

CENTER FOR RECONSTRUCTIVE URETHRAL SURGERY



GUIDO BARBAGLI, M.D.
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AUA Course

What's new in urethroplasty

Guido Barbagli, M.D. and Sanjay B. Kulkarni, M.D.

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How to learn urethral surgery

Based-evidence Medicine

Metanalysis review

Guidelines

Consensus Conferences



available at www.sciencedirect.com
journal homepage: www.europeanurology.com



Editorial

Can Reconstructive Urethral Surgery Proceed Without Randomised Controlled Trials?

Guido Barbagli^a, Massimo Lazzeri^{b,*}

^aCenter for Reconstructive Urethral Surgery, Arezzo, Italy

^bDepartment of Urology, Santa Chiara Hospital (GIOMI group), Florence, Italy

What has history taught us? The history of urethral reconstruction is based on observational studies that appear today to be disarming in their apparent ease. In 1968, Orandi introduced the concept of penile skin flap urethroplasty, publishing a paper consisting merely of two pages and two black and white figures and that lacked any outcome assessment [10]. Oral mucosa has become the most popular substitute material in the treatment of urethral strictures, as it is readily available and easily harvested from the cheek, lip, or tongue, allowing for a concealed donor site scar and low oral morbidity [11–14]. Unfortunately, all the papers that have contributed to the widespread use of the oral mucosa graft are retrospective, not prospective, and they are not RCTs.

Urethral surgery for stricture repair is performed on a small sample size and, for this reason, the focus tends to be on the comparison of different techniques in homogeneous groups rather than prospective, randomised design studies. What does homogenous mean? It means that a technique used for penile urethra repair cannot be compared with a technique used for bulbar urethra repair.

Eur Urol, 2008, 54: 709-711

Urological literature on urethral strictures

- ❖ Few prospective, randomized studies**
- ❖ Non-homogeneous series of patients**
- ❖ Small sample size – no statistical significance**

**Personal opinion of high-volume surgeons from
high-volume centers for urethral surgery**

Data published in peer reviewed scientific journals

Data fully available and **updated on our websites
every year**



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Aim of the Course

From COMPLEX to  SIMPLE

Technical steps of urethroplasty (slides and video)

Basic surgical steps in urethral surgery



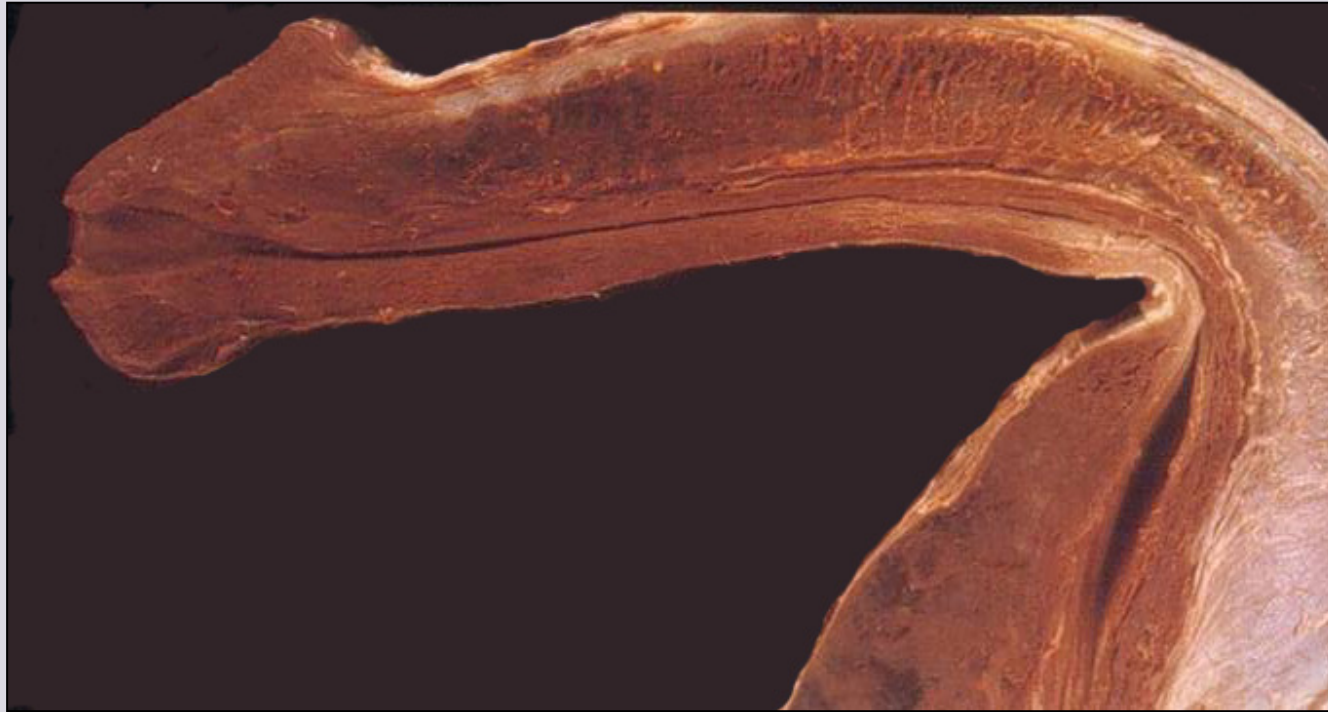
We would like show you what a **urethral stricture looks like, and some suggested surgical techniques for repair of these strictures.**

What approach to take will be determined by you, your experience, your surgical background and your patient's expectations.

There is nothing more we can tell you.



Penile urethral stricture



Simple

Complex

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Reconstruction of penile urethra in simple stricture

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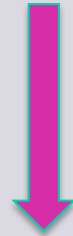
Simple penile urethral stricture



1. The penis and genitalia are normal
2. Practicable urethral plate
3. No Lichen sclerosus
4. No failed hypospadias repair
5. No prior failed urethroplasty

Surgical repair of simple penile urethral stricture

One-stage repair



Free graft

VS

Pedicled flap urethroplasty

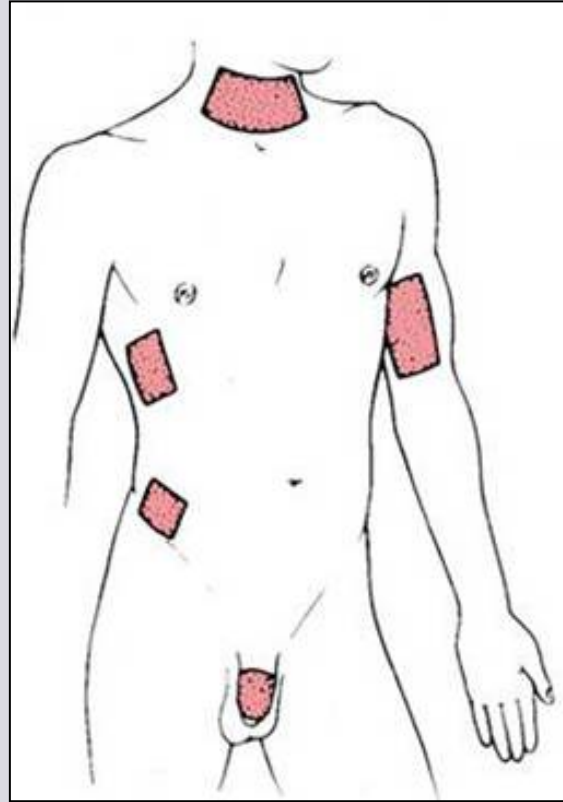
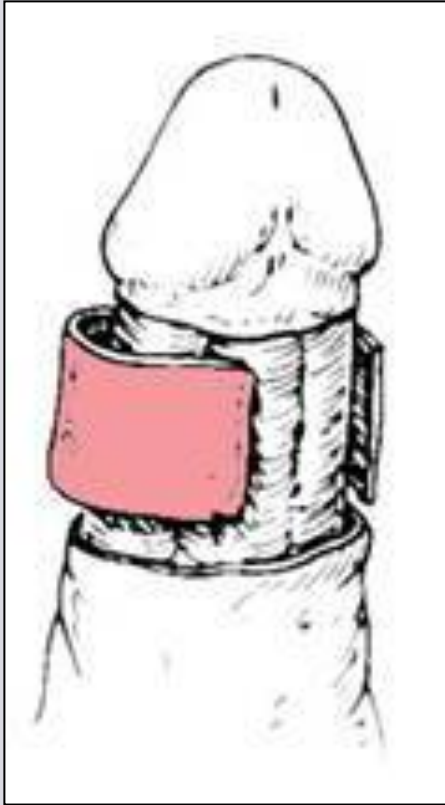
One-stage penile graft urethroplasty

Skin graft

?

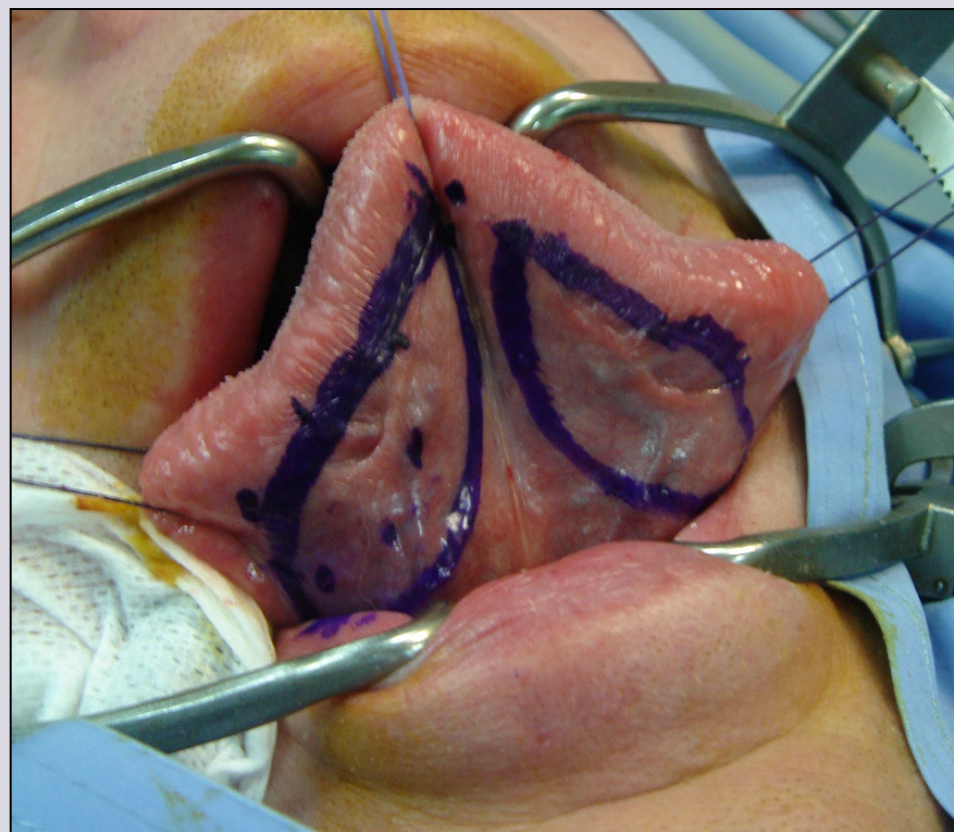
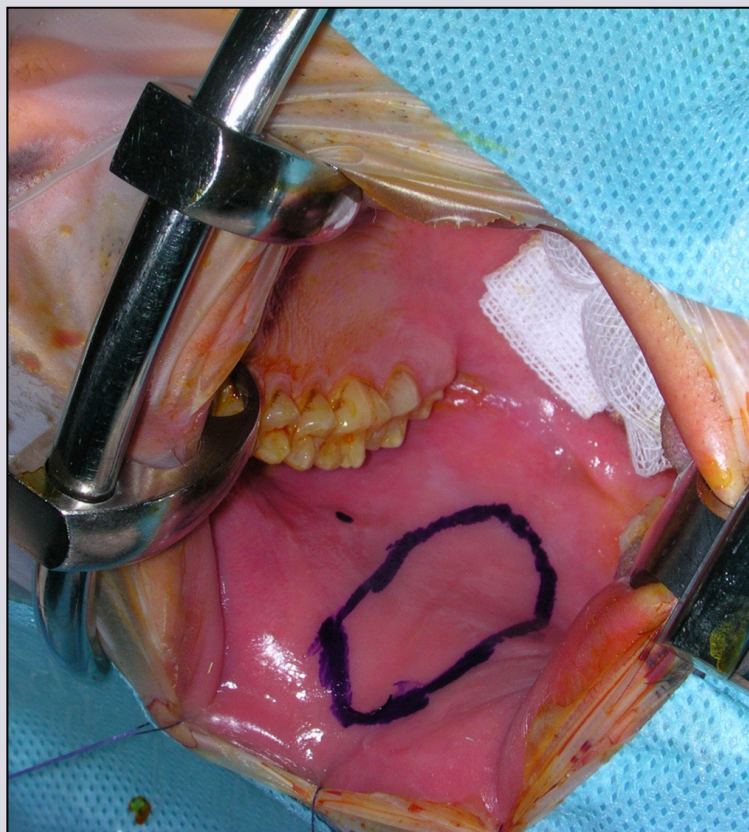
Oral graft

Skin graft



hairless – thin – elastic - resistant

Oral graft



hairless – thin – elastic - resistant

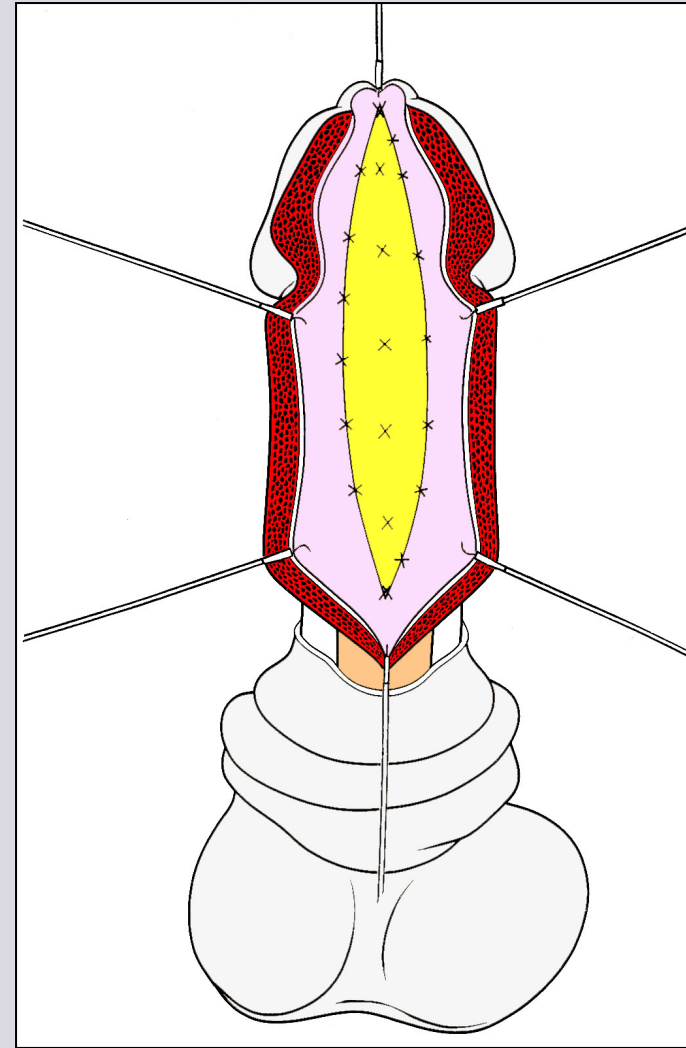
One-stage penile urethroplasty: oral or skin graft ?

