

CENTER FOR RECONSTRUCTIVE URETHRAL SURGERY



GUIDO BARBAGLI, M.D.
Arezzo - Italy

e-mail: info@urethralcenter.it

Websites: www.uretra.it
www.urethralcenter.it



e-mail: info@urethralcenter.it

Websites: www.uretra.it
www.urethralcenter.it

History and Evolution of the Surgical Techniques for Urethral Stricture Repair



Kirill Mikhailovich Sapezhko (1857 – 1928)

Kiev – Odessa - Ukraine

e-mail: info@urethralcenter.it

Websites: www.uretra.it
www.urethralcenter.it



Къ лѣченію дефектовъ уретры путемъ пересадки слизистой оболочки¹⁾.

Прив.-доц. К. Санъжко.

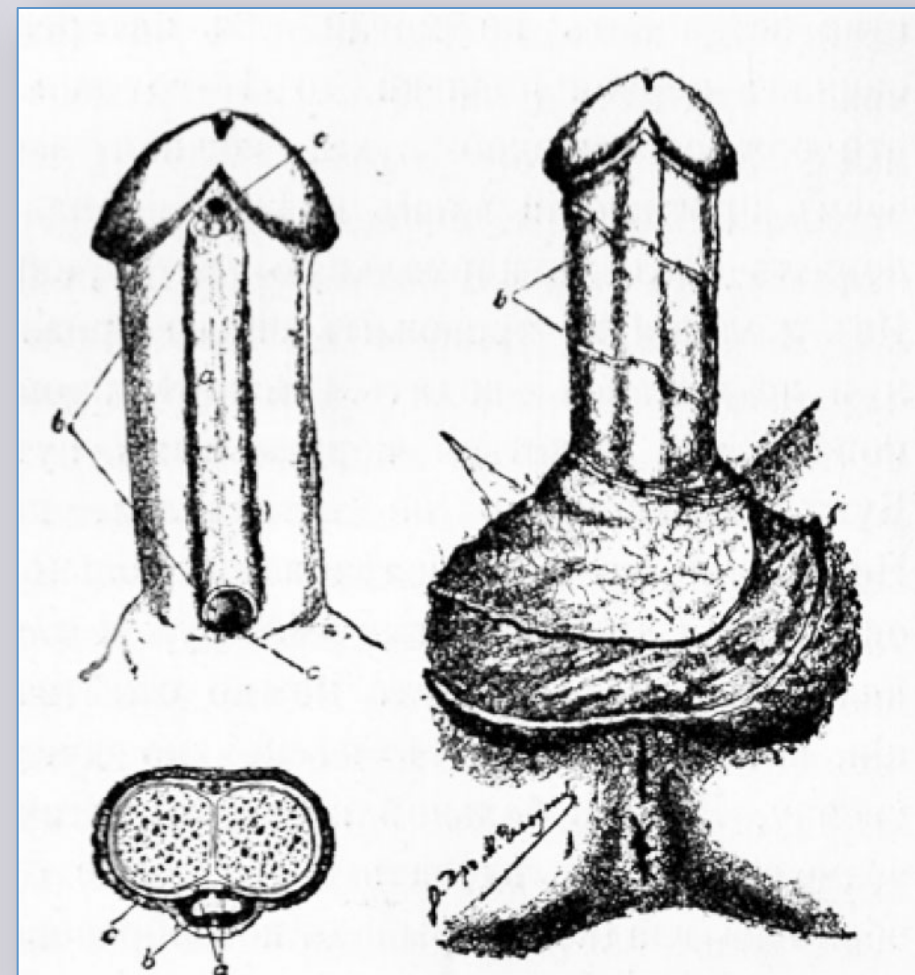
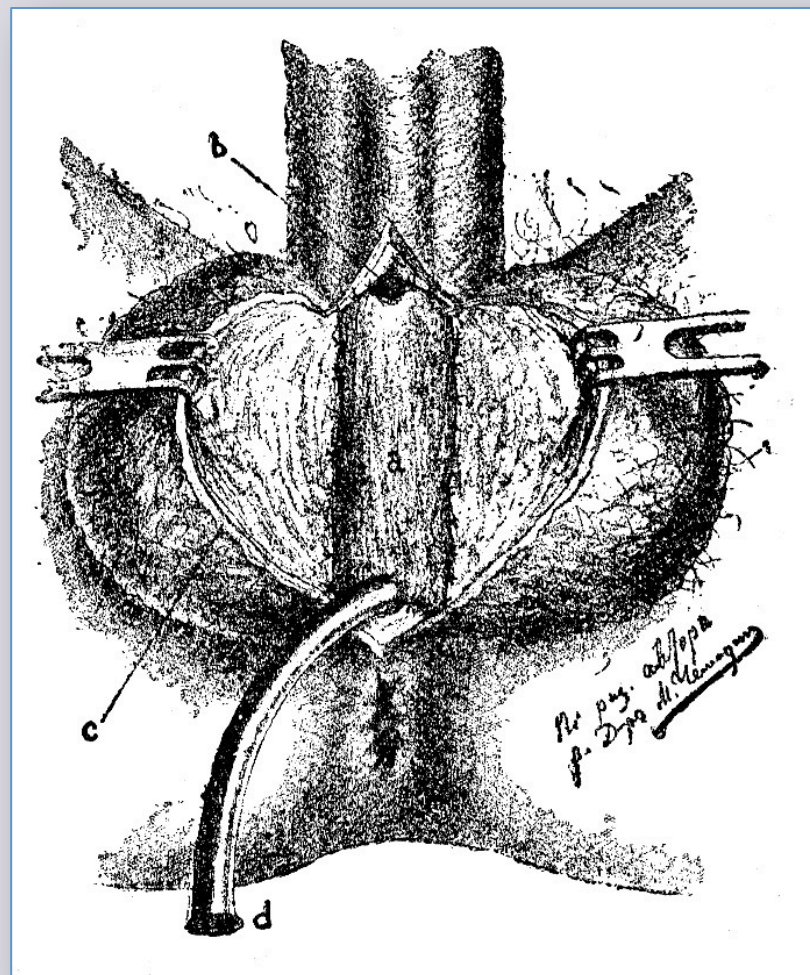
Несмотря на успѣхи современной хирургіи, лѣченіе крупныхъ дефектовъ мочепускательнаго канала до сихъ поръ остается еще вопросомъ мало разработаннымъ. А между тѣмъ, уже благодаря одному тому, что клиницисту нерѣдко приходится встрѣчать эту форму болѣзни, вопросъ о лѣченіи дефектовъ уретры имѣетъ большія права на наше вниманіе.

Мы имѣемъ двѣ главныхъ группы дефектовъ уретры: а) врожденные, куда относятся суженія, заращенія канала, гипоспадія, эписпадія, и б) приобретенные. Послѣдніе являются слѣдствіемъ многихъ и весьма разнообразныхъ причинъ; разнохарактерныя травмы, но чаще язвенный и гангренозный процессъ даютъ безконечное число разновидностей этого заболѣванія, чѣмъ такъ богатъ казуистическій матеріалъ спеціальной литературы.

Въ тѣхъ случаяхъ, гдѣ мы имѣемъ полное отсутствіе слизистой оболочки мочепуска. канала на извѣстномъ ея протяженіи, и гдѣ имѣется, слѣдовательно, полная непроходимость канала, — мы находимся почти въ полной невозможности возстановить нормальную проходимость канала, и образованіе надежнаго искусственнаго свища обыкновенно является цѣлью нашего вмѣшательства; но даже и радикальное лѣченіе нѣкоторыхъ формъ суженій, т. е. такихъ дефектовъ уретры, гдѣ отсутствуетъ только часть слизистой оболочки, выстилающей *окружность* канала, нерѣдко представляетъ большія затрудненія. Благодаря блестящей разработкѣ растяженія, а также внутренней и наружной уретротоміи, въ настоящее время мы съ большимъ успѣхомъ можемъ излѣчивать даже самыя узкія суженія, но подъ условіемъ, чтобы длина ихъ не имѣла очень большого протяженія. Но разъ длина дефекта слизистой возрастаетъ, въ той же степени возрастаютъ и затрудненія въ лѣченіи подобныхъ суженій и, наконецъ, коренное излѣченіе обширныхъ мозолистыхъ суже-

¹⁾ Сообщено на международномъ съѣздѣ въ Римѣ.

Chirurgicheskaya letopis; 1894; 4(5): 84-92



Kirill Mikhailovich Sapezhko

“I am deeply convinced that tissue transposition in the future will be widely used and will become a fruitful acquisition in surgery”



Chirurgicheskaya letopis; 1894; 4(5): 84-92

THE USE OF BUCCAL MUCOSA PATCH GRAFT IN THE MANAGEMENT OF ANTERIOR URETHRAL STRICTURES

A. W. EL-KASABY, M. FATH-ALLA, A. M. NOWEIR, M. R. EL-HALABY, W. ZAKARIA AND
M. H. EL-BEIALY

From the Department of Urology, Ain-Shams University, Cairo, Egypt

ABSTRACT

We describe our experience with 20 patients undergoing 1-stage correction of an anterior urethral stricture using a buccal mucosa patch graft. This technique was used for treatment of short strictures (1 to 2 cm.) that usually required a 2 to 4 cm. repair, making excision and end-to-end anastomosis impractical. Results were excellent in 18 patients, while 2 required revision for recurrent stricture. Urethrocutaneous fistulas and diverticulas were not encountered in our series. The buccal mucosa patch graft is hairless and, therefore, it can tolerate trauma and infection adequately. This technique represents a reasonable alternative when penile skin cannot be used or endoscopic manipulation is not indicated.

J Urol 1993; 149: 276-278



Abdel W. El-Kasaby
Cairo - Egypt

e-mail: info@urethralcenter.it

Websites: www.uretra.it
www.urethralcenter.it

Ventral onlay graft urethroplasty

WHEN AND HOW TO USE BUCCAL MUCOSAL GRAFTS IN ADULT BULBAR URETHROPLASTY

ALLEN F. MOREY AND JACK W. McANINCH

ABSTRACT

Objectives. To evaluate the efficacy of buccal mucosa in the repair of adult urethral stricture disease, we report our experience with its use as a nontubularized onlay graft during bulbar urethral reconstruction.

Methods. From June 1993 to January 1996, 75 men underwent anterior urethral reconstruction for stricture disease. Single-stage urethroplasty with an onlay patch graft of buccal mucosa was performed in 13 patients with complex, refractory strictures of the bulbar urethra. In all cases, a two-team approach was used in which one team harvested the graft from the mouth while the perineal team simultaneously exposed and calibrated the stricture.

Results. The length of buccal mucosa ranged from 3.5 to 17 cm (average length 6.2). In 8 patients, other reconstructive techniques were used concomitantly, including fasciocutaneous penile flap or stricture excision and primary anastomosis, depending on the length and severity of the scarred area. Median follow-up time was 18 months. Excellent results were obtained in all 13 patients, and none has required urethral dilation or instrumentation subsequently. Operative time was significantly less than with other forms of substitution urethroplasty.

Conclusions. Excellent results can be expected when buccal mucosa is used for urethral substitution in men with refractory bulbar strictures. For patients with long or dense strictures, buccal mucosal grafts may easily be combined with other reconstructive techniques. In patients with less complex stricture disease, the reduced operative time of this two-team approach may be beneficial. UROLOGY 48: 194-198, 1996.

Urology 1996; 48: 194-198



Jack W. McAninch
San Francisco - USA

e-mail: info@urethralcenter.it

Websites: www.uretra.it
www.urethralcenter.it

Dorsal onlay graft urethroplasty

DORSAL FREE GRAFT URETHROPLASTY

GUIDO BARBAGLI, CESARE SELLI, ALDO TOSTO AND ENZO PALMINTERI

From the Department of Urology, University of Florence, Florence, Italy

ABSTRACT

Purpose: Dorsal free graft urethroplasty was performed to reduce the incidence of urethrocele.

Materials and Methods: We treated 12 patients with penile and 13 with bulbous strictures. Of the 13 patients with a bulbous stricture 6 received a dorsally placed tube graft and 7 received a patch graft.

Results: Temporary fistulas were seen on postoperative urethrography in 5 cases but they all resolved spontaneously. At a mean followup of 35.8 months clinical and radiological findings were excellent in 23 cases and good in 2. No signs of graft weakening, such as post-void dribbling or diminished ejaculation, were apparent.

