: info@urethralcenter.it website: www.urethralcenter.it

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

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

?

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 …

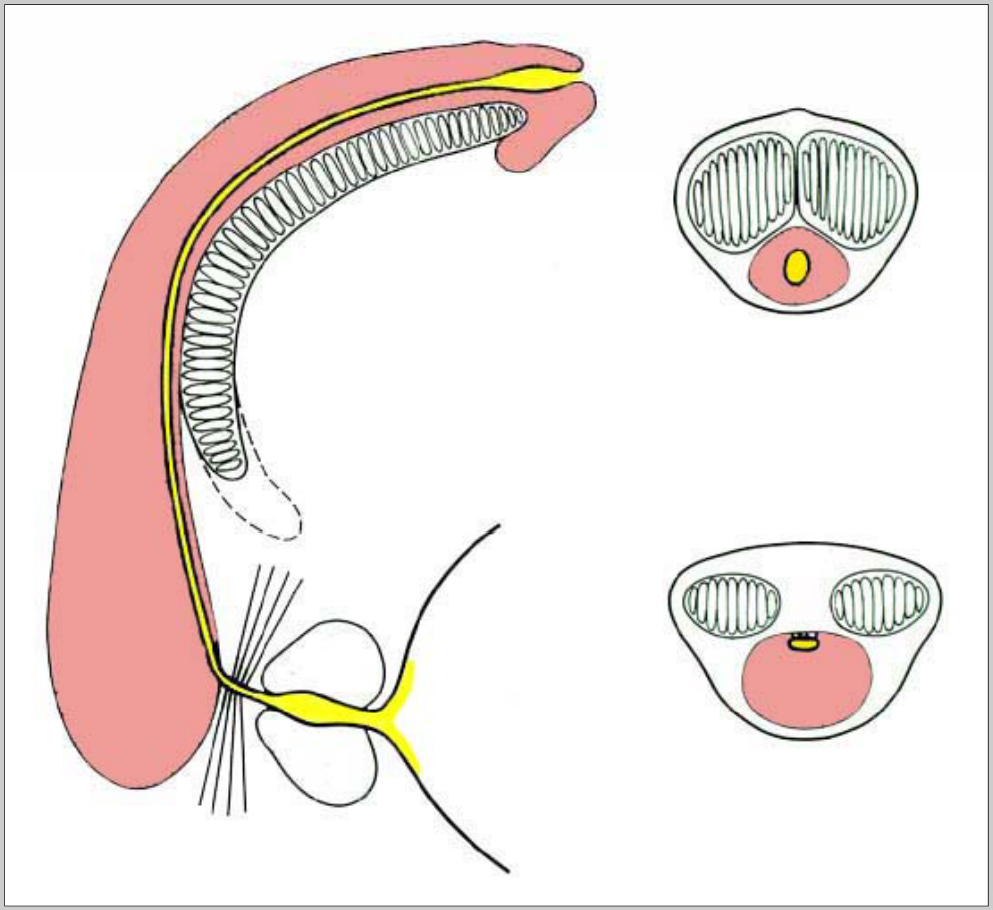
…and the skin-made urethra over time will be

KO!

Why ?

e-mail: info@urethralcenter.it website: www.urethralcenter.it

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

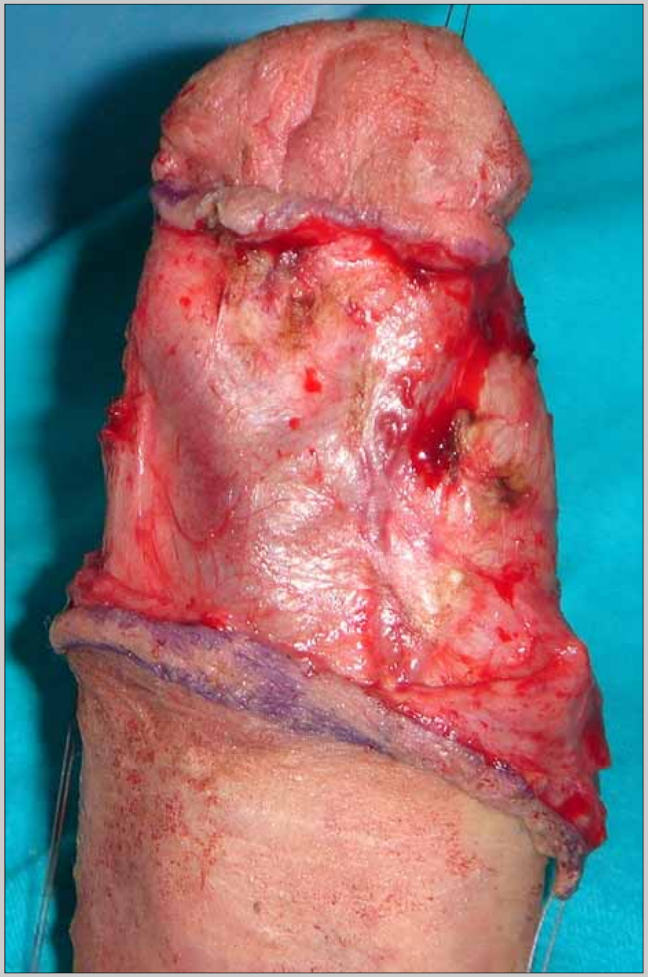


… and this skin-made urethra does not tolerate the repeated mechanical stretch and trauma during erection and sexual activity

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

e-mail: info@urethralcenter.it website: www.urethralcenter.it

The lack of spongiosum tissue promotes urethral deterioration over time



Center for Reconstructive Urethral Surgery
e-mail: info@urethralcenter.it website: www.urethralcenter.it

Hypospadias surgery is now at its end-point

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

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

Center for Reconstructive Urethral Surgery

e-mail: info@urethralcenter.it website: www.urethralcenter.it

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

Center for Reconstructive Urethral Surgery
e-mail: info@urethralcenter.it website: www.urethralcenter.it

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

www.failedhypospadias.com

Center for Reconstructive Urethral Surgery

e-mail: info@urethralcenter.it website: www.urethralcenter.it

"Web-on"

Training on Reconstructive Urethral Surgery

Instruction for pre-registration

www.urethralcenter.it

Instruction for pre-registration

1. Visit our website (**www.urethralcenter.it**)
2. Click on **"Web on" Training on Reconstructive Urethral Surgery**
3. Complete the enclosed the **pre-registration form**

You will receive further more detailed information when our new educational program is ready to begin.
We sincerely hope that you or your Department will be interested in pursuing our project.
Please do not hesitate to contact us for any question you may have.

Thank you and we look forward to hearing from you soon.

Guido Barbagli and Massimo Lazzeri
Center for Reconstructive Urethral Surgery
Arezzo – Italy
Email: info@urethralcenter.it