| N. patients | Type of urethroplasty | Mean follow-up | Success rate |
|----------------|--------------------------|----------------|-----------------|
| 22 | ORAL GRAFT | 57 months | 82% |
| 23 | SKIN GRAFT | 37 months | 78% |

BJU Int 2008; 102: 853-860

One-stage penile graft urethroplasty

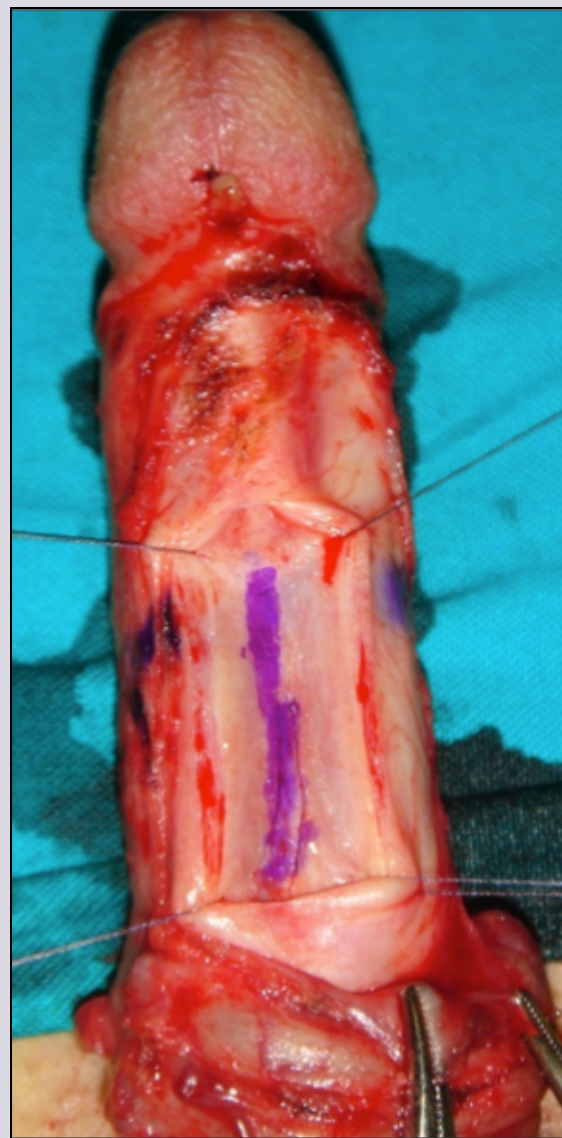
Surgical technique





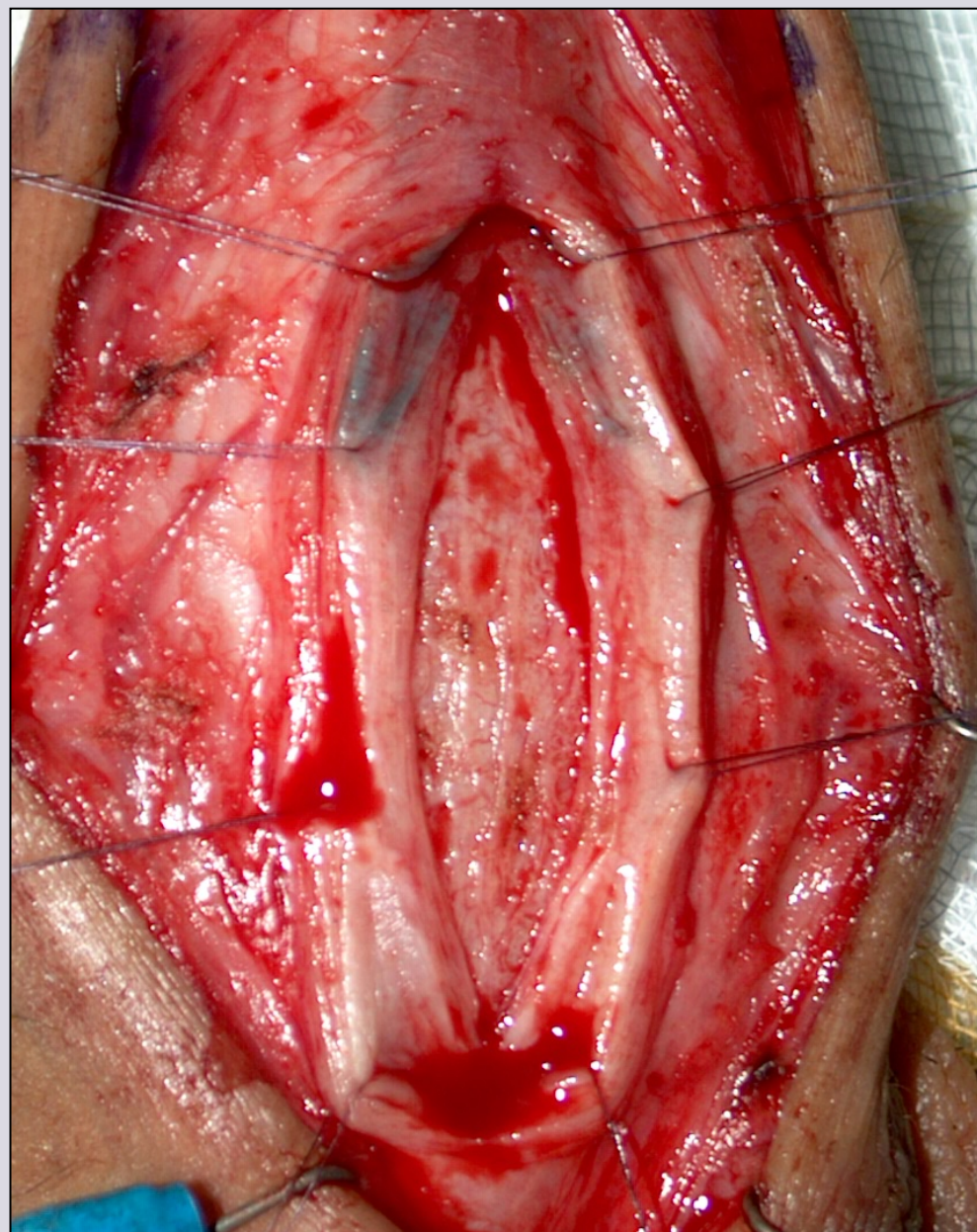
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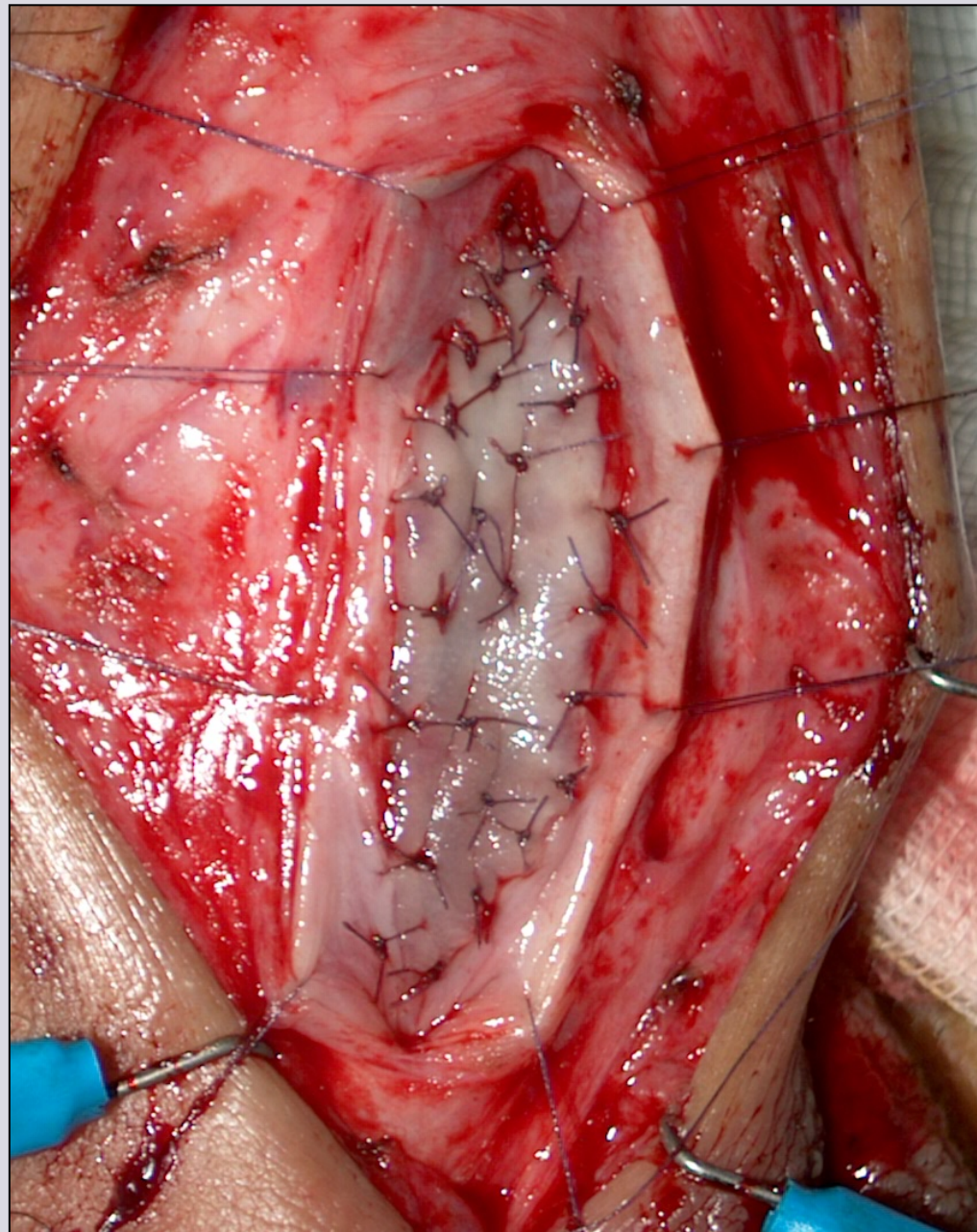
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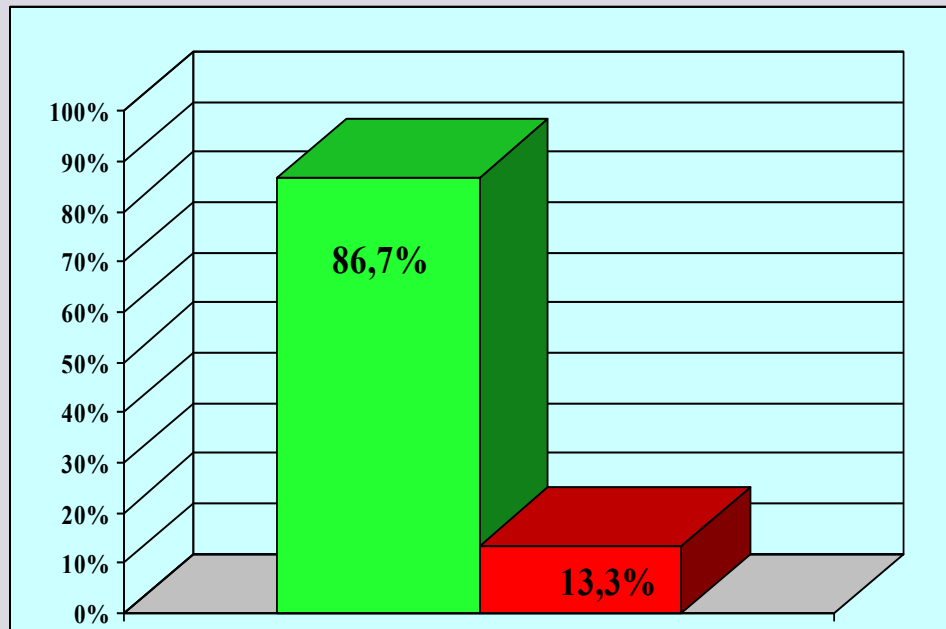
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Oral graft

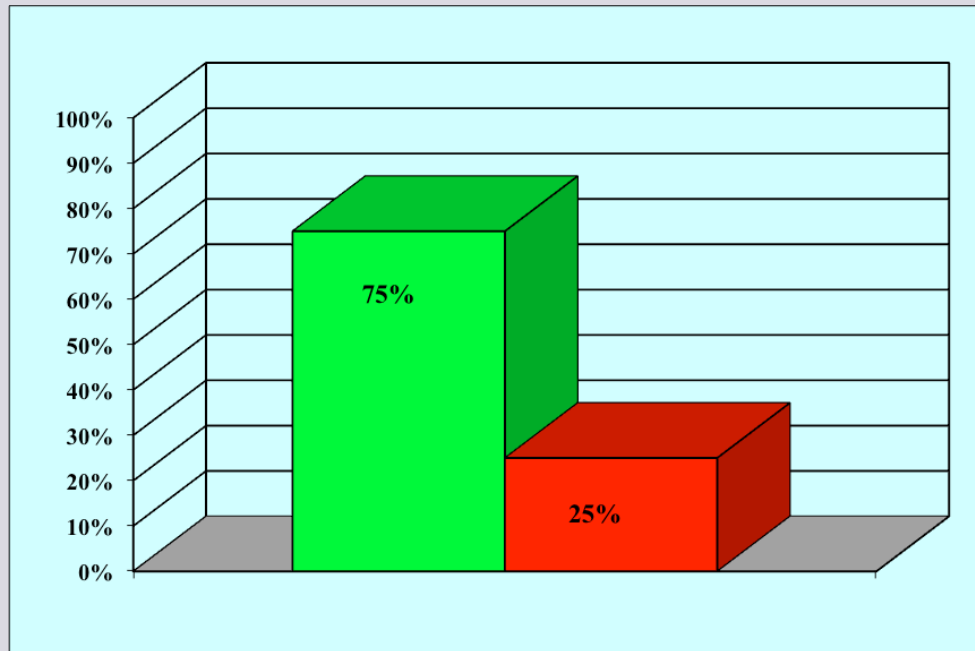


**30
patients**

| | | | |
|--|------------|---------|------|
| ■ success | 26 (86.7%) | | |
| ■ failure | 4 (13.3%) | | |
| | minimum | maximum | mean |
| Follow-up (months) | 6 | 129 | 73 |
| Age (years) | 27 | 78 | 51 |