Conclusions: The use of free skin grafts for urethral reconstruction is anatomically healthier in the dorsal than in the ventral position.

J Urol 1996; 155: 123-126



Guido Barbagli
Arezzo - Italy

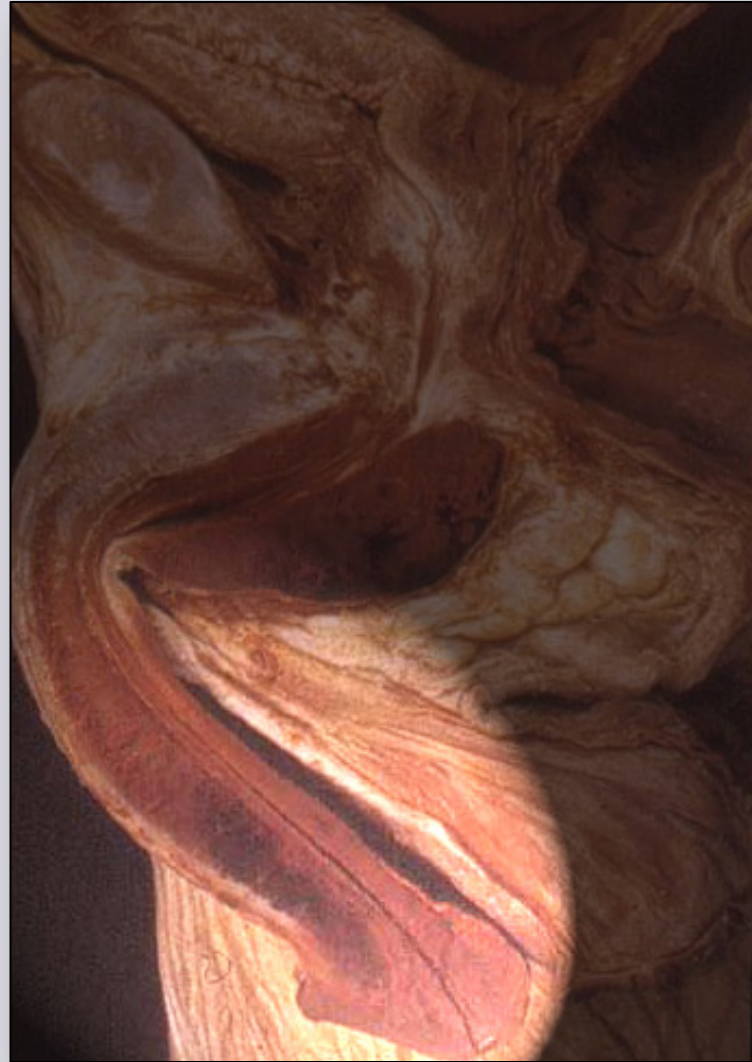
History of the Surgical Techniques for Urethral Stricture Repair (from 1894 to 1996)

- **The use of oral mucosa**
- **The “dorsal” approach to urethral lumen**

Evolution of the Surgical Techniques for Urethral Stricture Repair (from 2001 to 2014)

- **Description of new one-stage or two-stage surgical techniques based on the “dorsal” approach to urethral lumen**

Penile urethra



e-mail: info@urethralcenter.it

Websites: www.uretra.it
www.urethralcenter.it

One-stage penile urethroplasty



Prof. Hari S. Asopa
Department of Surgery – Asopa Hospital and Research Centre
Agra - India

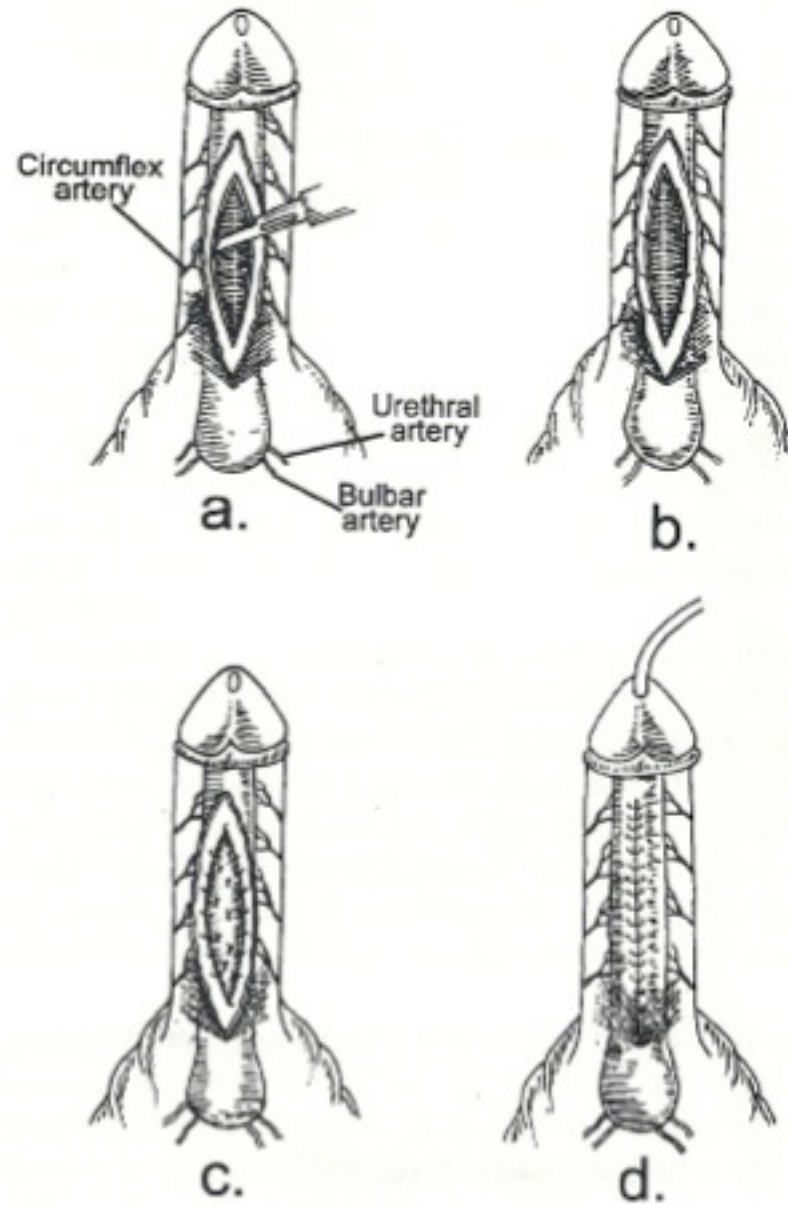
e-mail: info@urethralcenter.it

Websites: www.uretra.it
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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

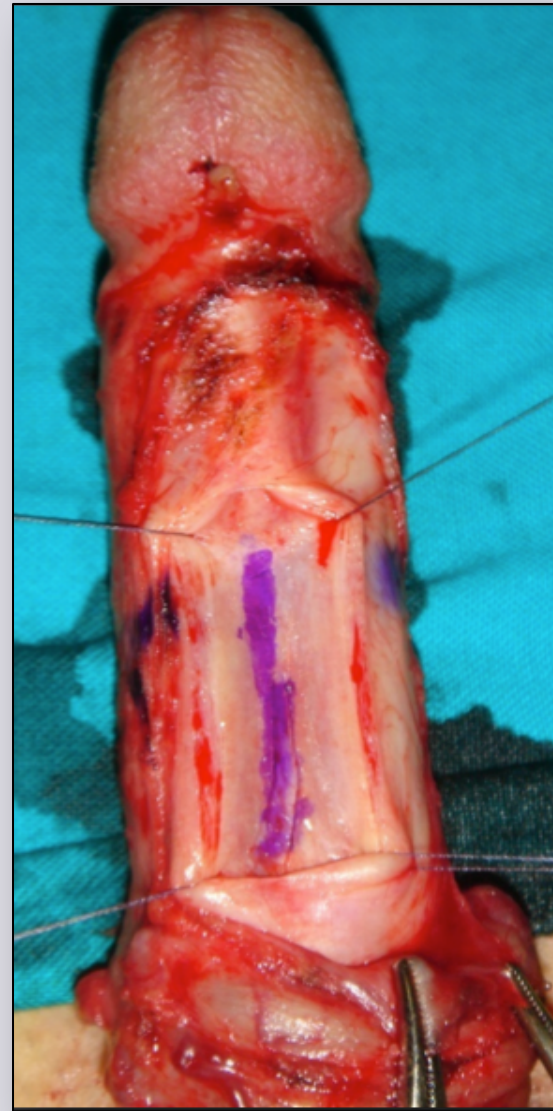
Urology, 2001: 58; 657-659



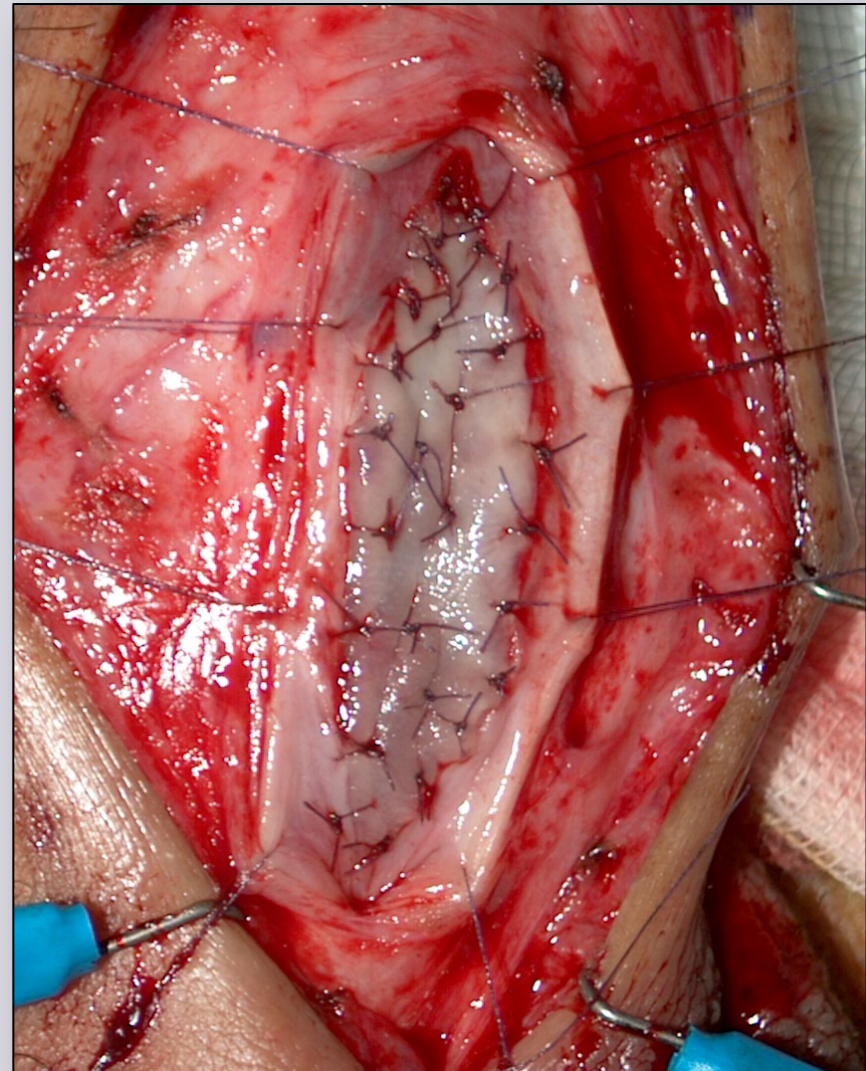
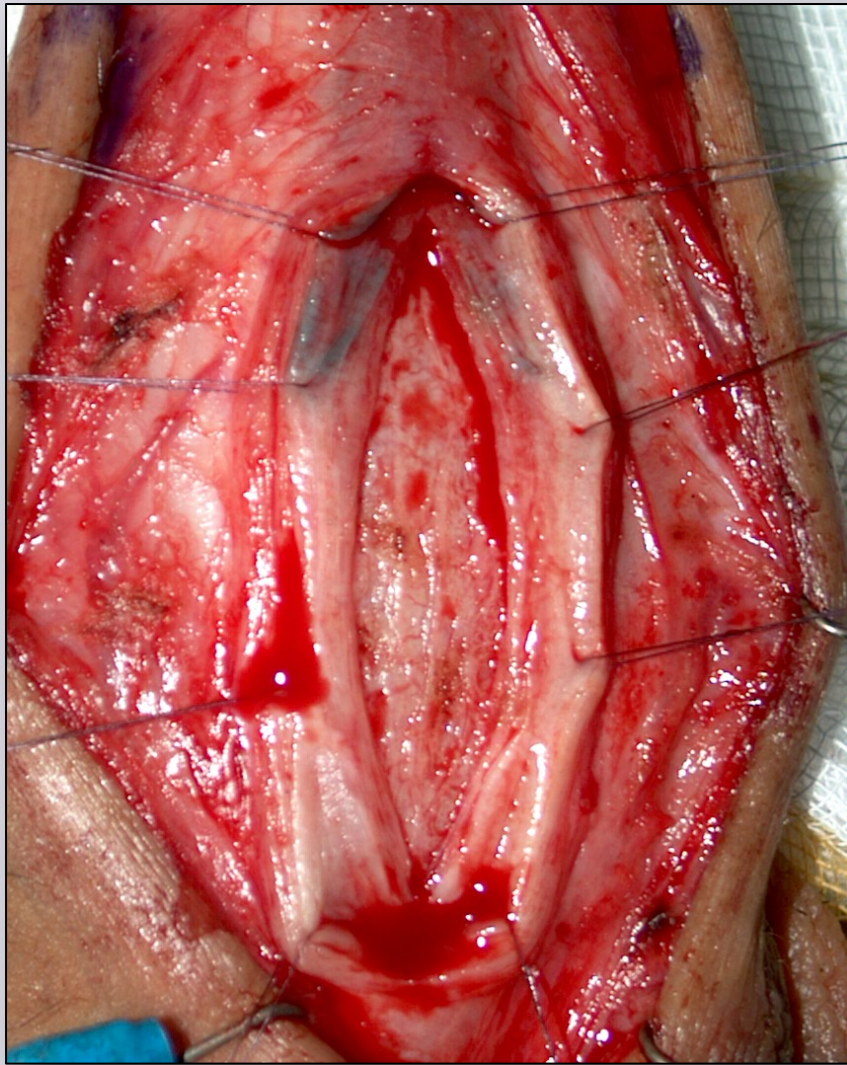
Asopa's graft inlay technique