**Updated
December 31, 2011**

Skin graft



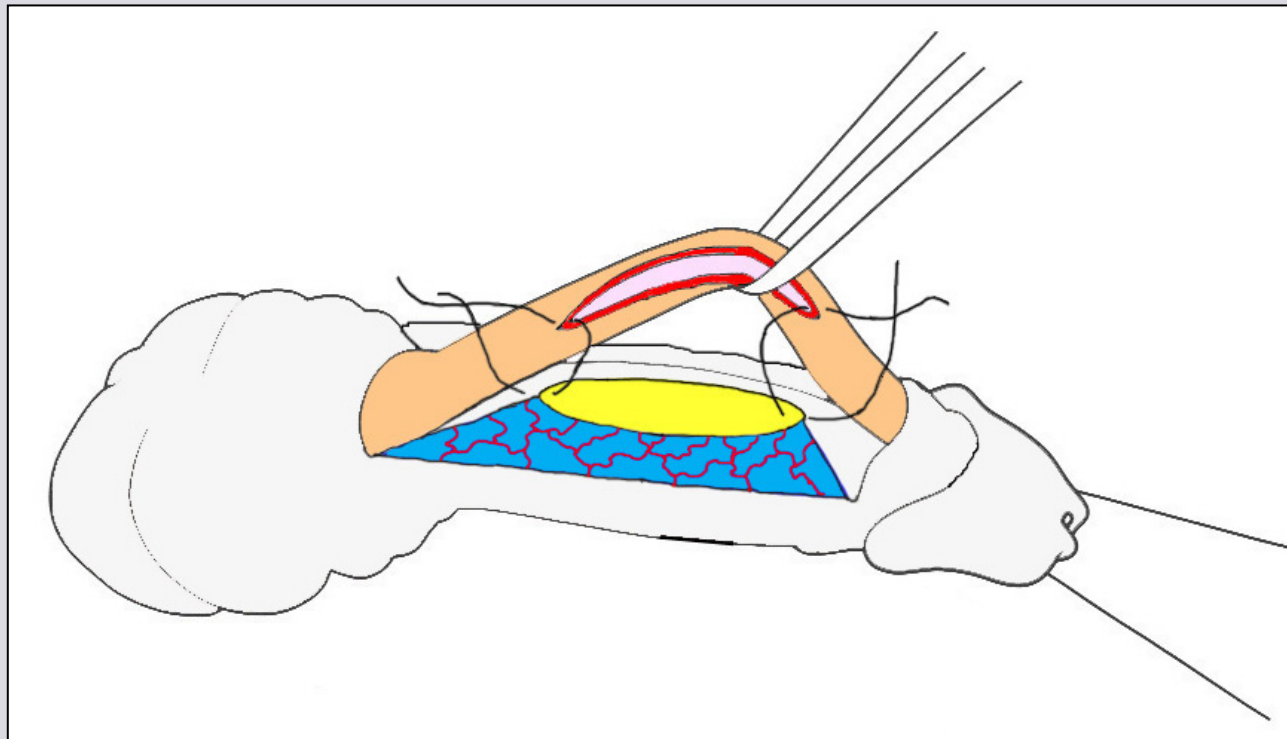
**32
patients**

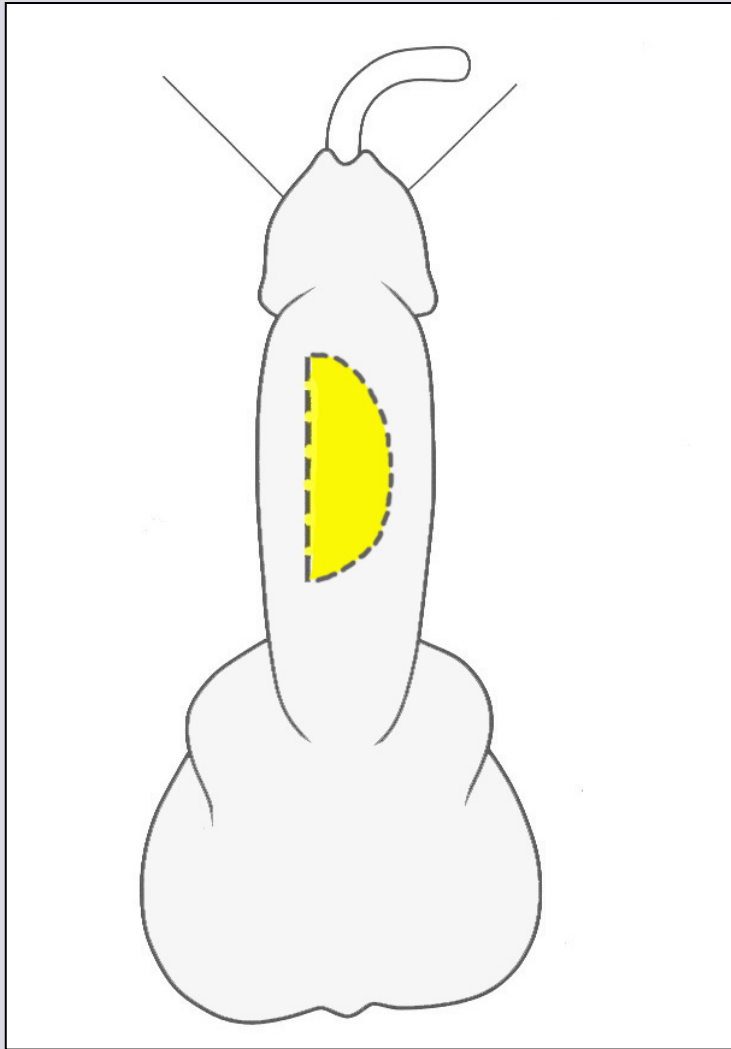
| ■ success | 24 (75%) | | |
|---|-----------------|---------|------|
| ■ failure | 8 (25%) | | |
| | minimum | maximum | mean |
| Follow-up (months) | 8 | 185 | 76 |
| Age (years) | 15 | 75 | 44 |

**Updated
December 31, 2011**

One-stage penile flap urethroplasty

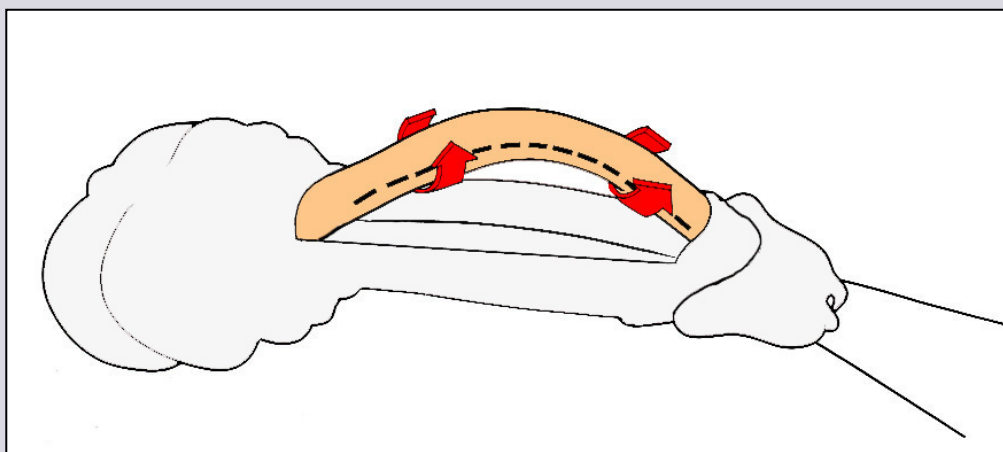
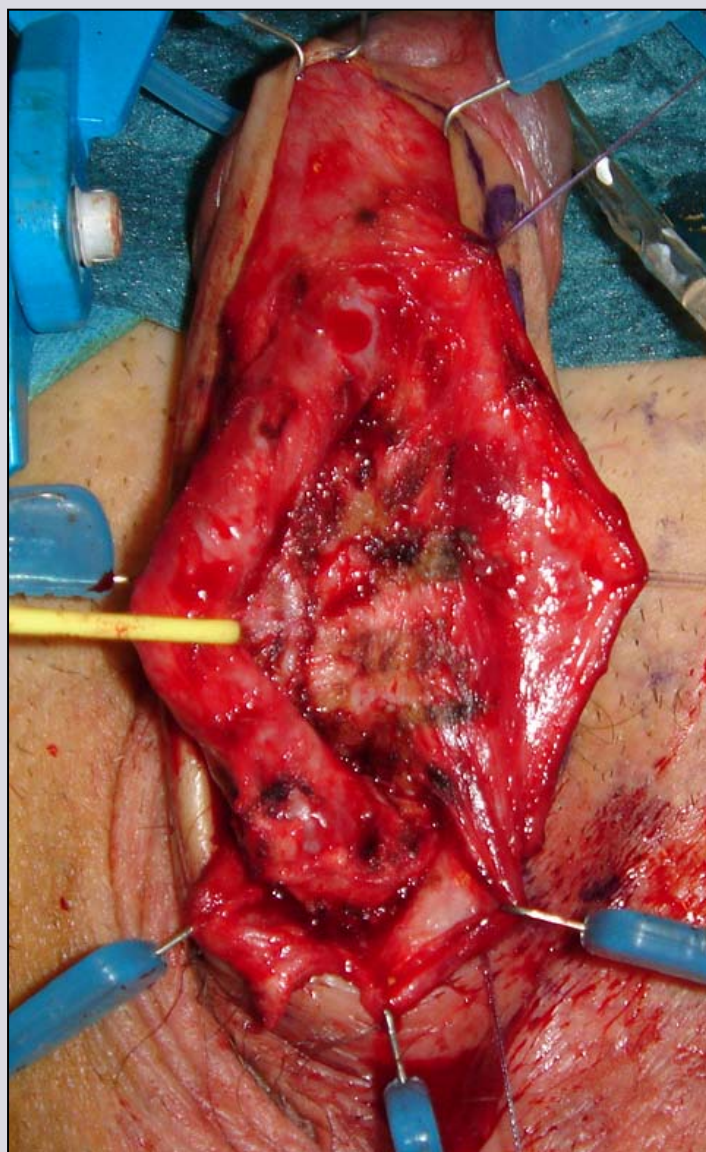
Surgical technique





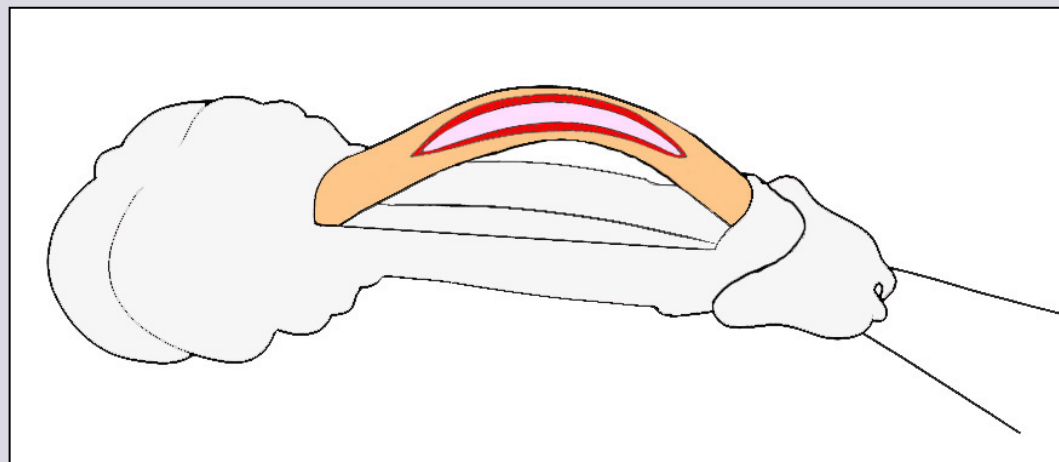
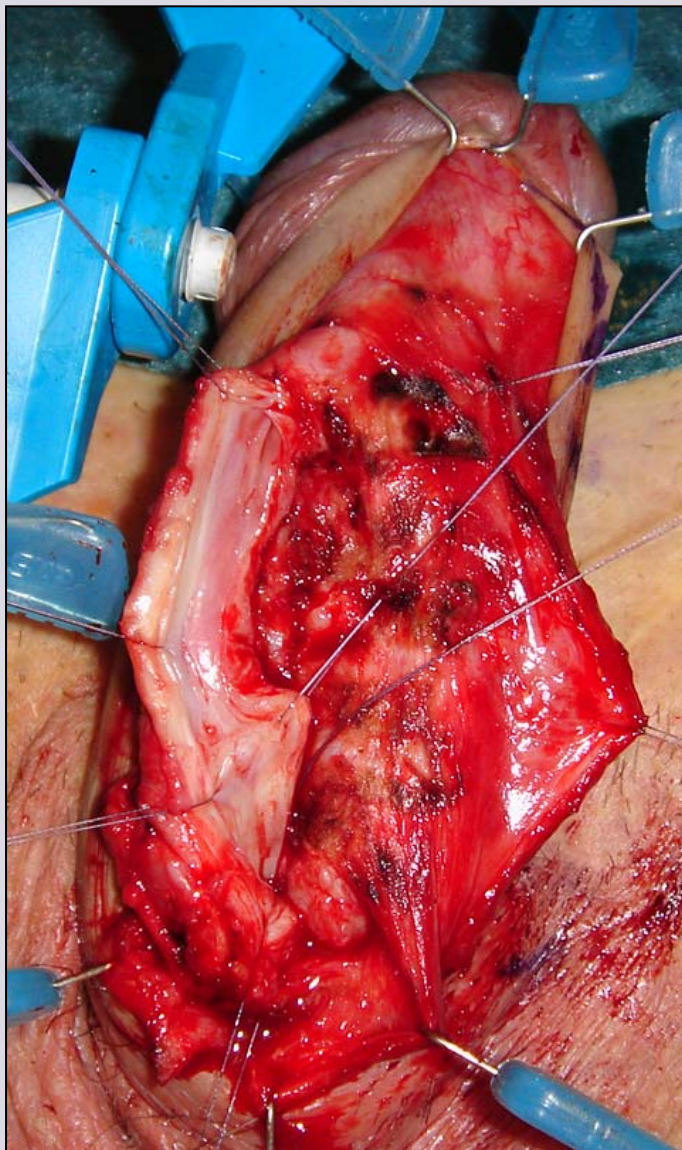
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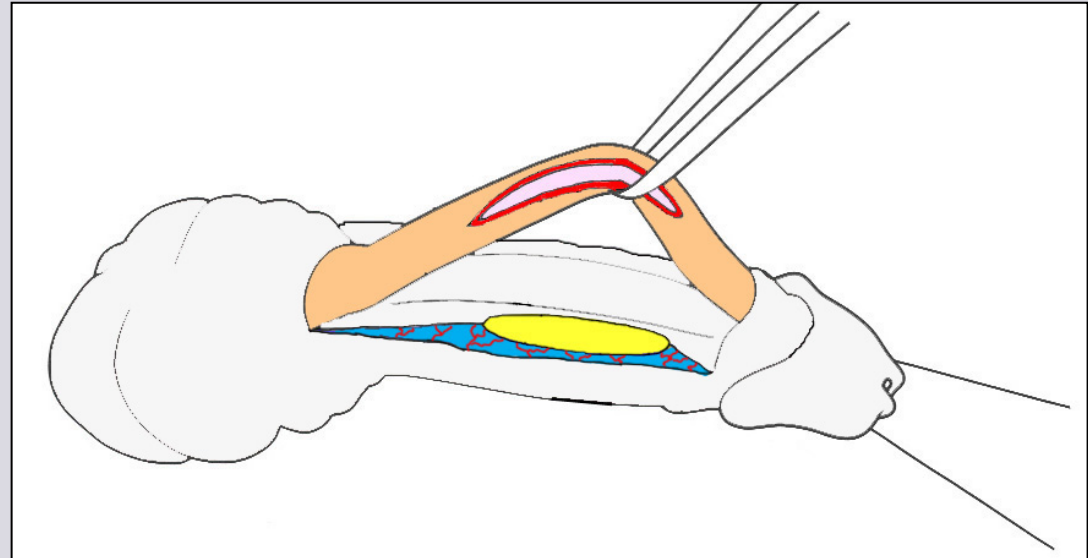
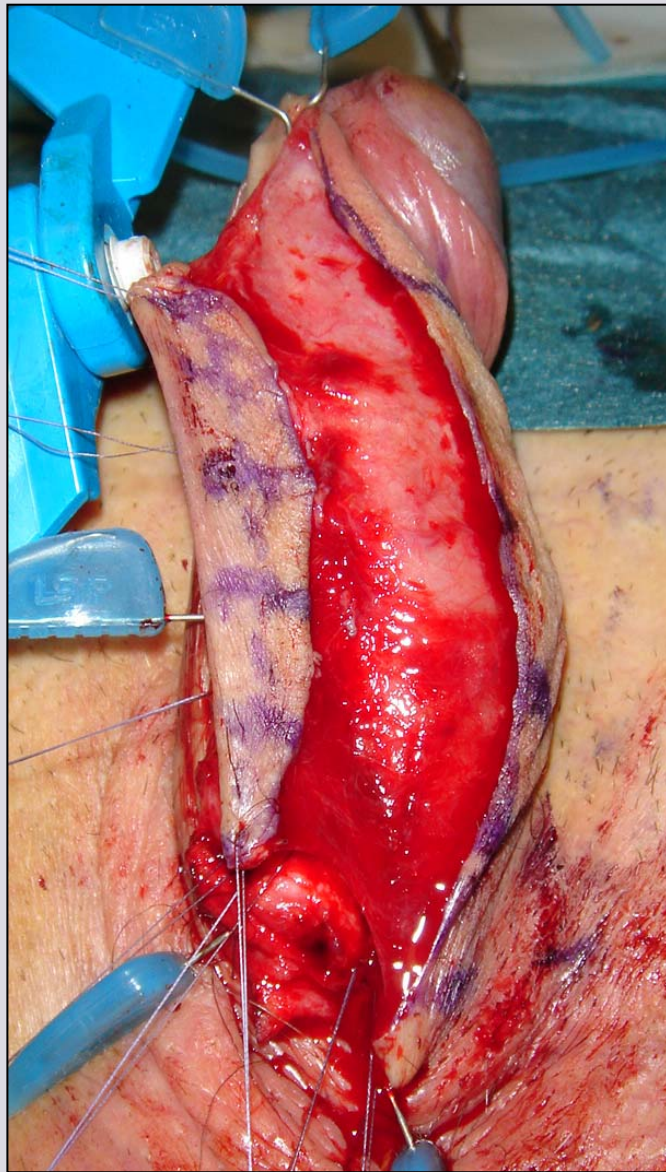
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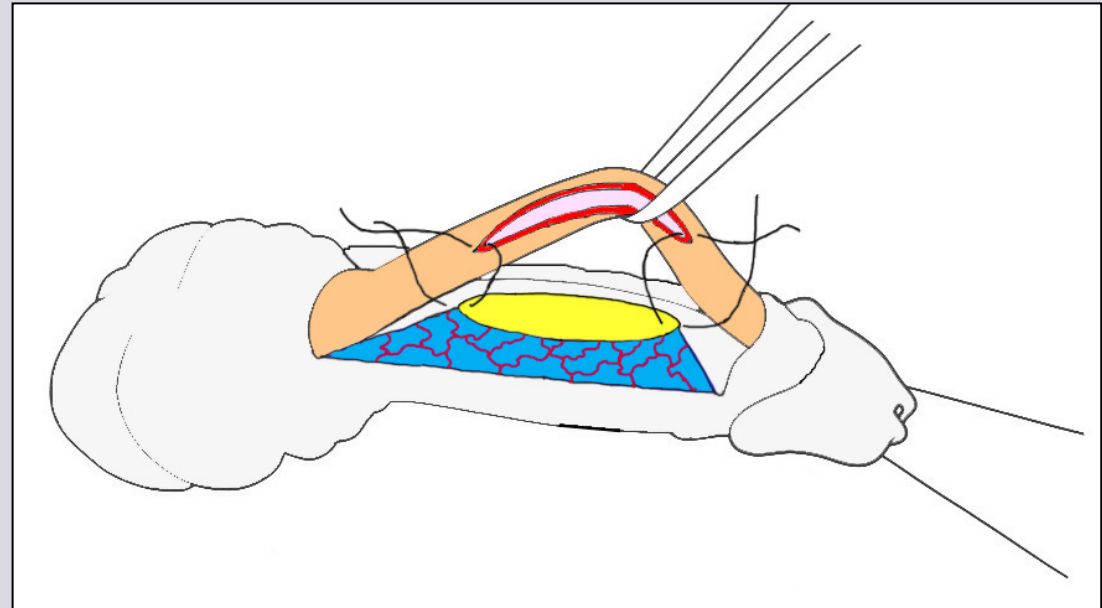
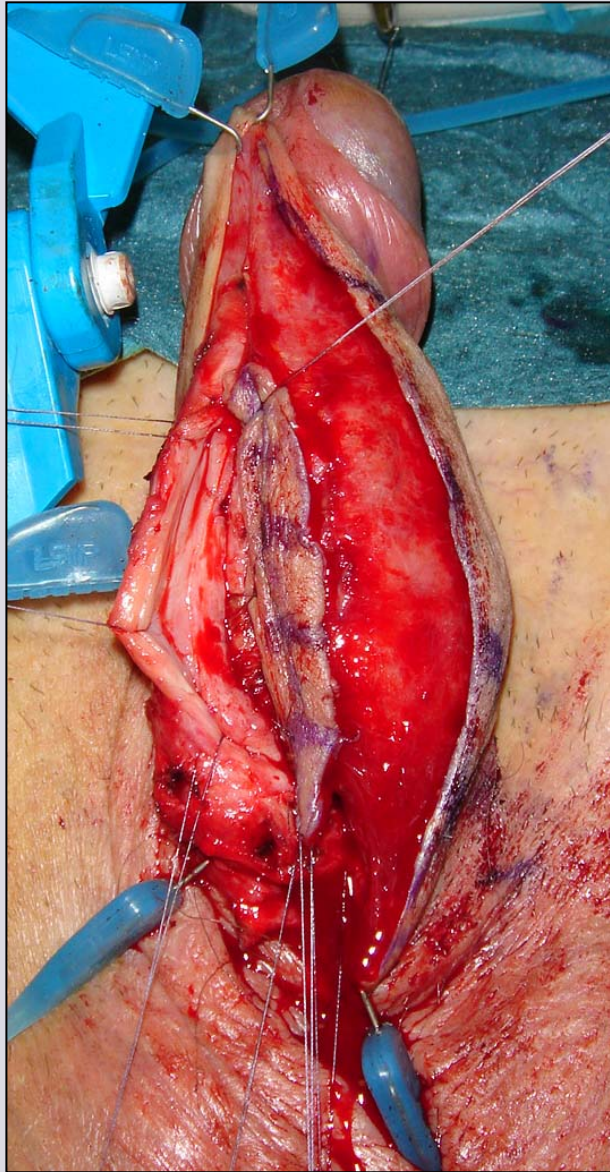
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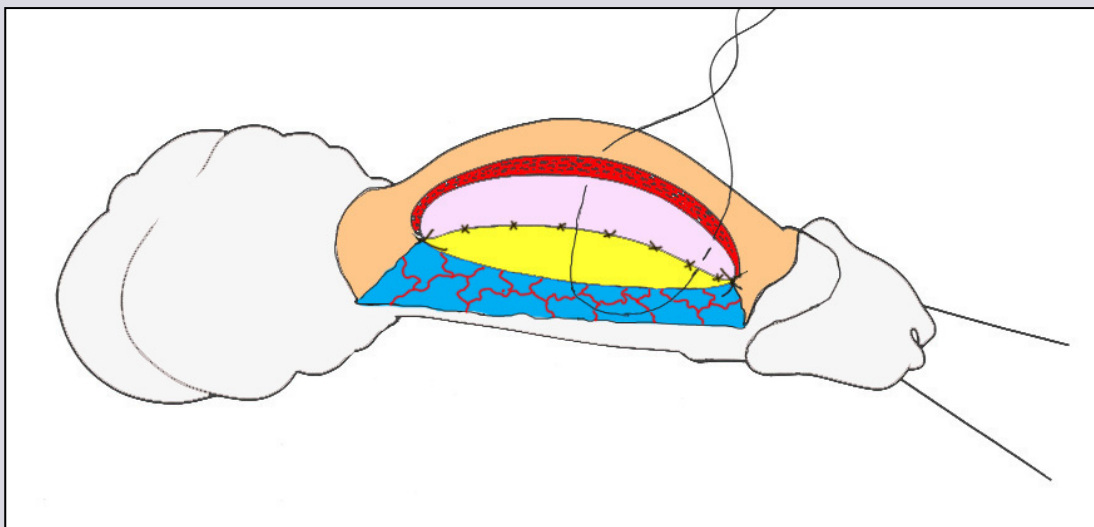
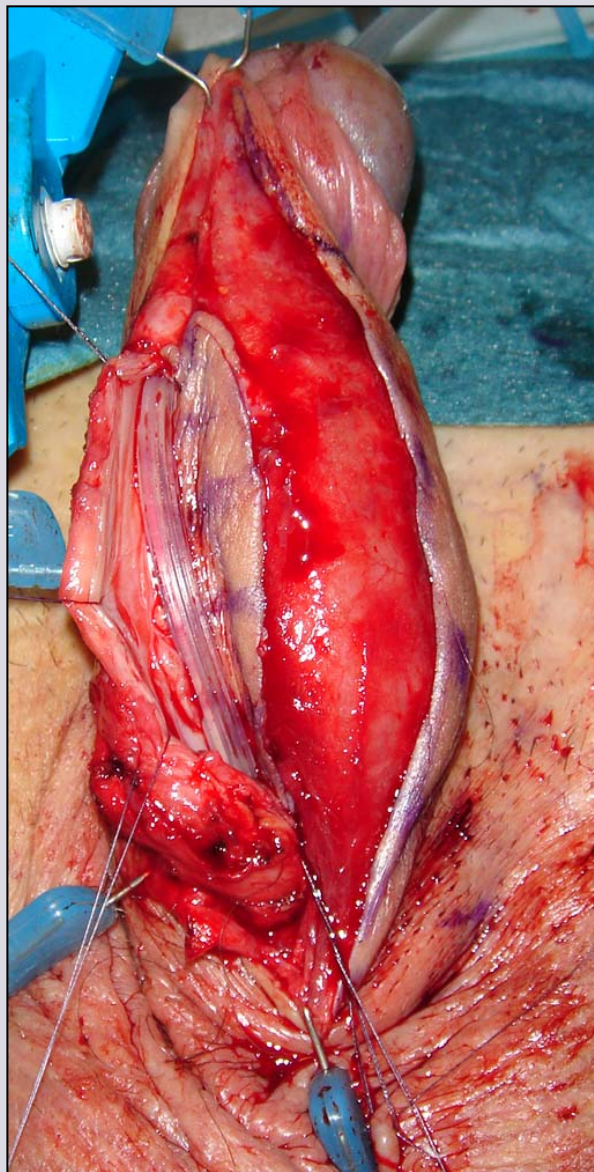
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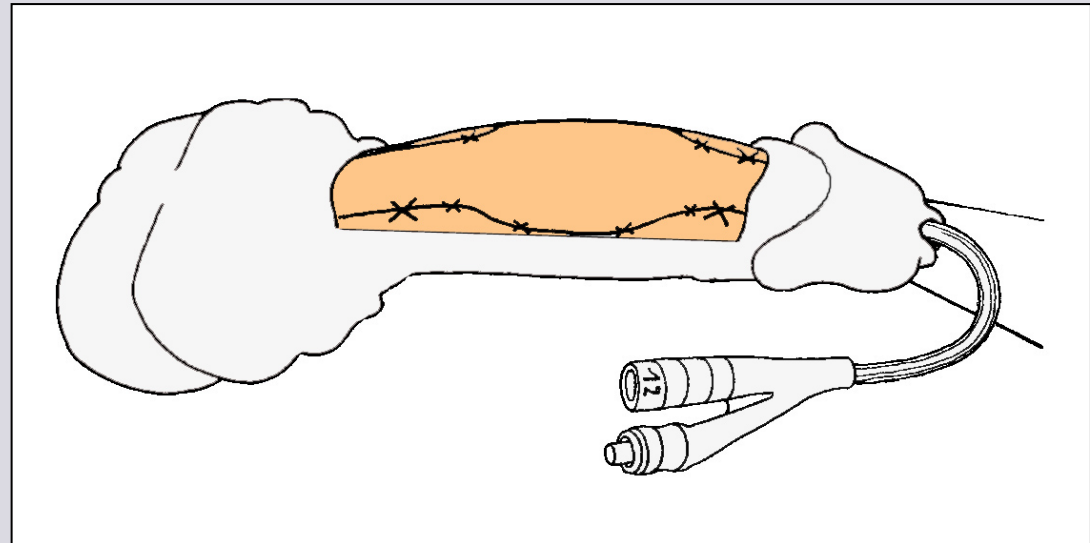
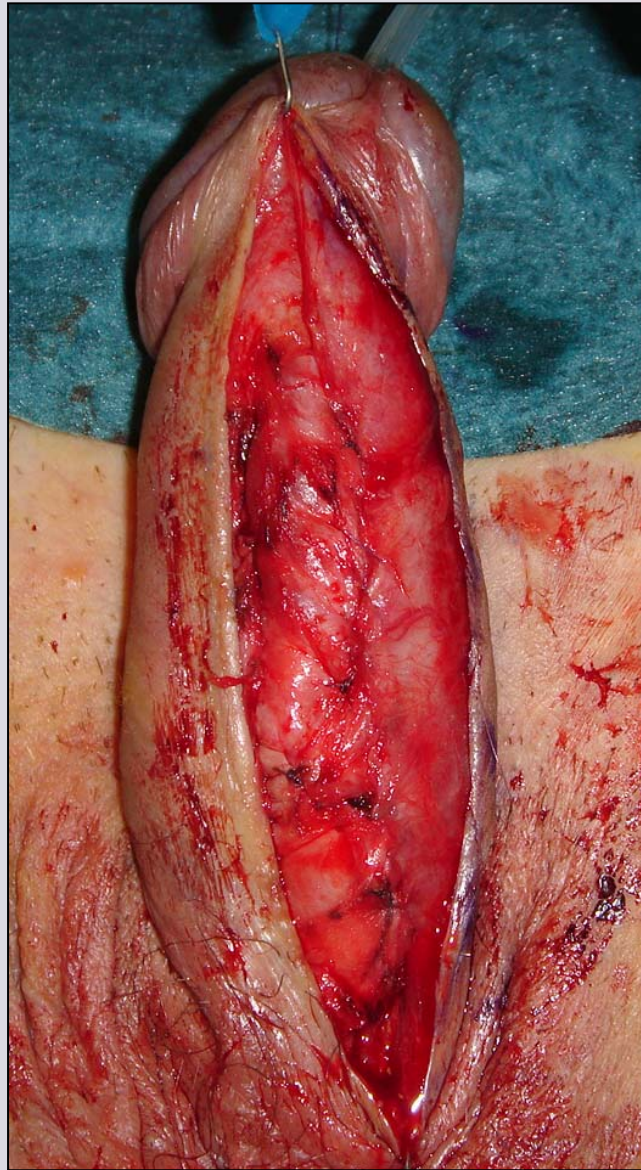
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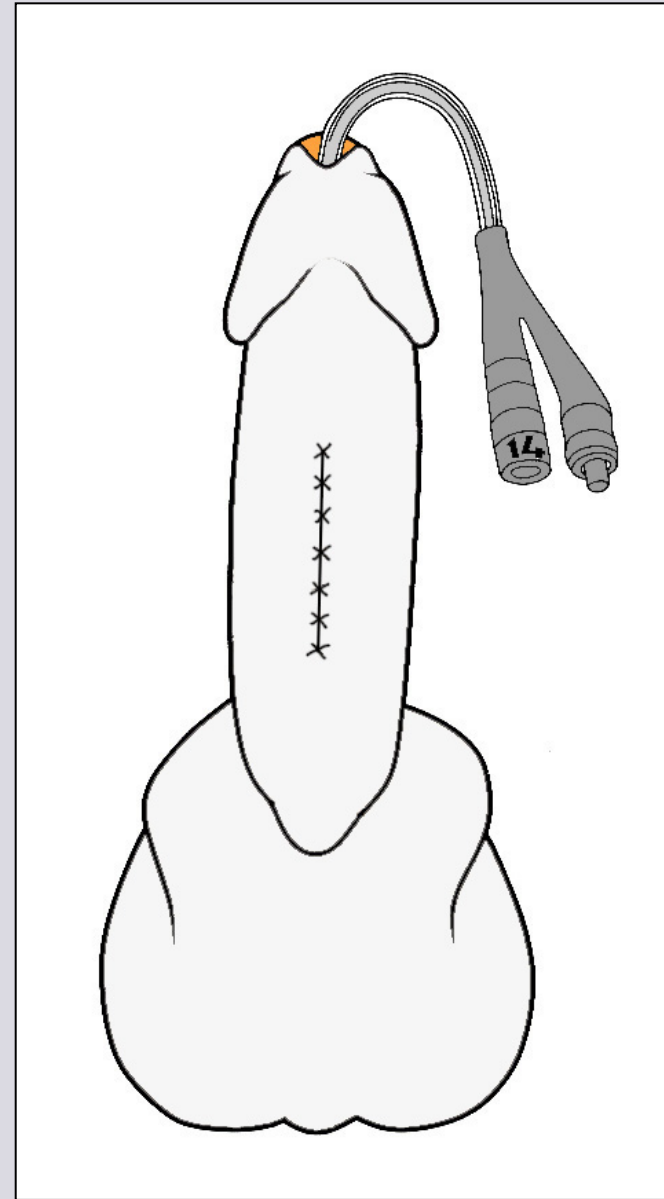