Asopa's graft inlay technique



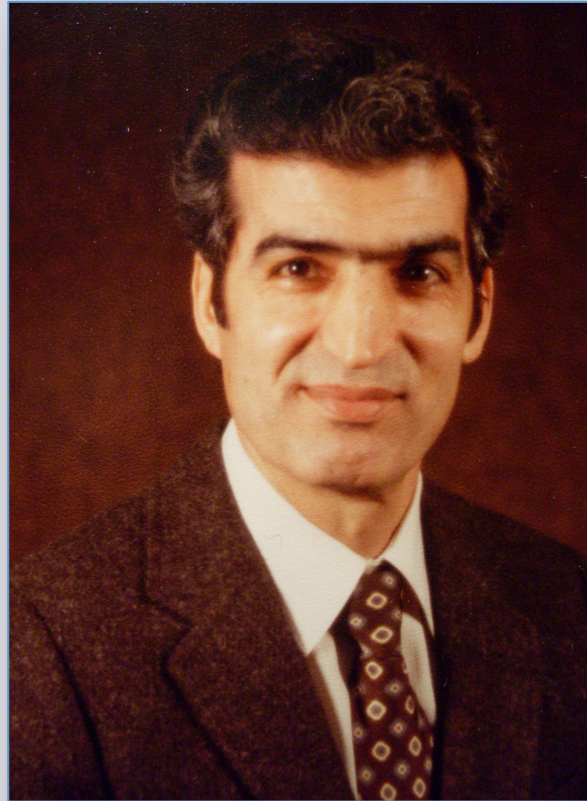
Asopa's graft inlay technique



Asopa's graft inlay technique



Orandi's skin flap penile urethroplasty



Ahmad Orandi, M.D.
The John W. Draper Research Laboratory
Fergus Falls – Minnesota - USA

e-mail: info@urethralcenter.it

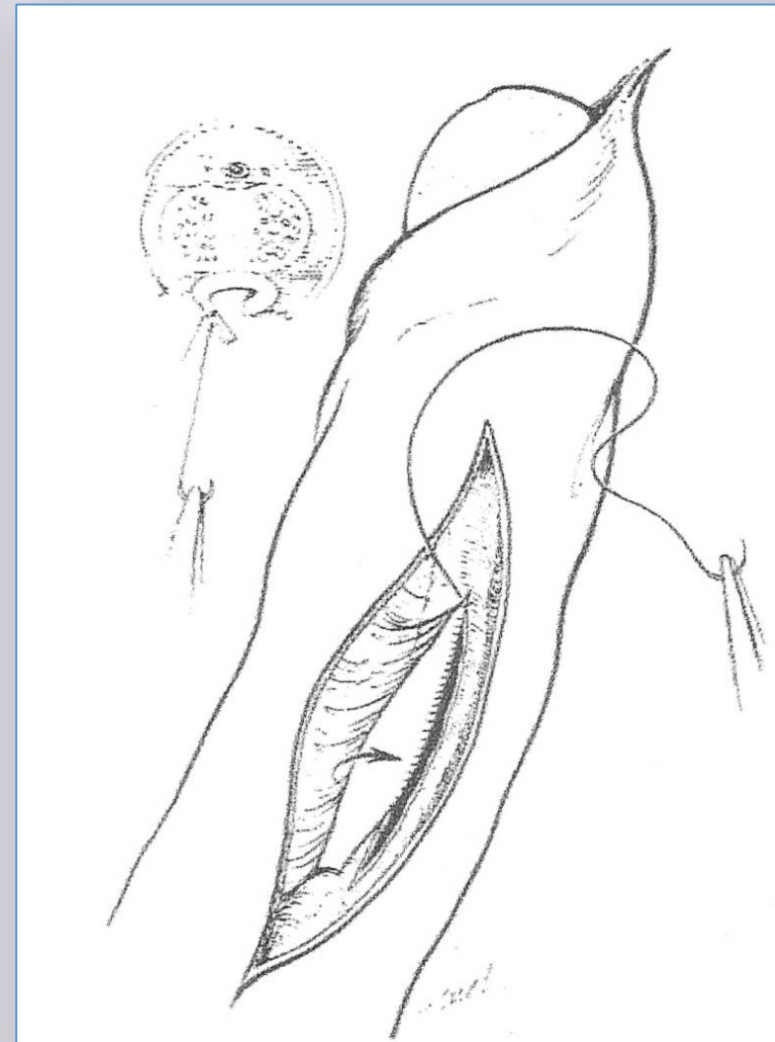
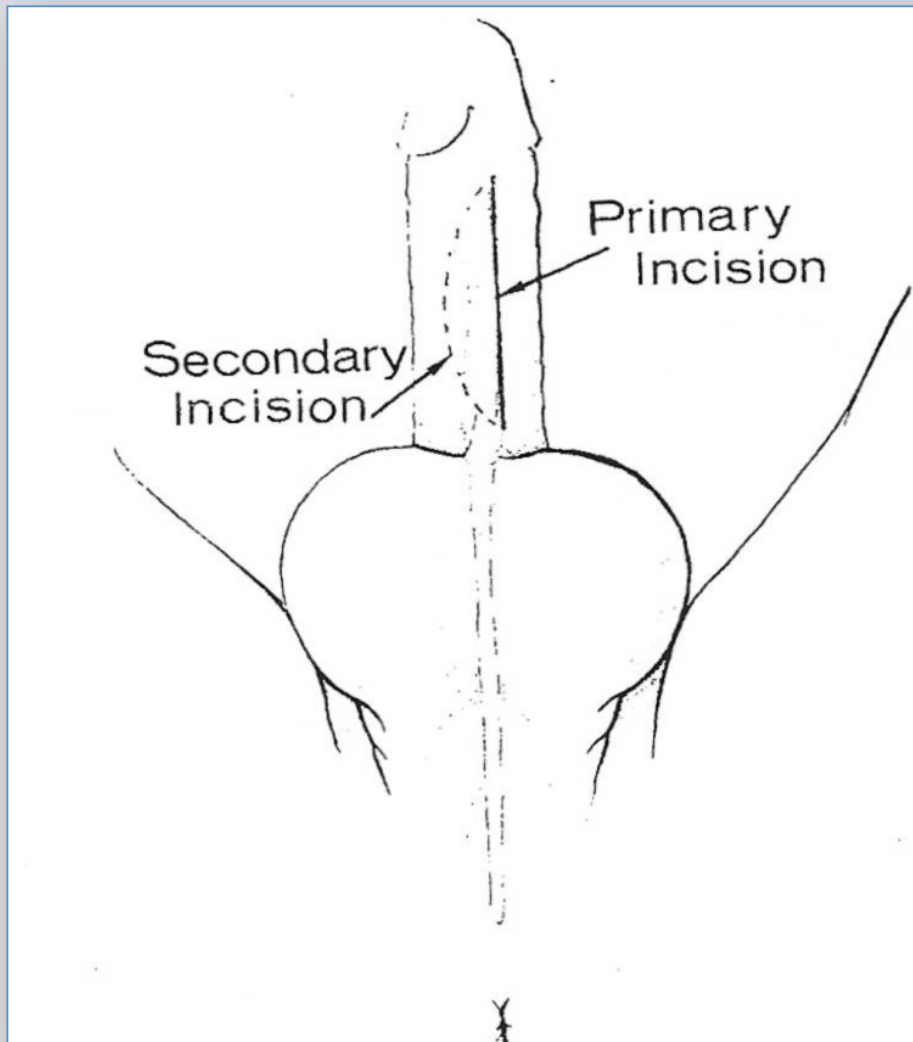
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ONE-STAGE URETHROPLASTY¹