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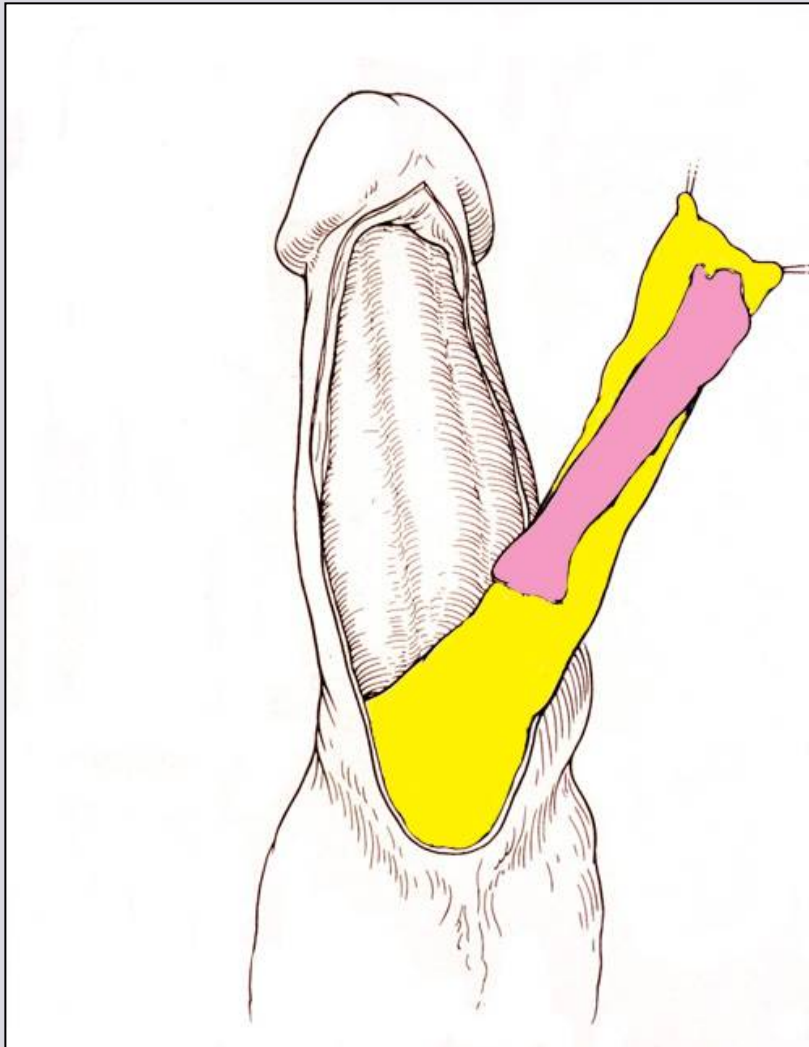
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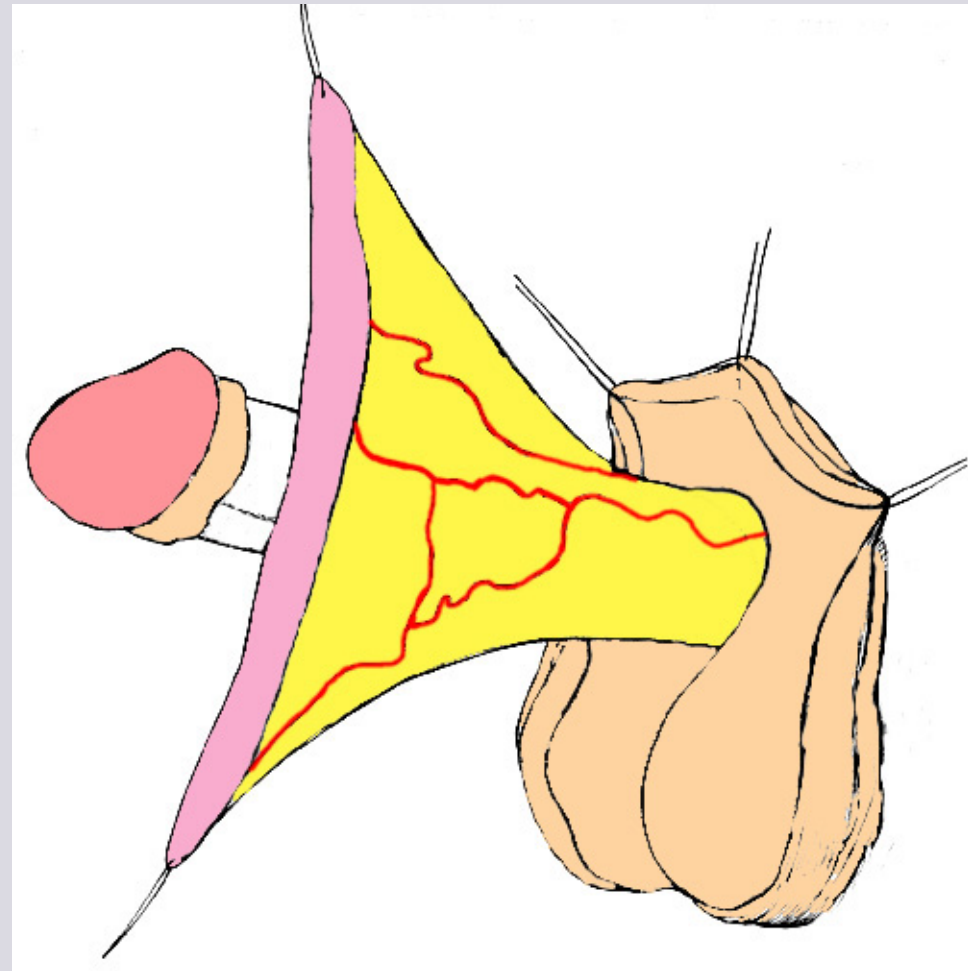


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Jordan



McAninch

One-stage penile urethroplasty: graft or flap ?

| N. patients | Type of urethroplasty | Mean follow-up | Success rate |
|------------------------|----------------------------------|-----------------------|-------------------------|
| 22 | ORAL GRAFT | 57 months | 82% |
| 23 | SKIN GRAFT | 37 months | 78% |
| 18 | PENILE SKIN FLAP | 57 months | 67% |

BJU Int 2008; 102: 853-860

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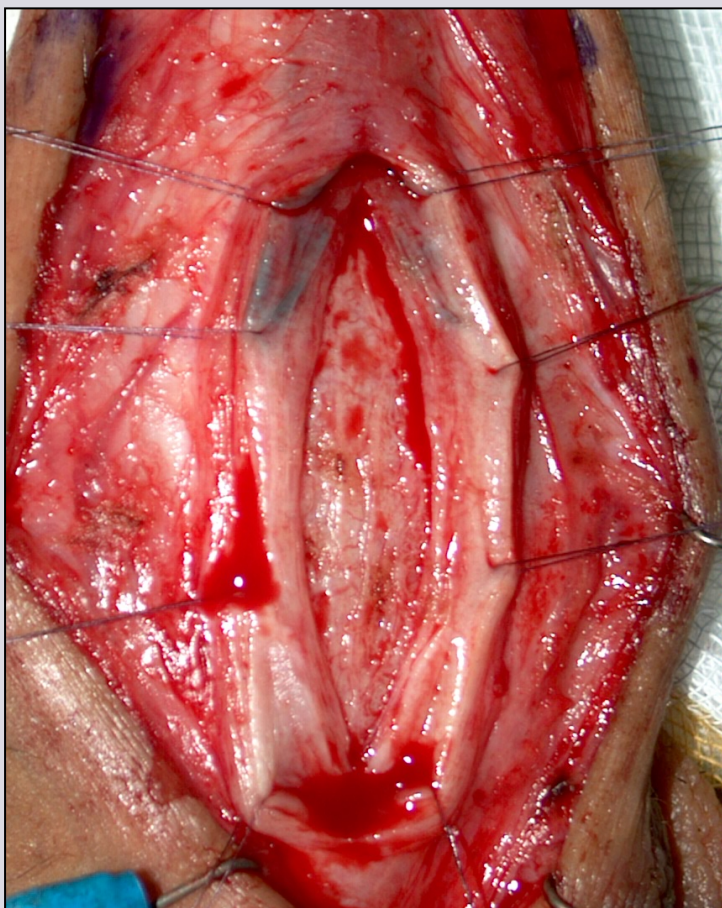
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One-stage penile urethroplasty: graft or flap ?

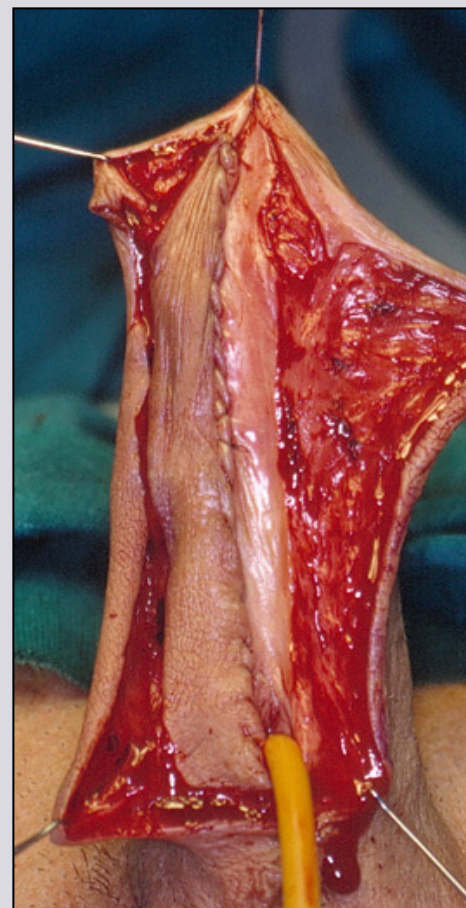
- ❖ NO sure data available from literature
- ❖ NO comparative studies including evaluation of post-operative sexual and aesthetic dysfunctions and patient satisfaction
- ❖ Surgeon background and preference



One-stage penile urethroplasty: graft or flap ?