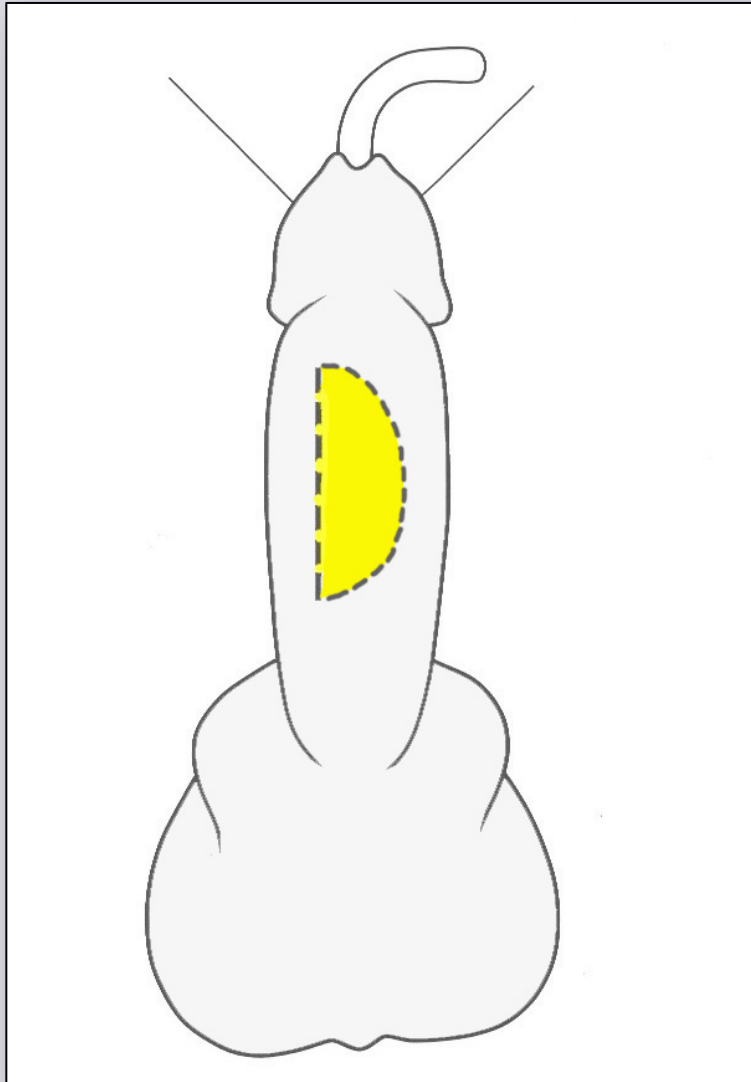
By AHMAD ORANDI

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

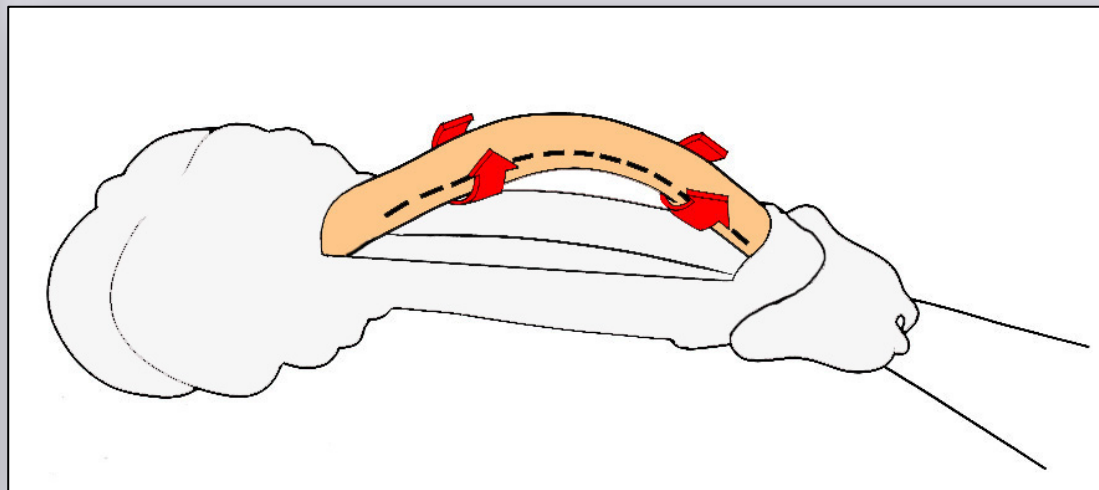
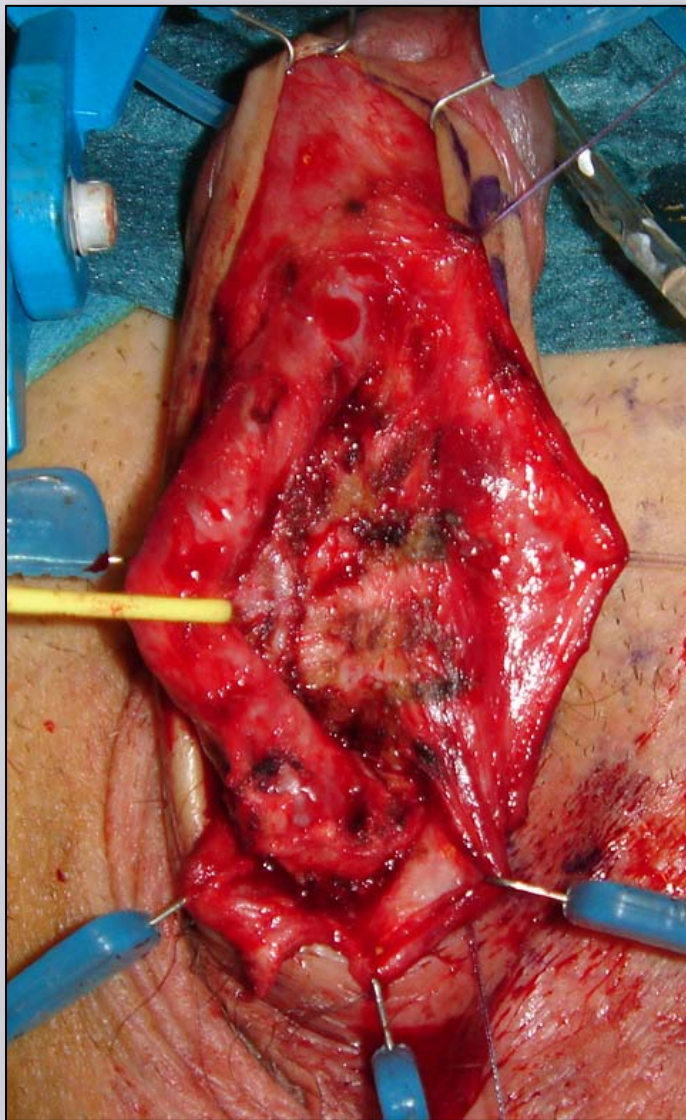
Br J Urol 1968, 40: 717-719



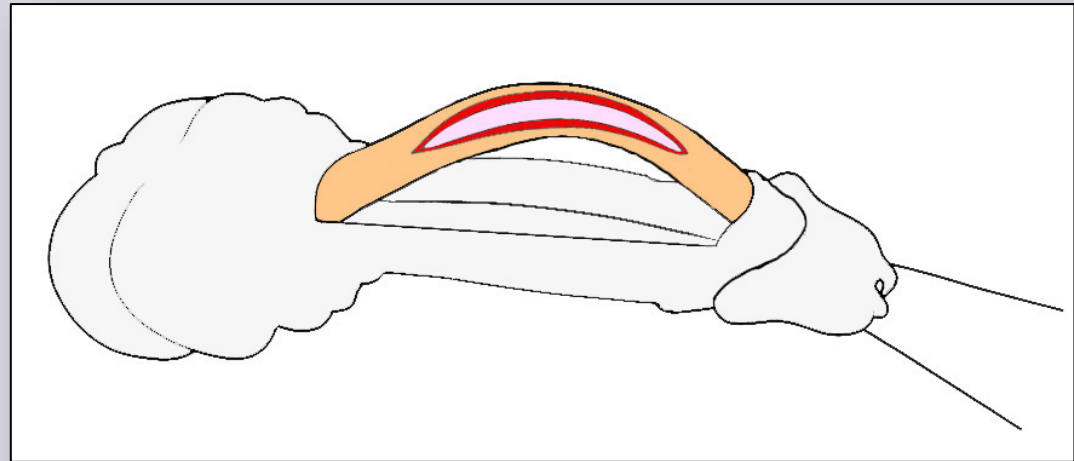
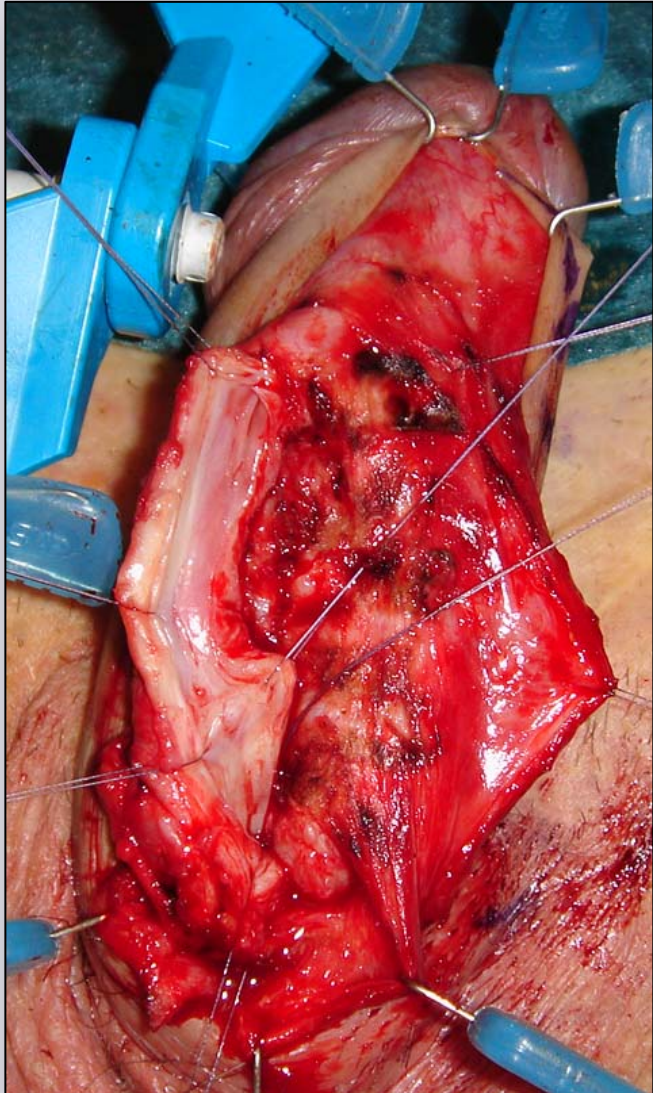
Modified Orandi's skin flap technique



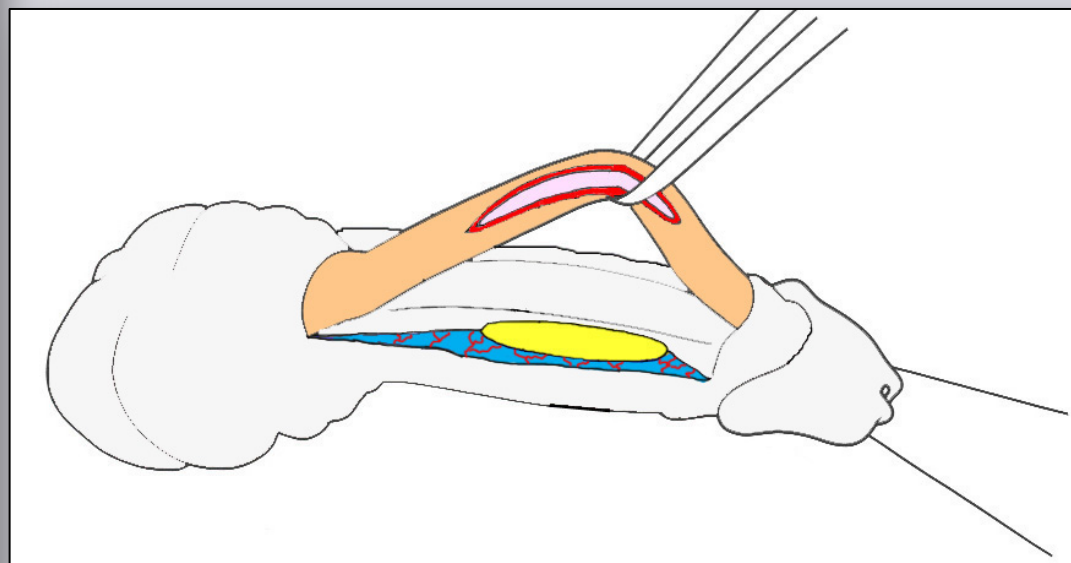
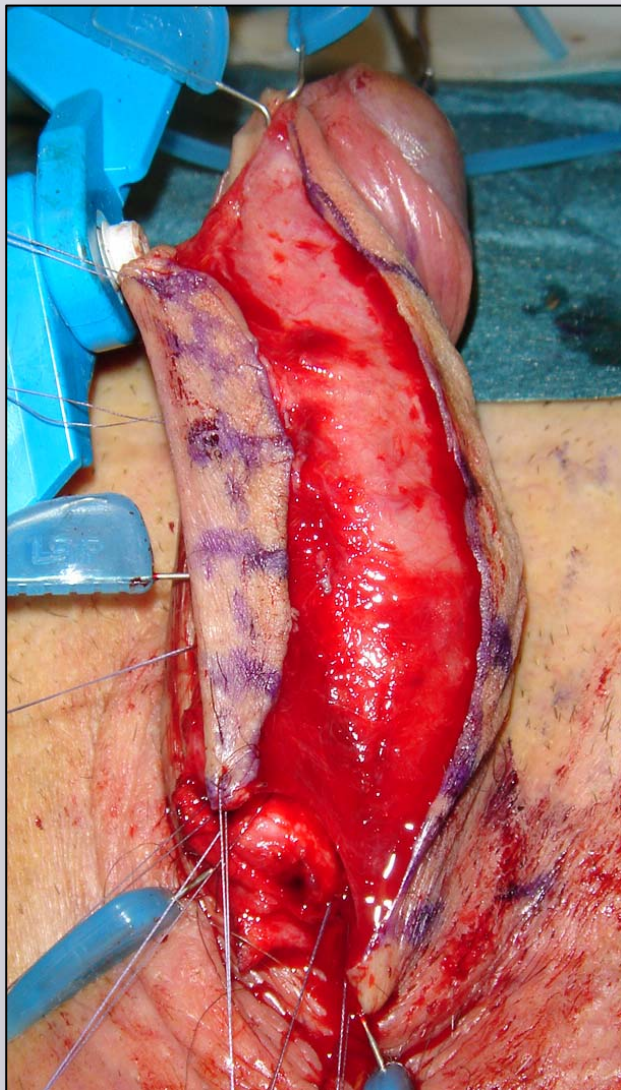
Modified Orandi's skin flap technique



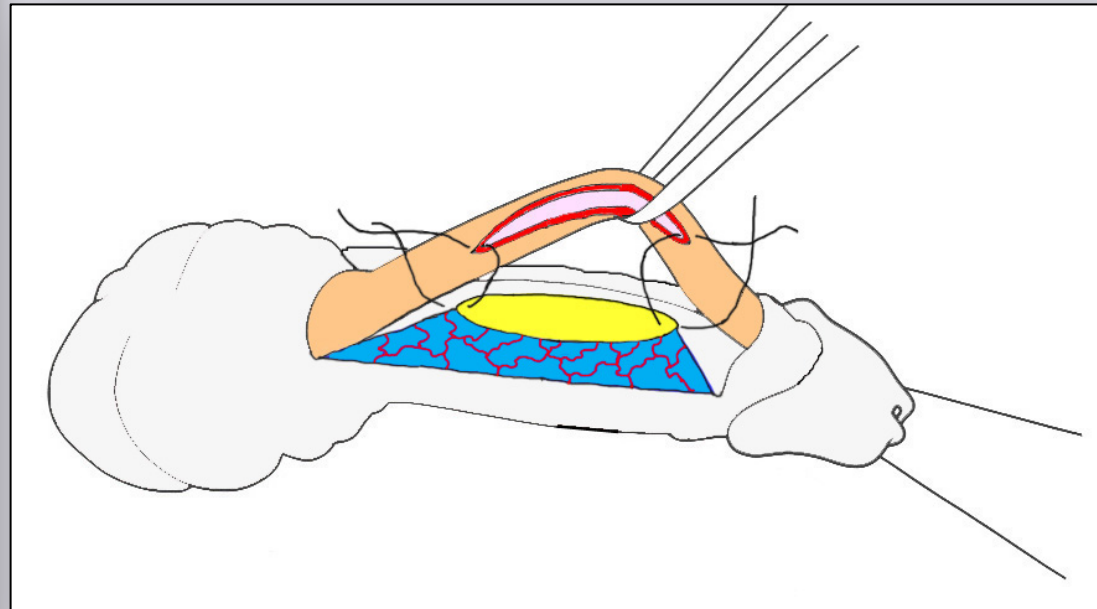
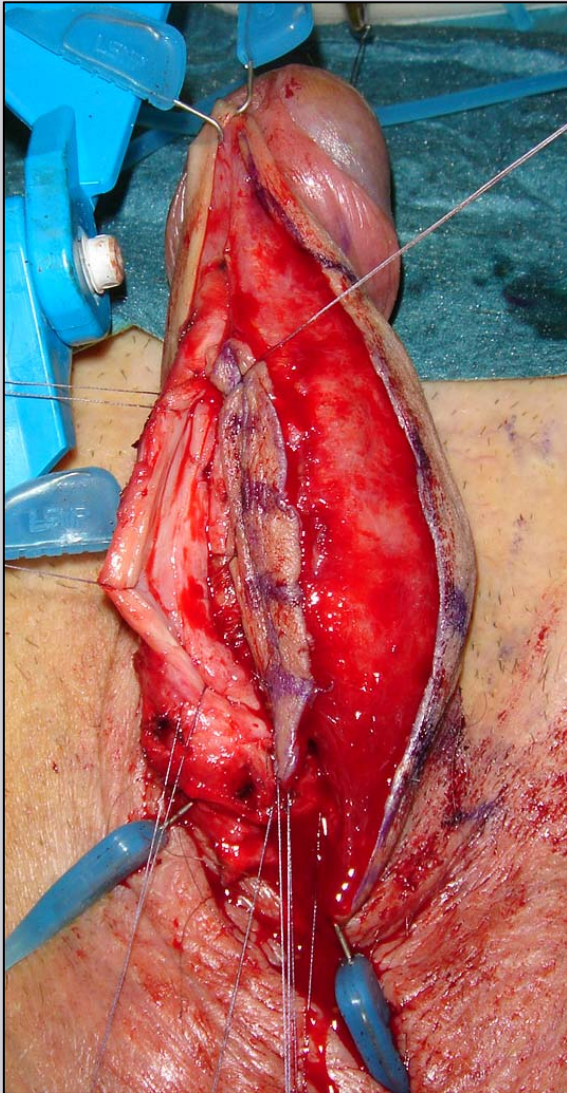
Modified Orandi's skin flap technique



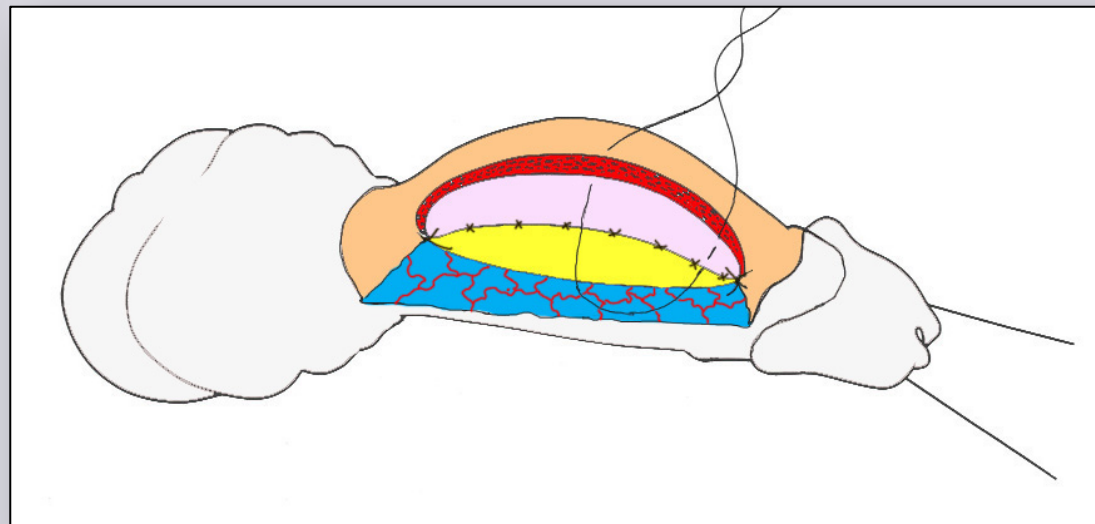
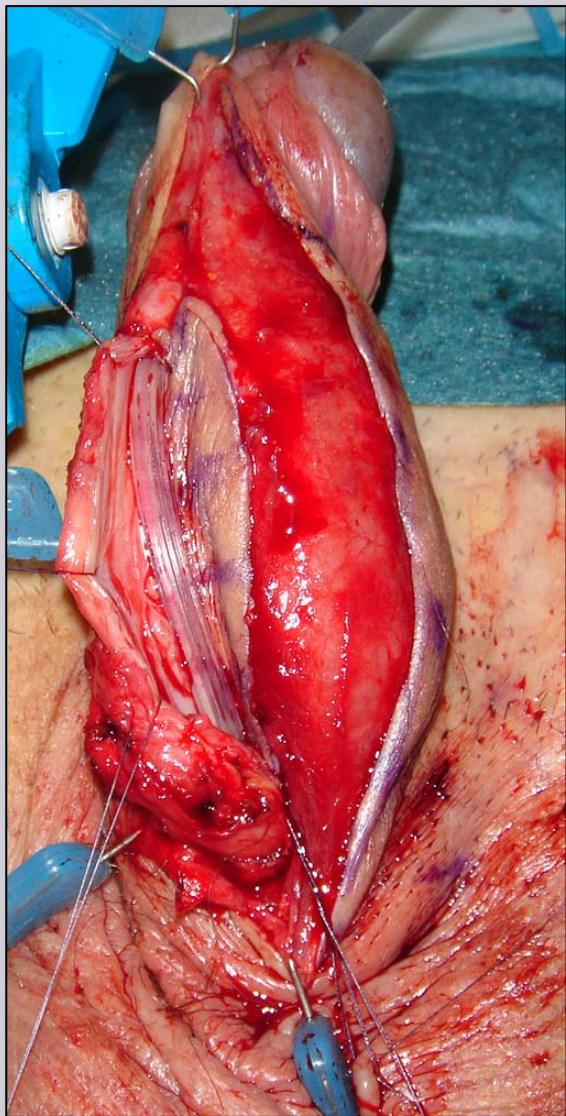
Modified Orandi's skin flap technique



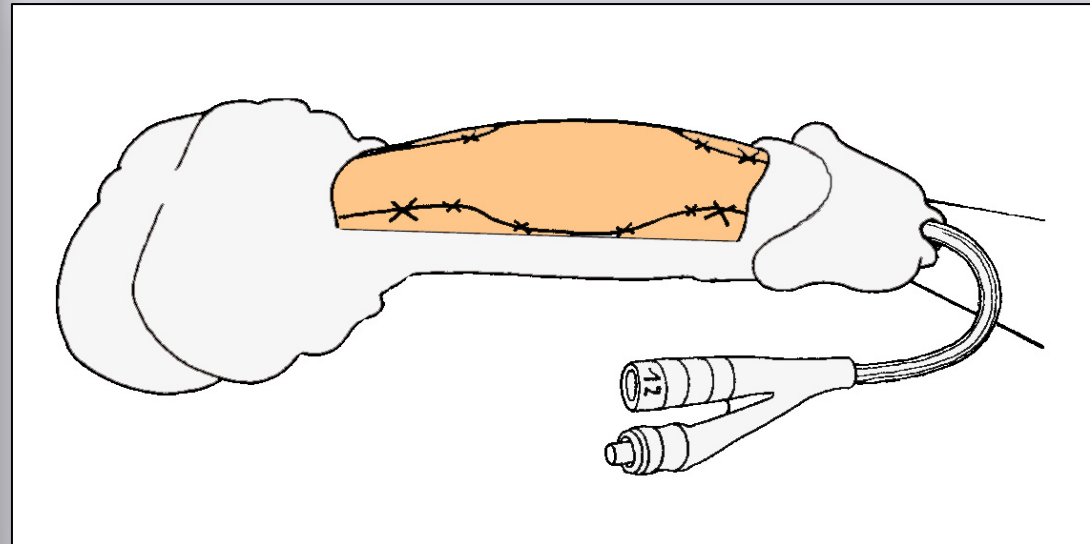
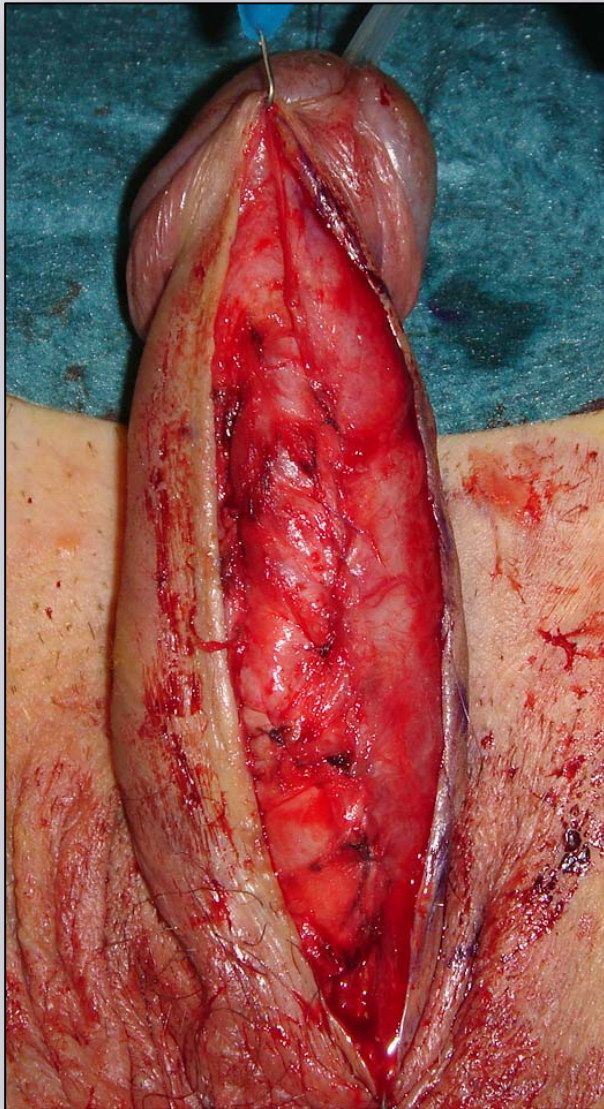
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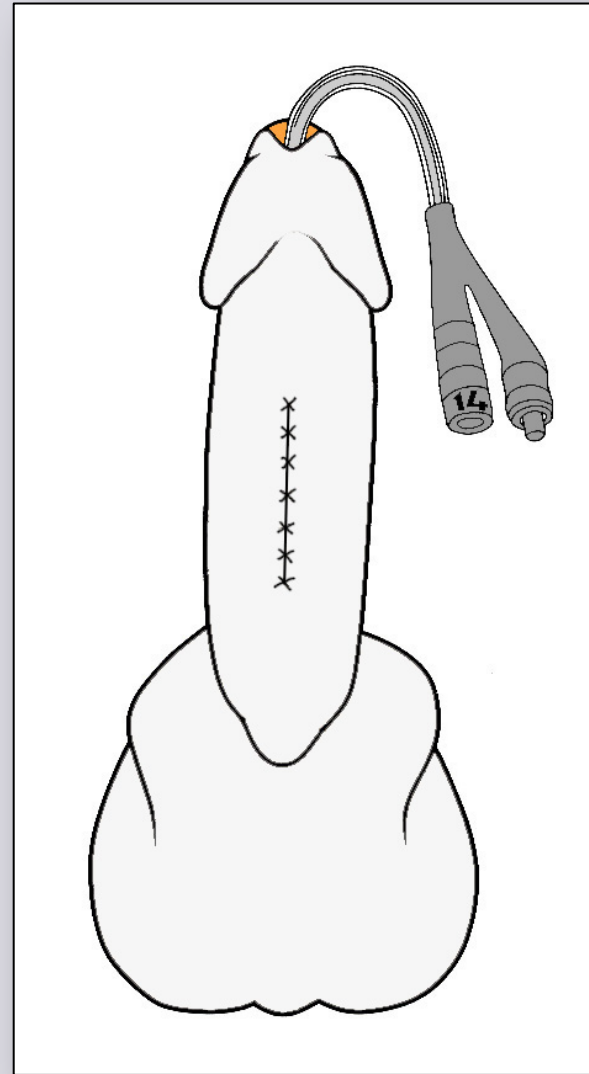
Modified Orandi's skin flap technique