**Wide urethral plate:
GRAFT**



**Narrow urethral plate:
FLAP**

Reconstruction of penile urethra in complex stricture

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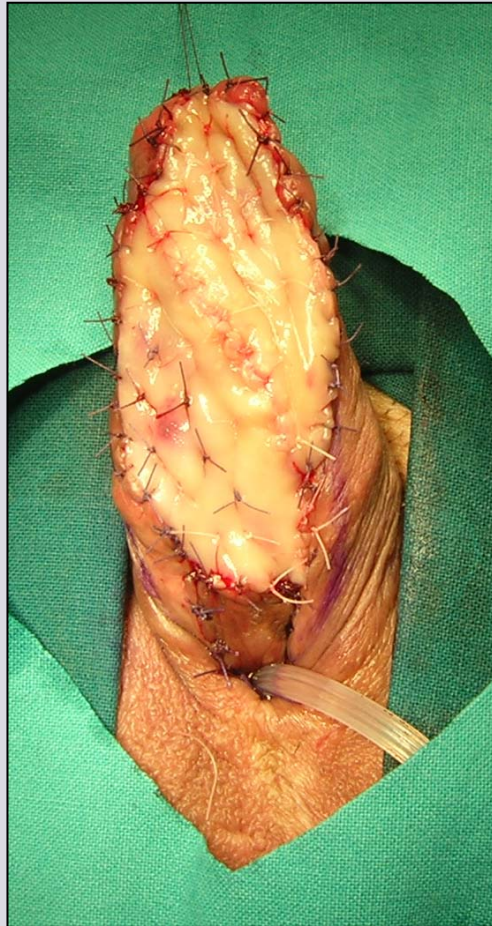
Complex penile urethral stricture



1. Genital Lichen sclerosus
2. Failed hypospadias repair
3. Prior failed urethroplasty
4. No practicable urethral plate

Surgical repair of complex penile urethral stricture

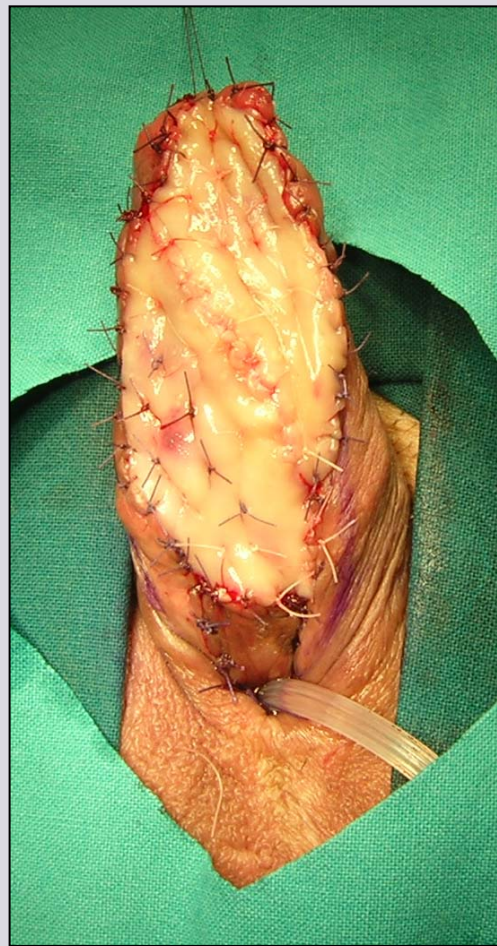
Staged repair





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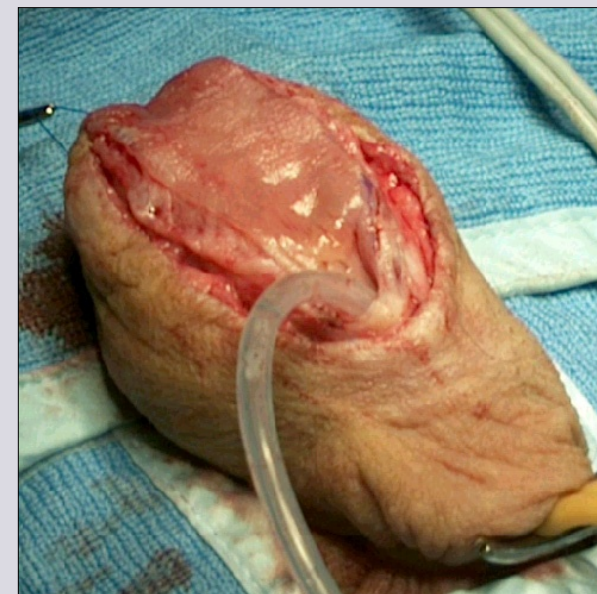
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Second stage



Second stage



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39% of patients require new surgical revision of the grafted area

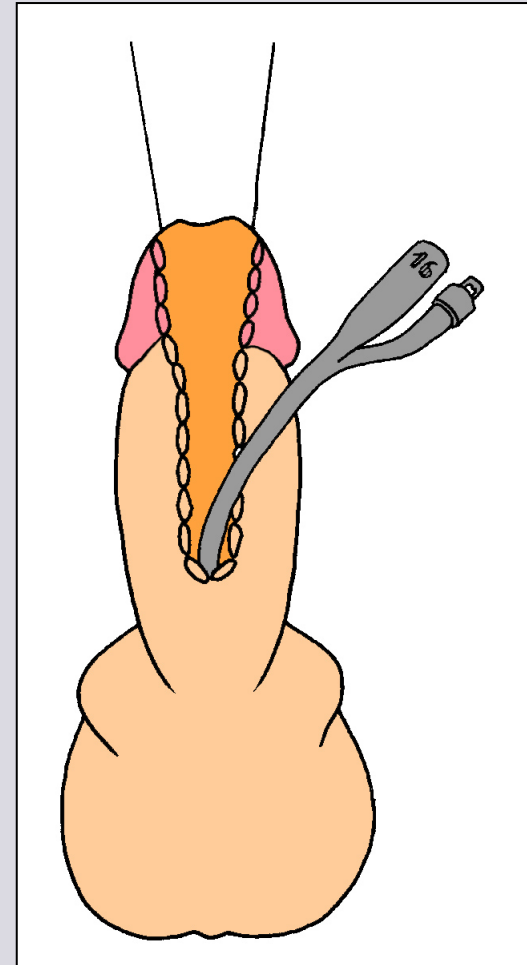
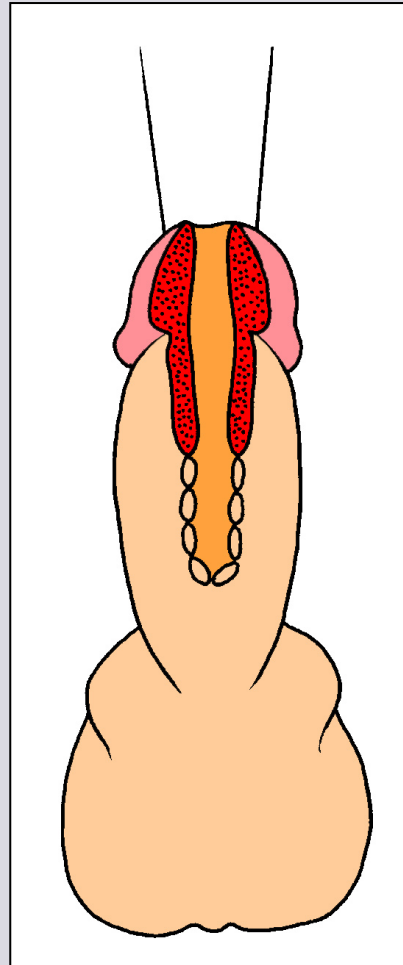
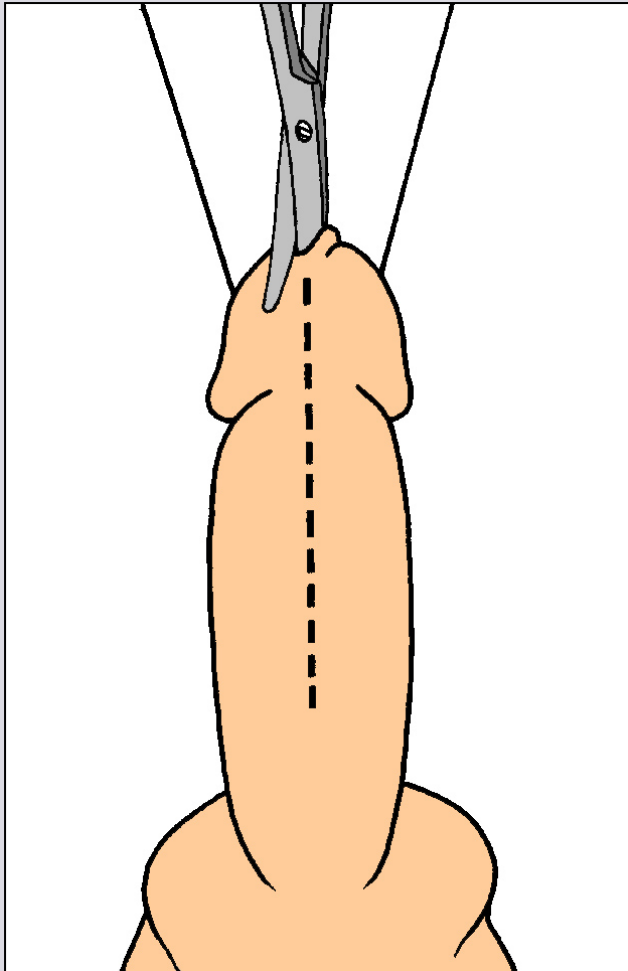


Eur Urol 2006; 49: 887-895

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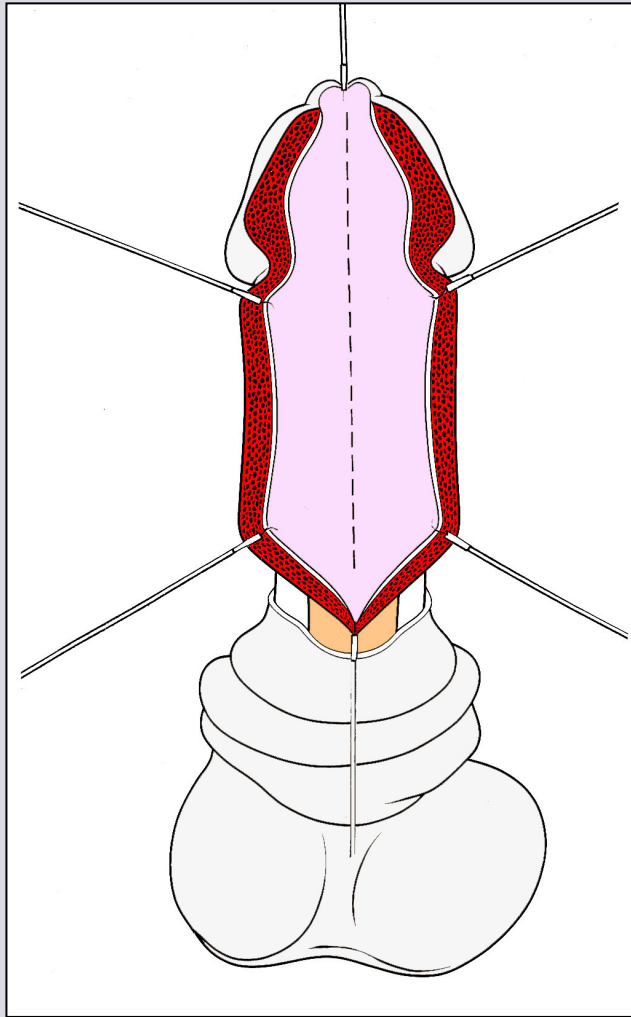
First stage – Johanson's urethroplasty



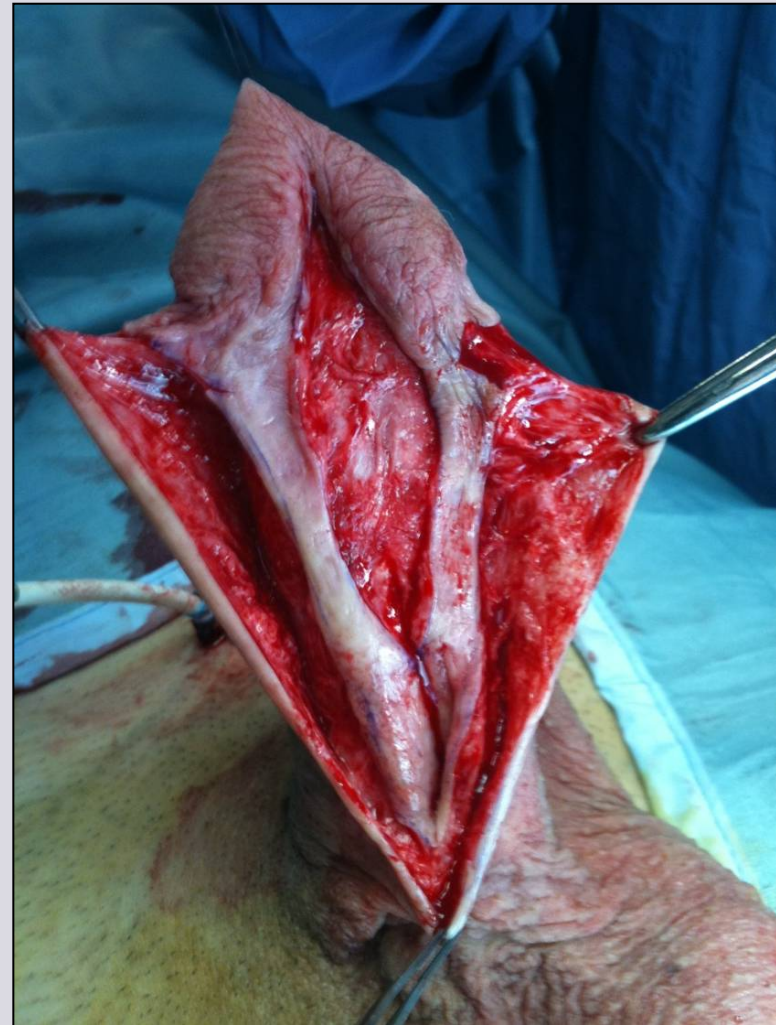
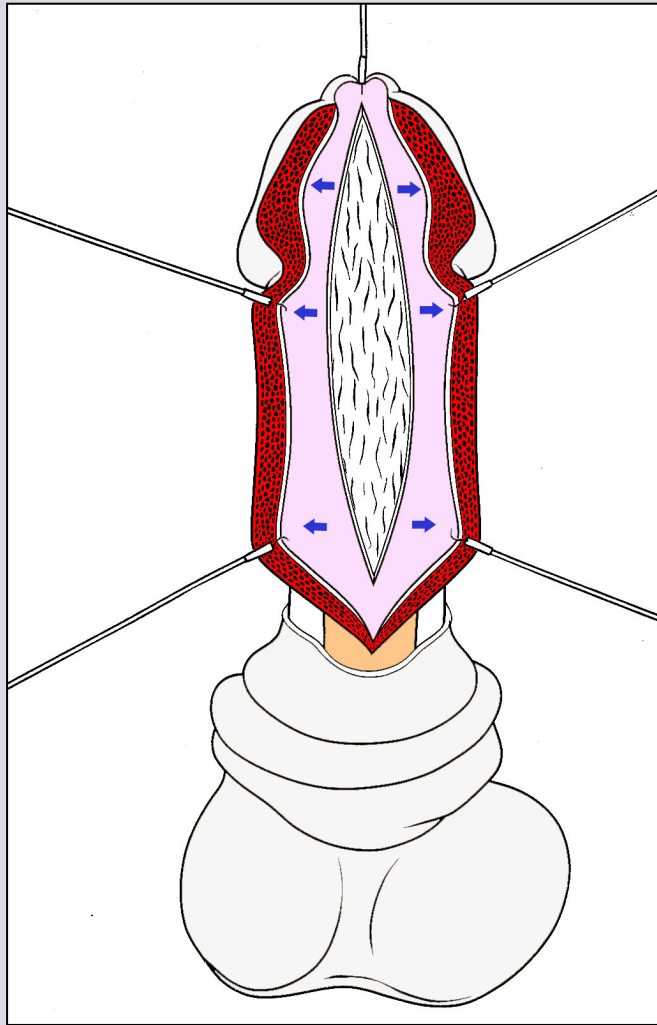
First stage – Johanson's urethroplasty



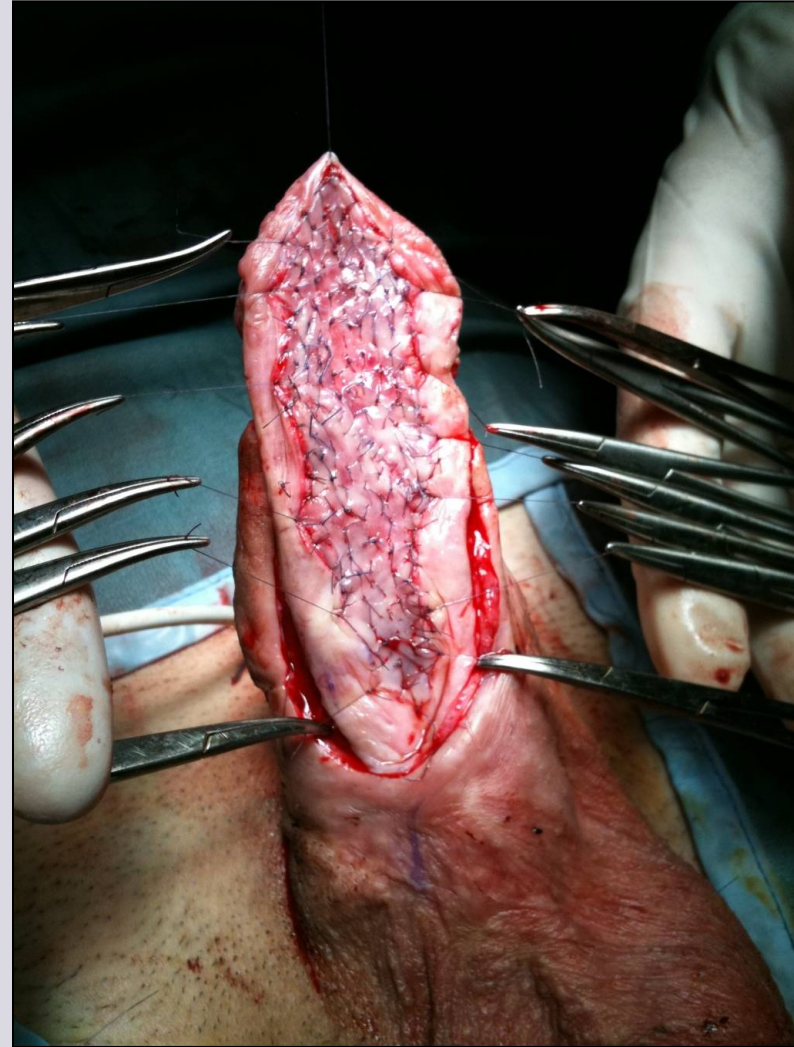
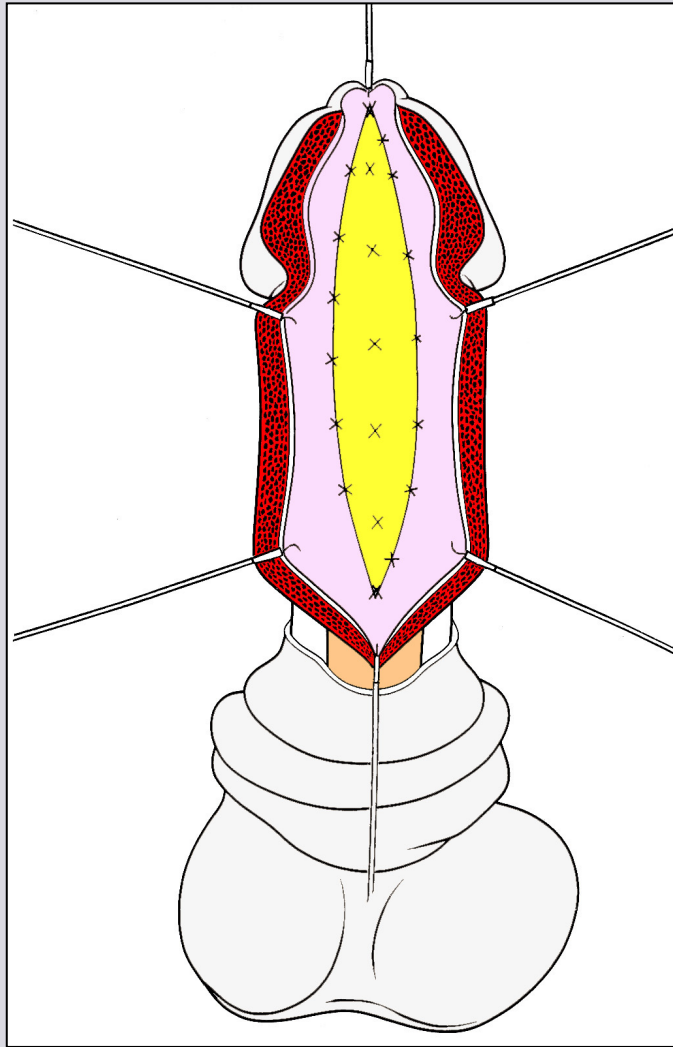
Second stage – Oral graft inlay urethroplasty



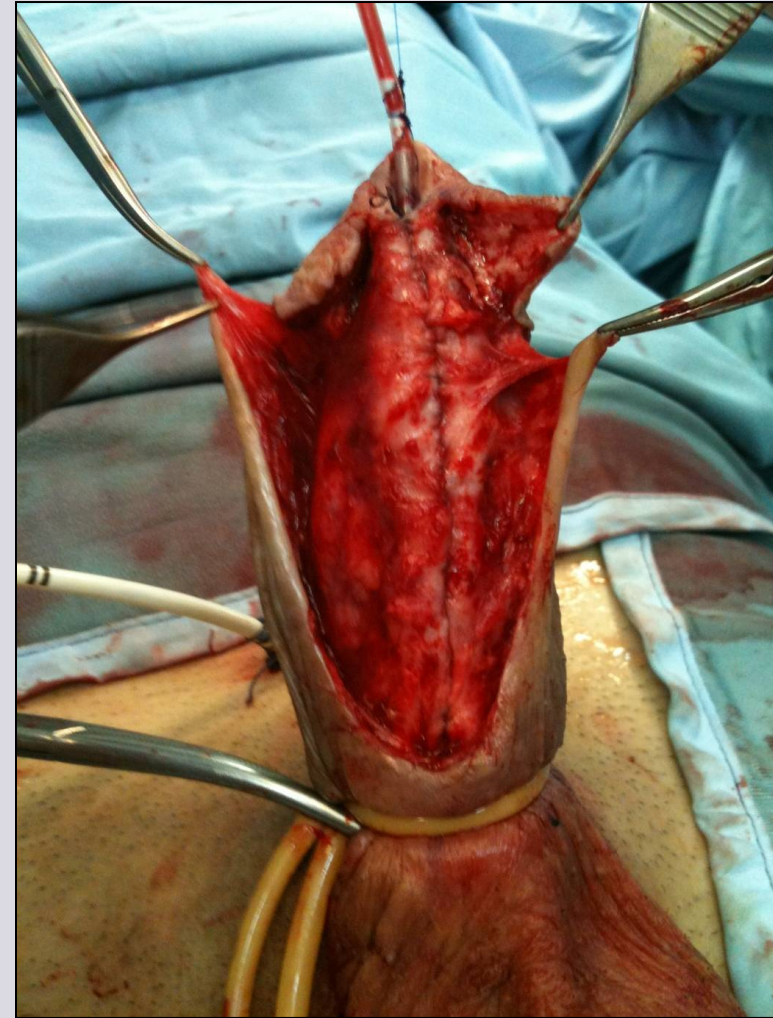
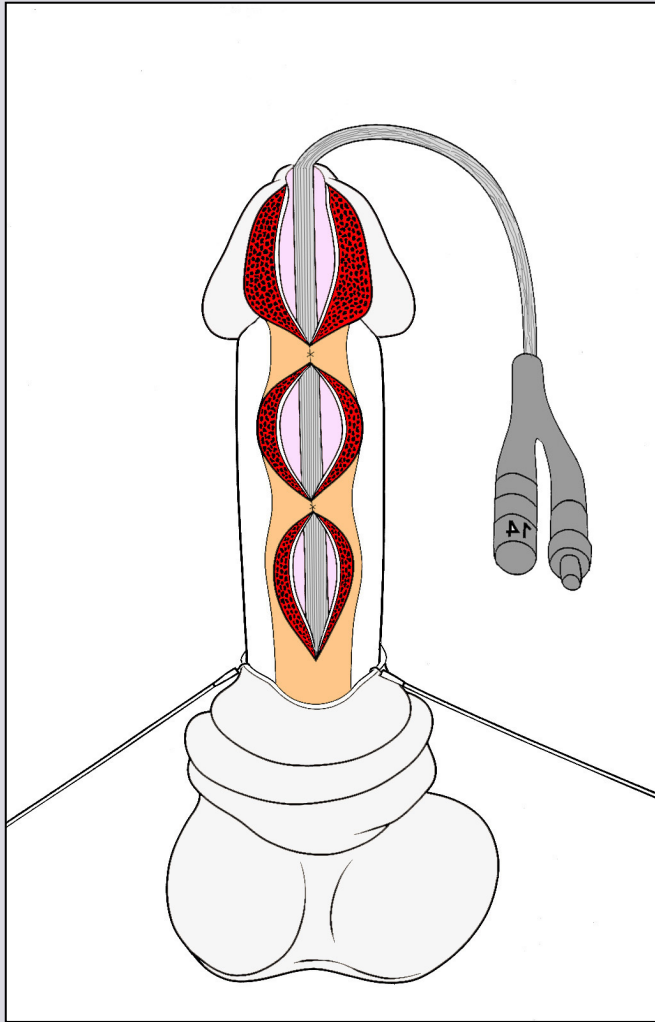
Second stage – Oral graft inlay urethroplasty



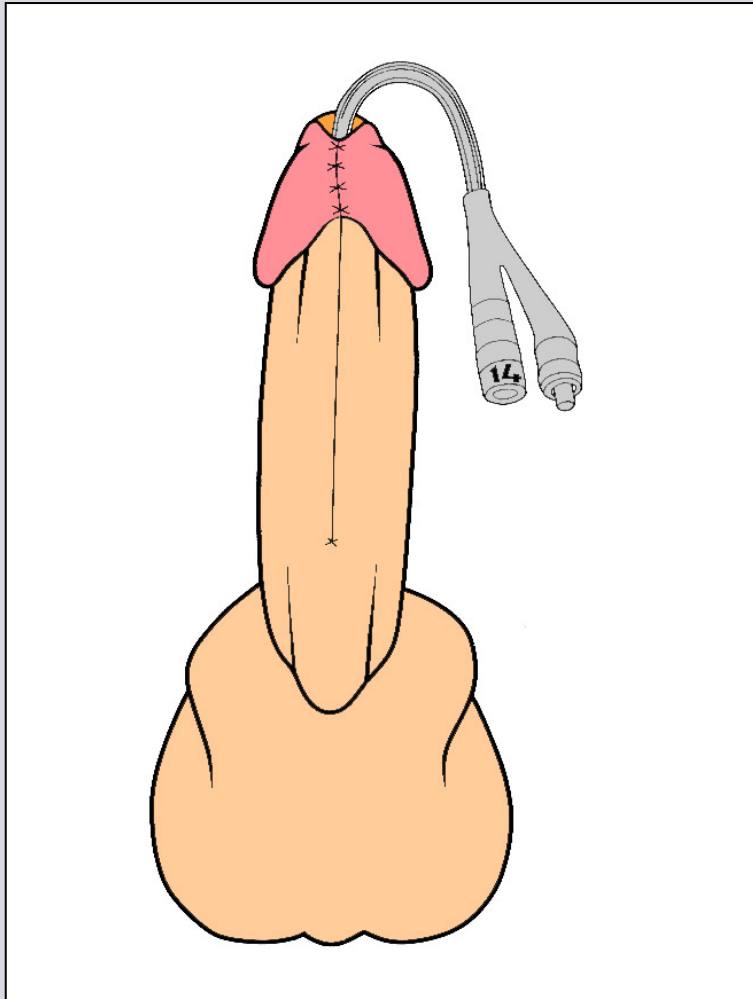
Second stage – Oral graft inlay urethroplasty



Second stage – Oral graft inlay urethroplasty



Second stage – Oral graft inlay urethroplasty



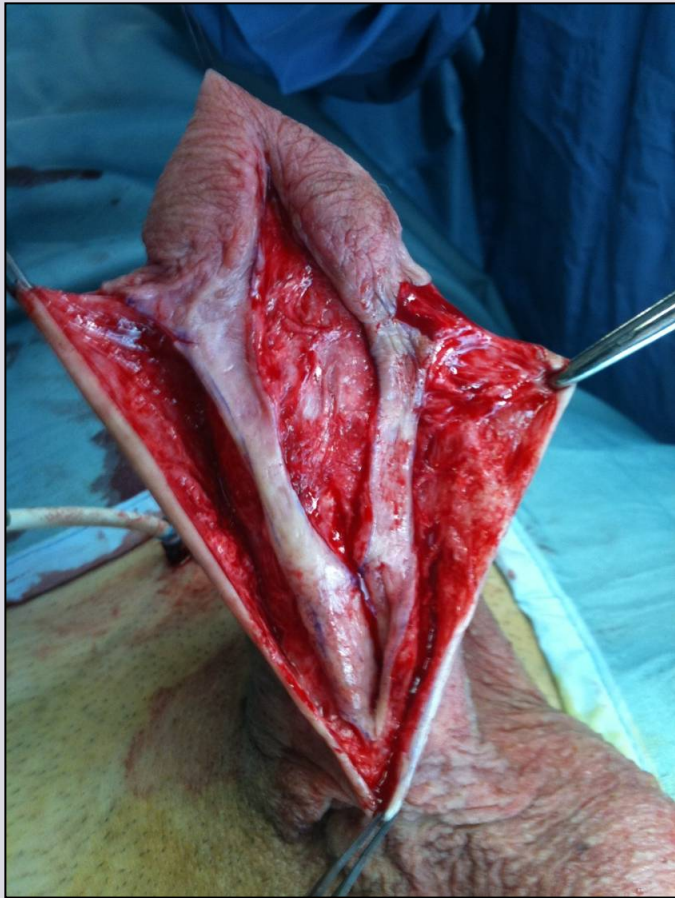
Second stage – Oral graft inlay urethroplasty





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Conclusions

In an era that offers robotic surgery, the time to change our approach to urethral surgery has arrived.

- ❖ **Increase the use of minimally invasive techniques in urethroplasty, reducing the incidence of complications and improving patient quality of life.**

How to learn penile urethral surgery?

To be read !



ACTA CHIRURGICA SCANDINAVICA

SUPPLEMENTUM 176

FROM THE DEPARTMENT OF SURGERY (HEAD: PROFESSOR J. HELLSTRÖM),
KAROLINSKA SJUKHUSET AND THE DEPARTMENT OF HISTOLOGY (HEAD:
PROFESSOR G. HÄGGQVIST) KAROLINSKA INSTITUTET, STOCKHOLM, SWEDEN.