Modified Orandi's skin flap technique



Modified Orandi's skin flap technique



Two-stage penile urethroplasty



Prof. Bengt Johanson
Karolinska Institute
Stockholm -Sweden

e-mail: info@urethralcenter.it

Websites: www.uretra.it
www.urethralcenter.it

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

Acta Chir Scand, 1953: 176; 5-89

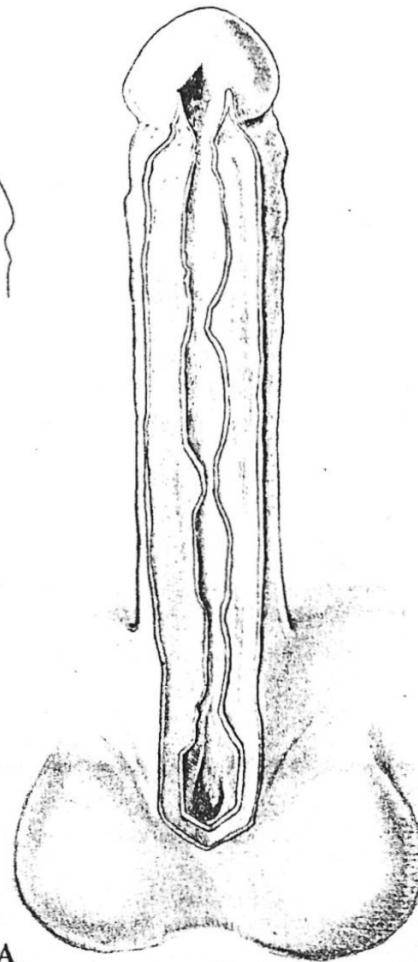
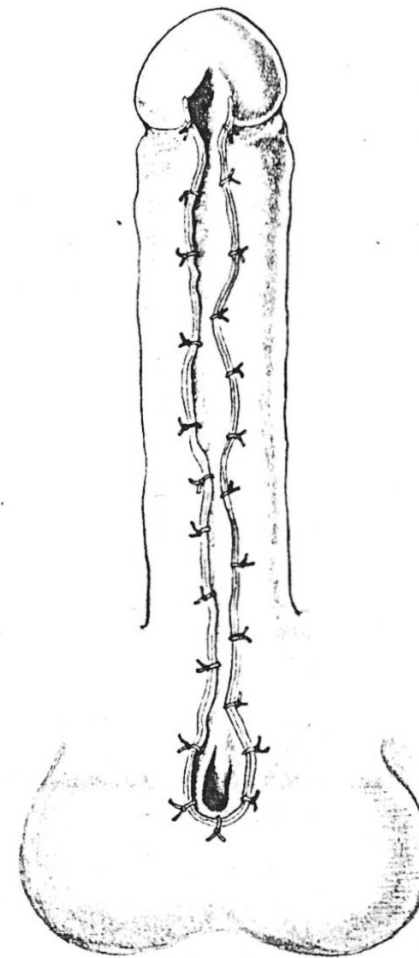
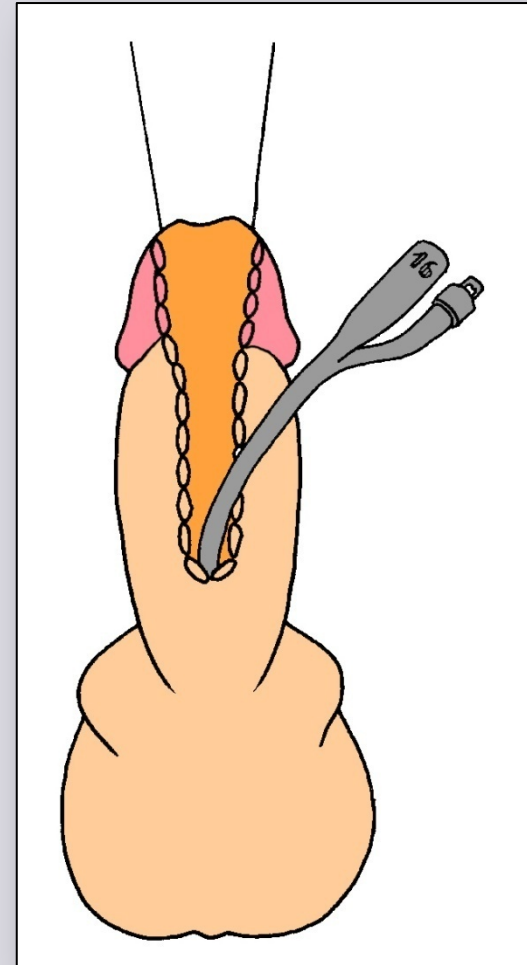
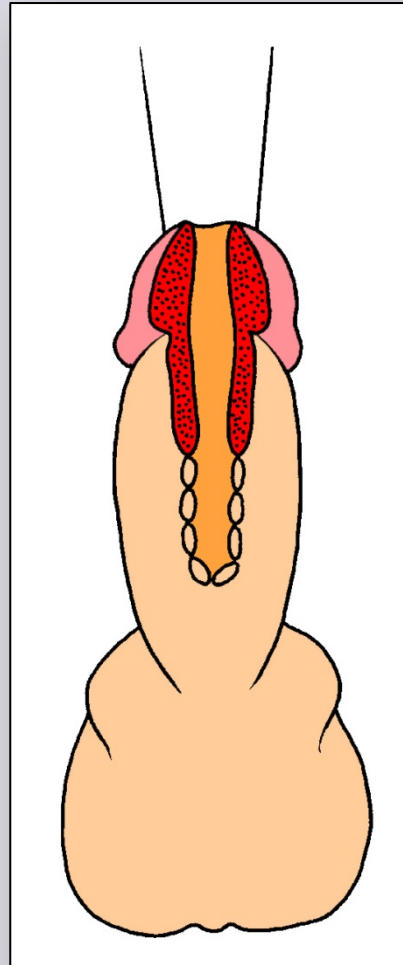
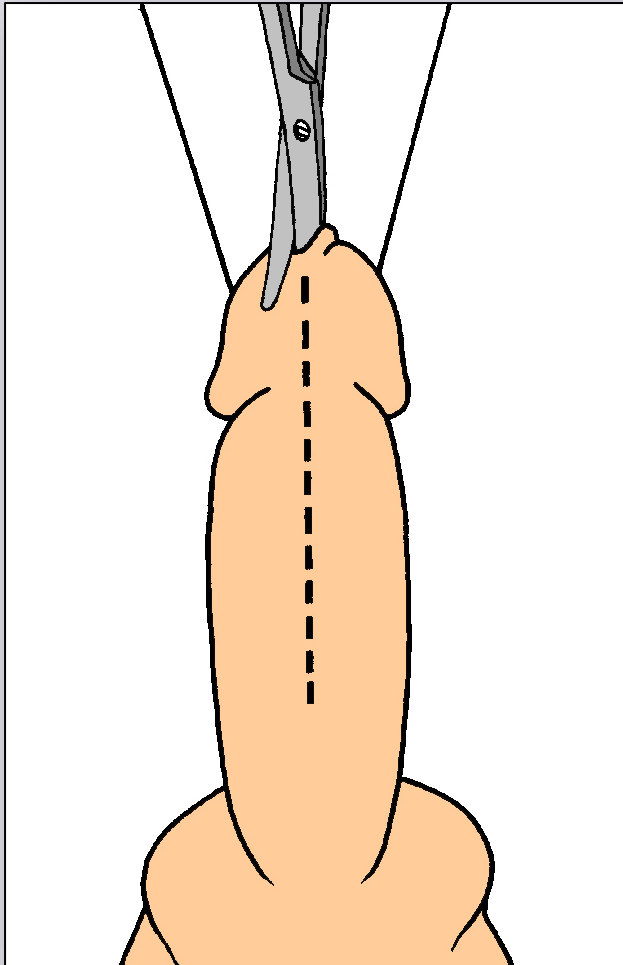