RECONSTRUCTION
OF THE MALE URETHRA IN STRICTURES

*Application of the Buried Intact
Epithelium Technic*

By

BENGT JOHANSON

STOCKHOLM 1953

Acta Chirurgica Scandinavica, 1953: supplementum 16; 4 - 89

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History of urethral surgery

Previous urethroplasty in strictures

Dugas – 1836

Koenig – 1899

Russell – 1914

MacGowan - 1923

Young – 1926

Watson – 1935

Wells - 1941

Marion - 1942

Attwater – 1943

Stewart - 1948

Badenoch – 1950

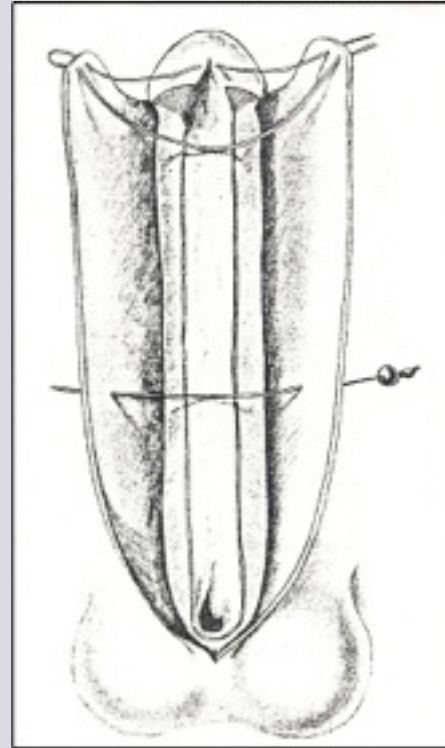
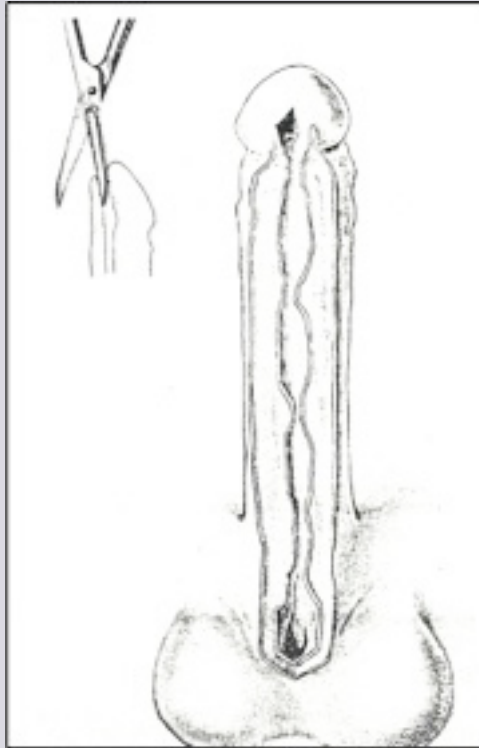
History of urethral surgery

The Principle of the Buried Strip of Intact Epithelium

DUPLAY (1880) – MARION (1942) – DENIS BROWNE (1949)

*“ One of the basic principles in reconstruction of a urethra
consists in the formation of an epithelial tube
from a buried strip of skin “*

The Operative Technic



ONE-STAGE URETHROPLASTY ¹

By AHMAD ORANDI

From The John W. Draper Research Laboratory, Fergus Falls, Minnesota, U.S.A.

British Journal of Urology, 1968; 40: 717 - 719

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Fig. 1

Fig. 2



Fig. 3

Fig. 4

Fig. 5

- Fig. 1.—Outline of a penile skin graft.
 Fig. 2.—Outline of a penile skin graft.
 Fig. 3.—The skin graft is opened.
 Fig. 4.—An incision skin graft is made.
 Fig. 5.—The skin graft is being covered and secured in place.

0022-5347/79/1213-0282\$02.00/0

THE JOURNAL OF UROLOGY

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FREE FULL THICKNESS SKIN GRAFT URETHROPLASTY: CURRENT TECHNIQUE

PATRICK C. DEVINE, JAMES R. WENDELKEN* AND CHARLES J. DEVINE, JR.

*From the Department of Urology, Eastern Virginia Medical School, Medical Center Hospitals, DePaul Hospital and Children's Hospital of
the Kings Daughters, Norfolk, Virginia*

Journal of Urology, 1979: 121; 282 - 285

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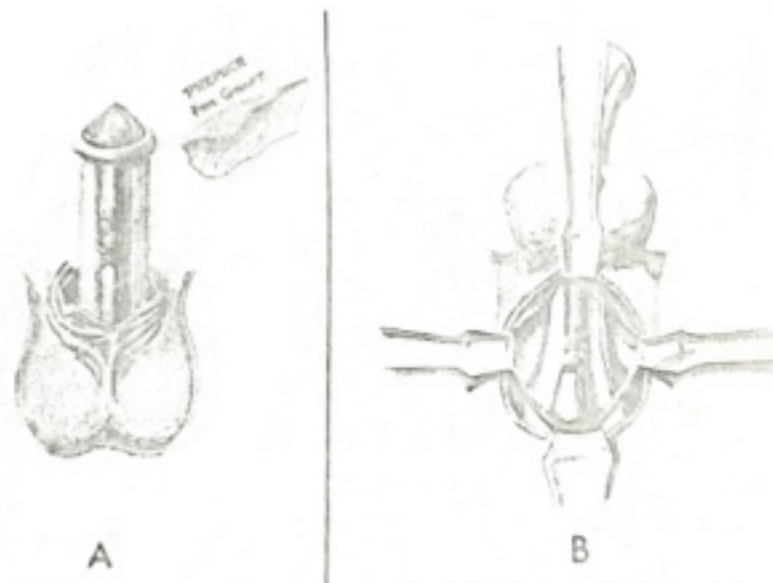
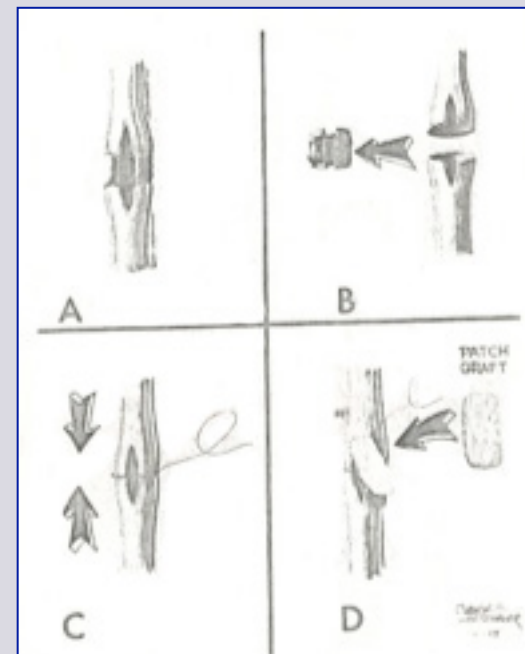
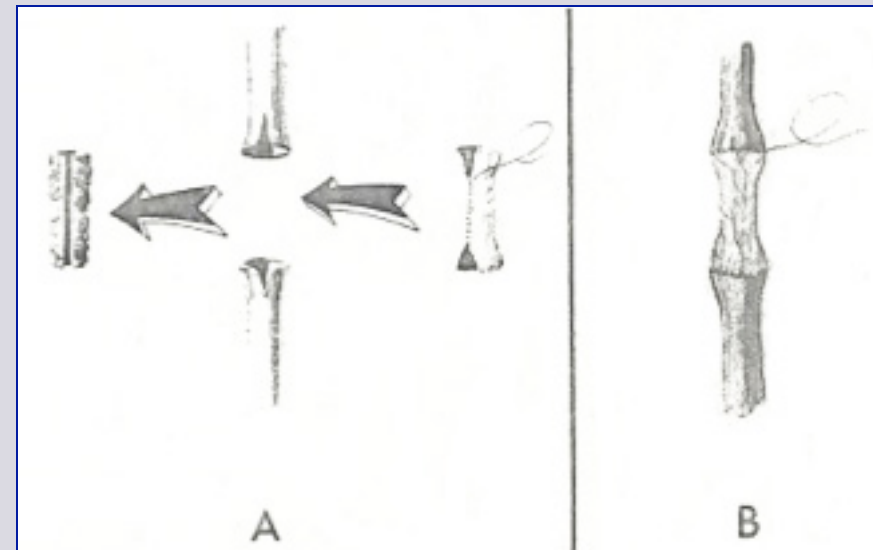
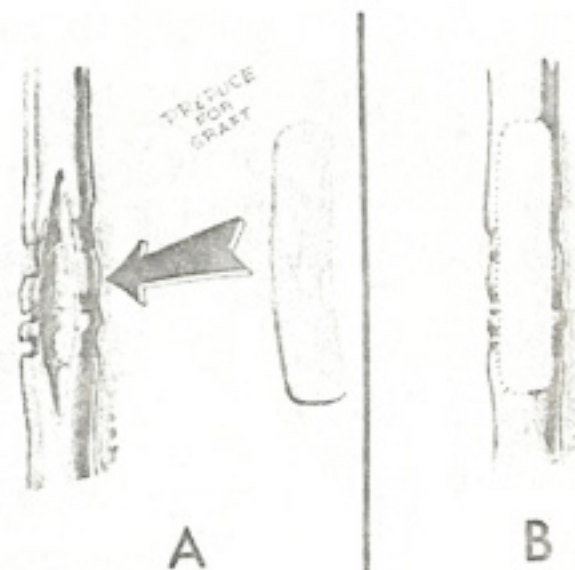


FIG. 1. Incisions. A, circumcised incision. B, perineal incision



Evolution of one-stage penile urethroplasty

DORSAL FREE GRAFT URETHROPLASTY FOR URETHRAL STRICTURE BY VENTRAL SAGITTAL URETHROTOMY APPROACH

HARI S. ASOPA, MUKUL GARG, GOVIND G. SINGHAL, LAKHAN SINGH, JYOTI ASOPA, AND
ARCHANA NISCHAL

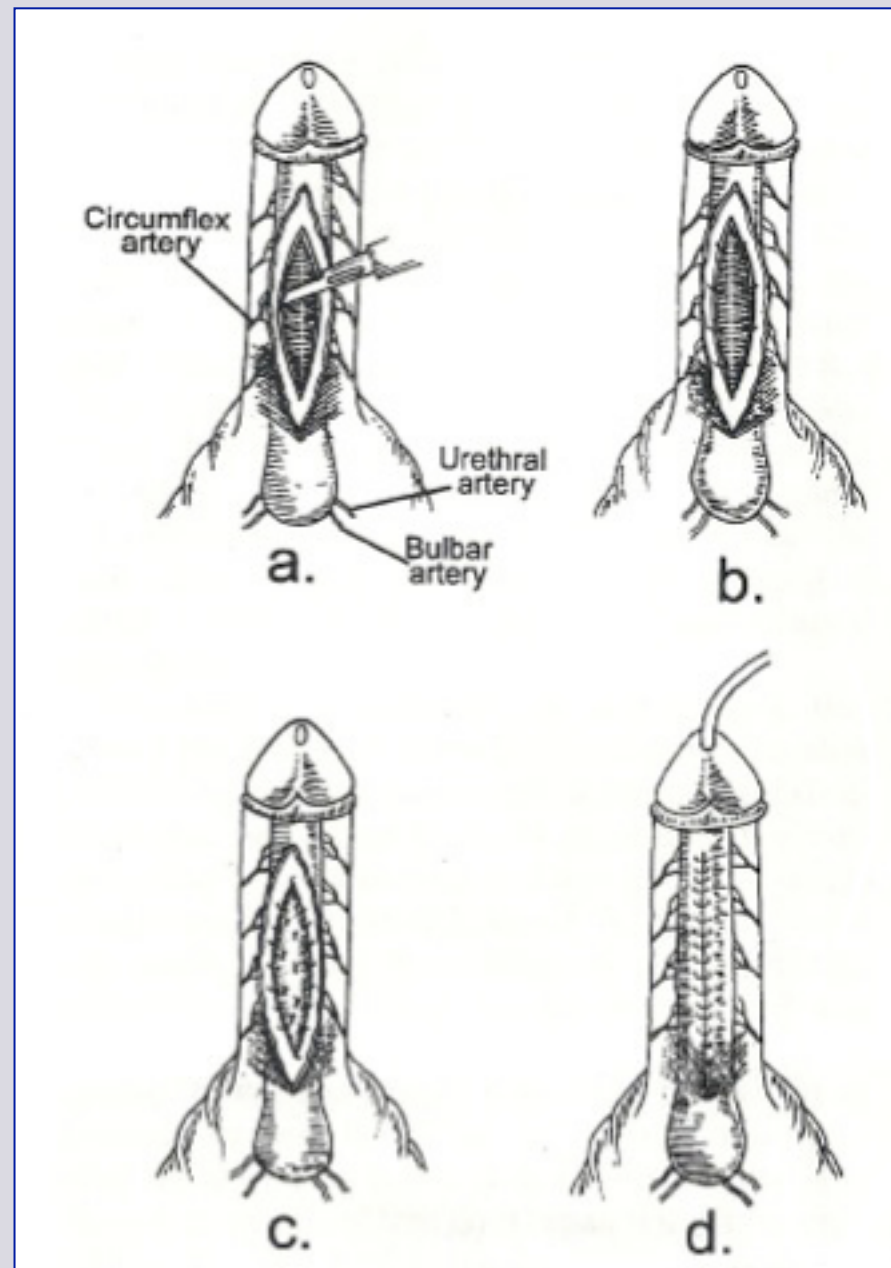
Urology, 2001; 58; 657 - 659

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The surgical techniques we use today for the repair of urethral strictures are simply the evolution of techniques described many centuries ago by our predecessors, ingenious pioneers of urethral reconstruction techniques.

Knowledge of the work of these pioneers is fundamental for any surgeon interested in reconstruction of the male urethra.



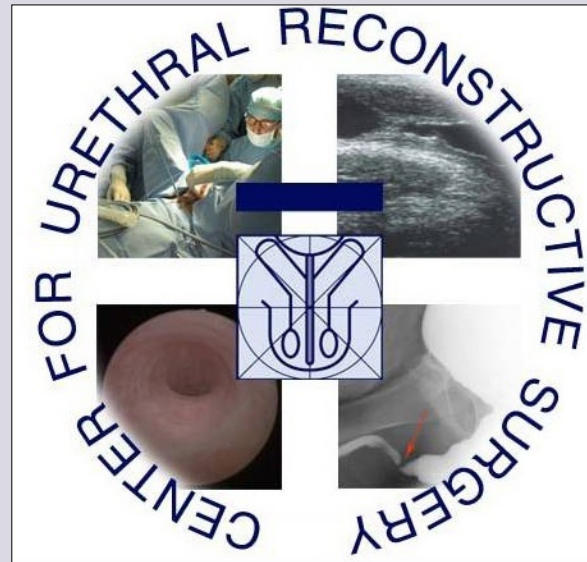
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**Next month this lecture will be fully available on our
websites**

Thank you !

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