Fig. 1. A



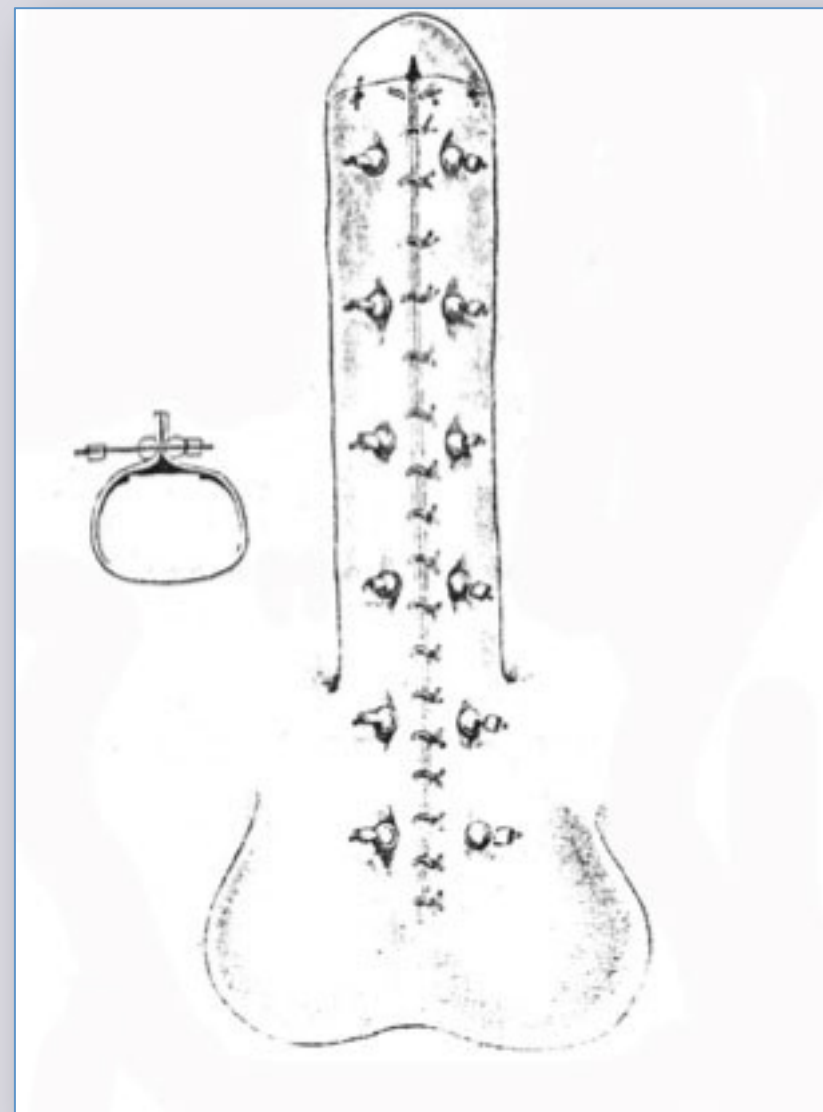
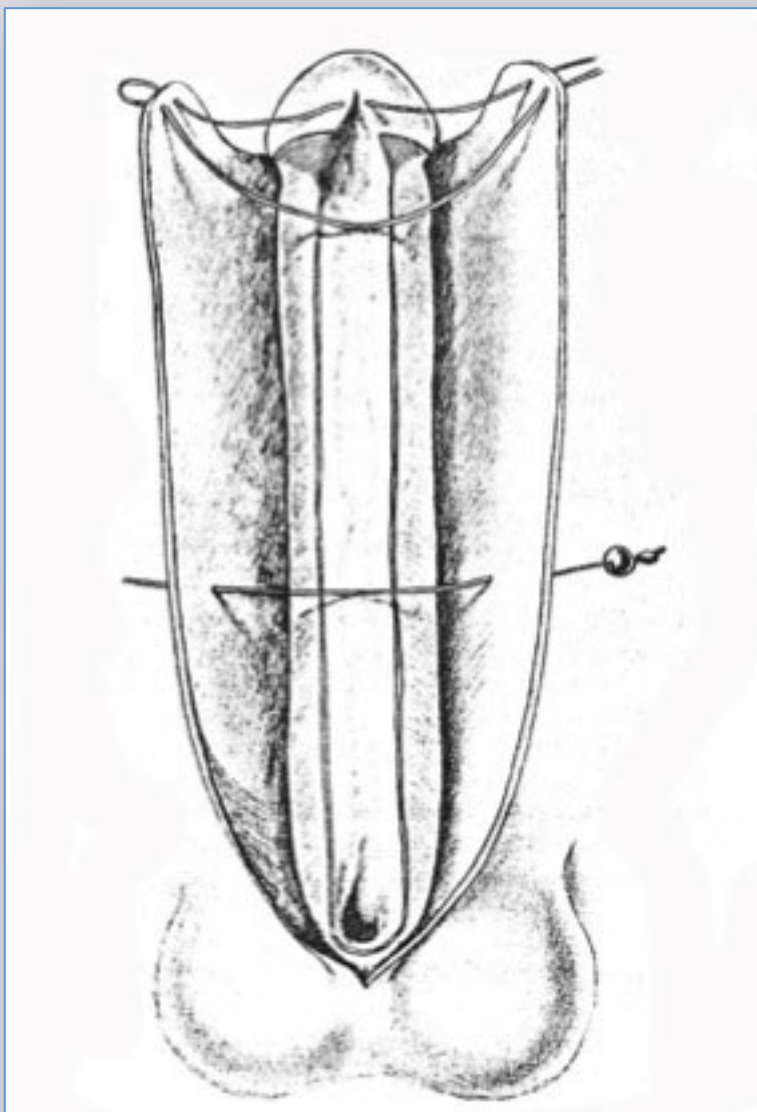
B

First stage: Johanson's technique



First stage: Johanson's technique



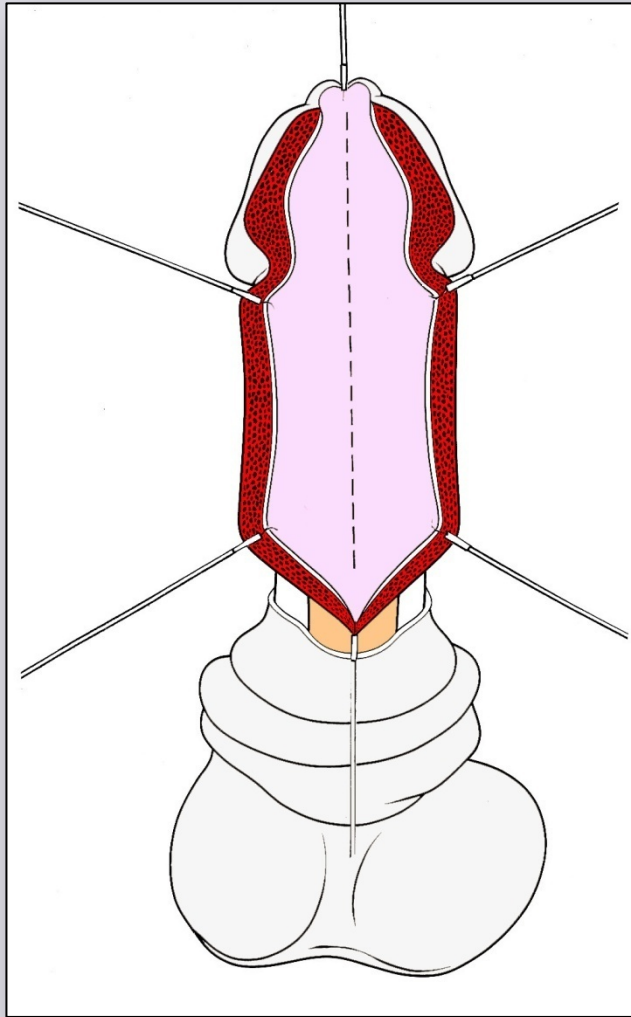


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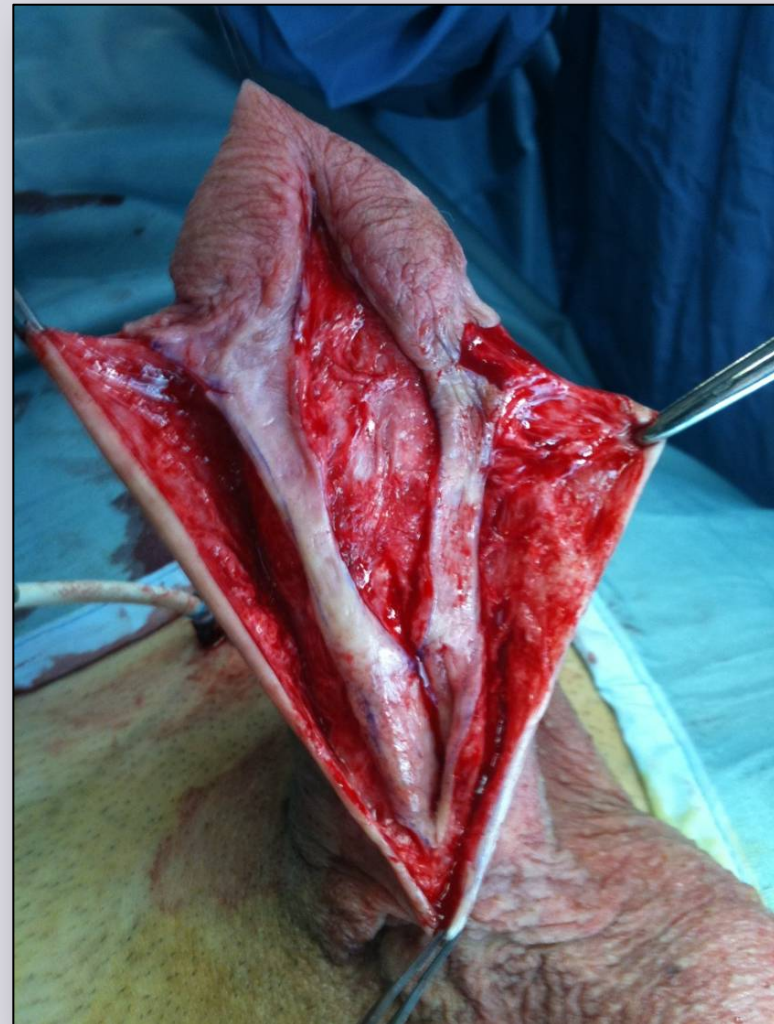
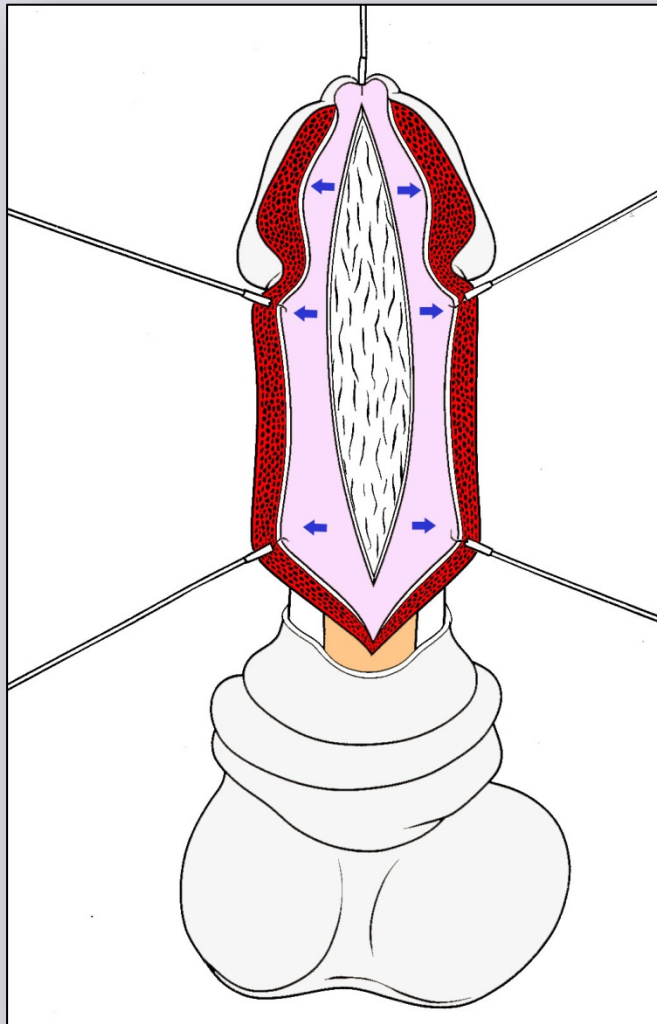
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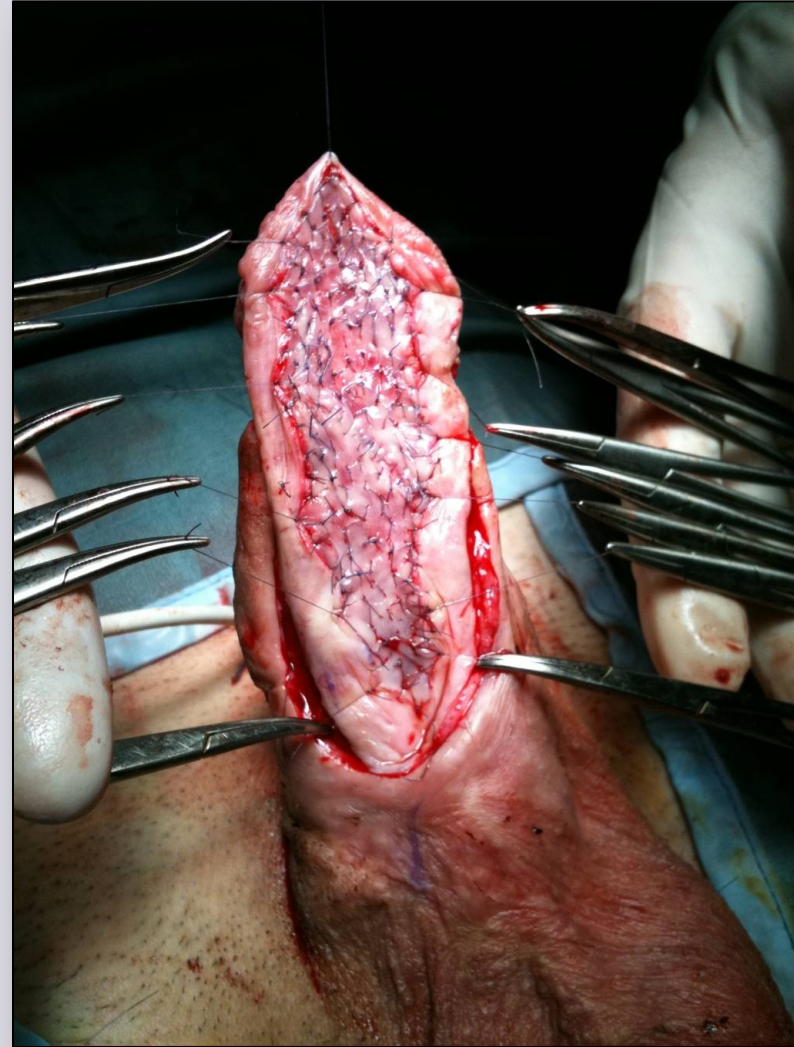
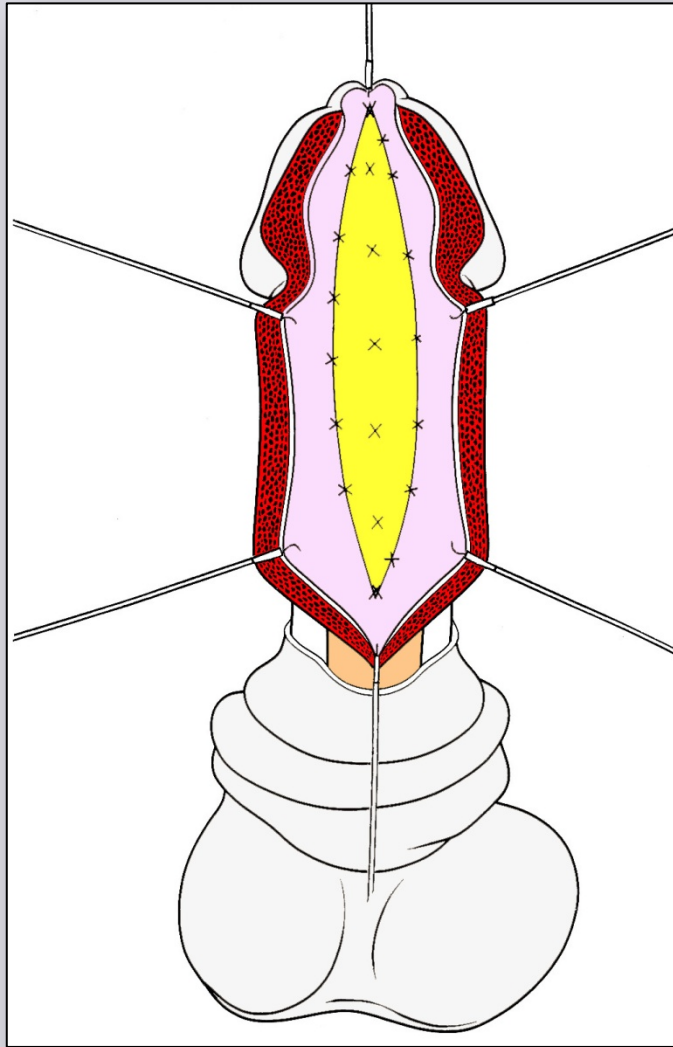
Second stage: Asopa's graft inlay technique



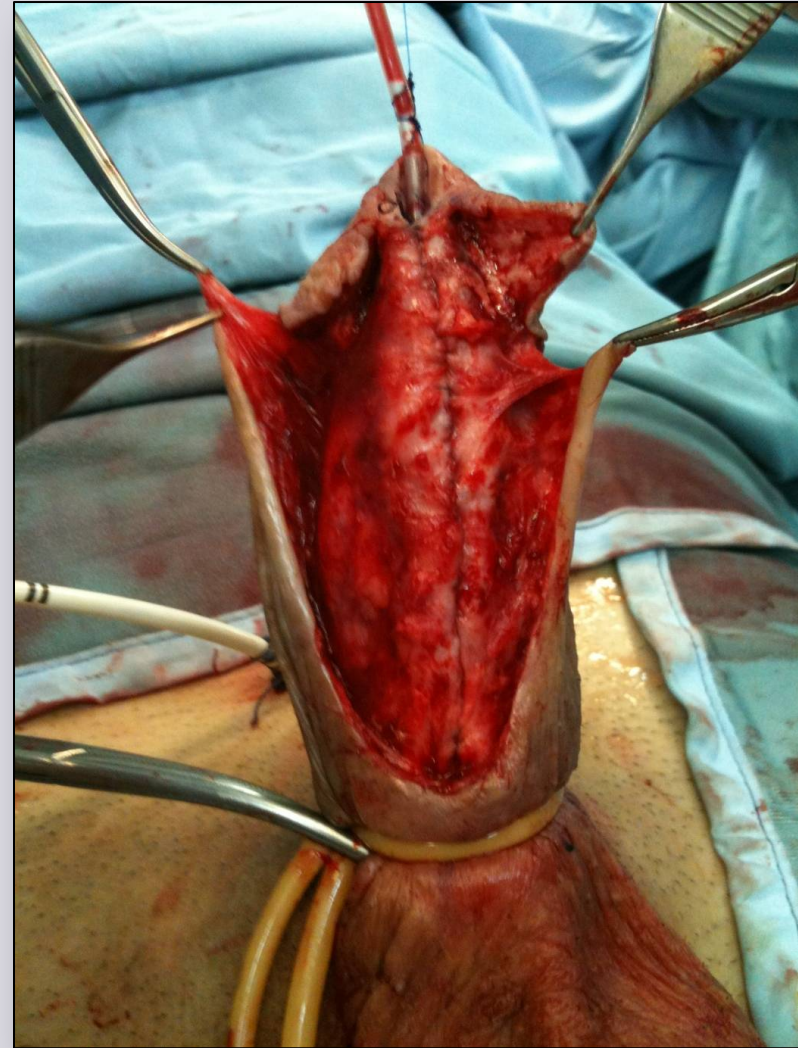
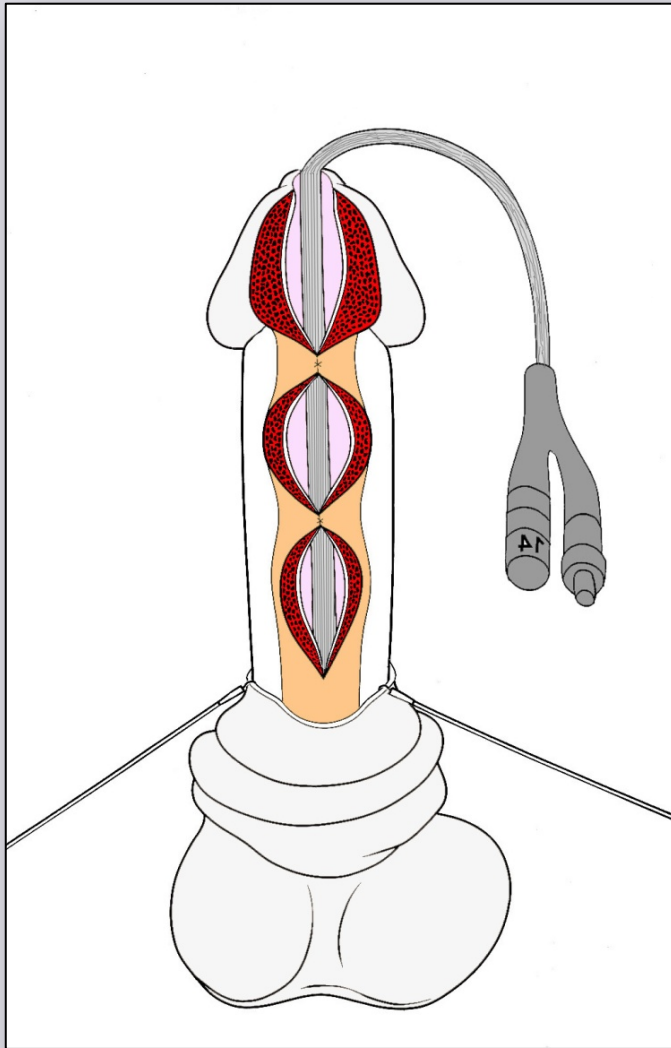
Second stage: Asopa's graft inlay technique



Second stage: Asopa's graft inlay technique



Second stage: Asopa's graft inlay technique



Second stage: Asopa's graft inlay technique



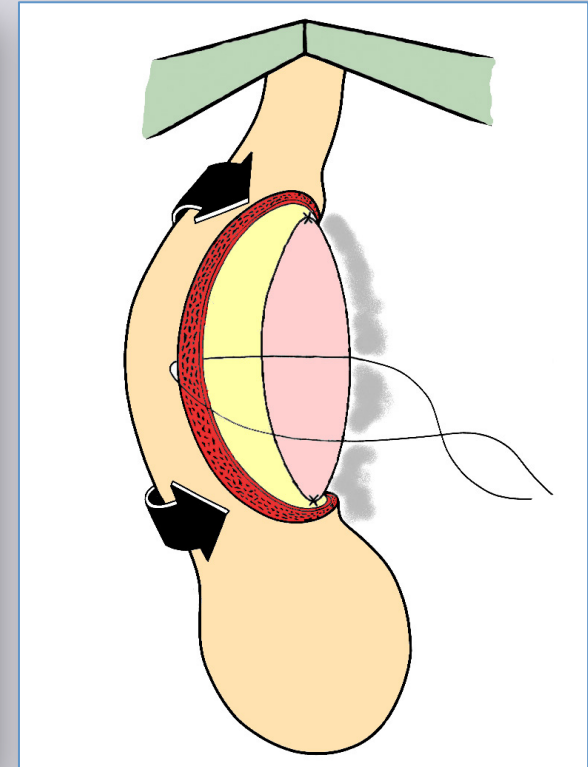
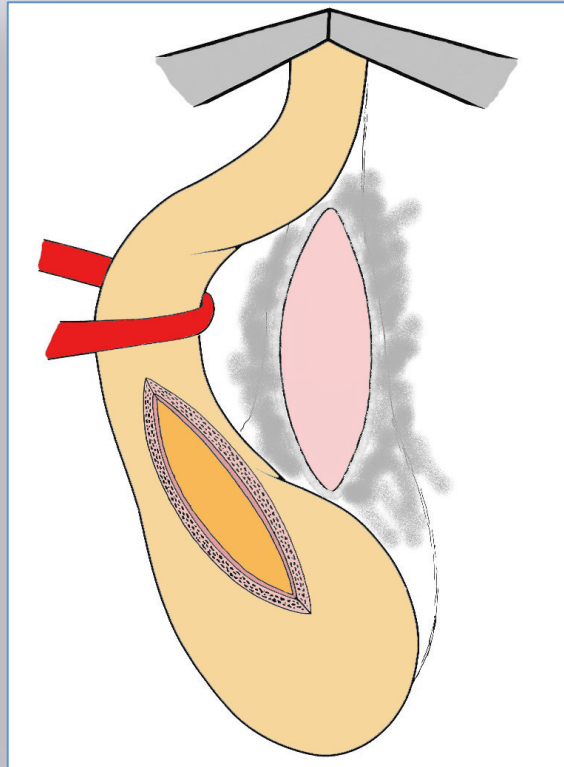
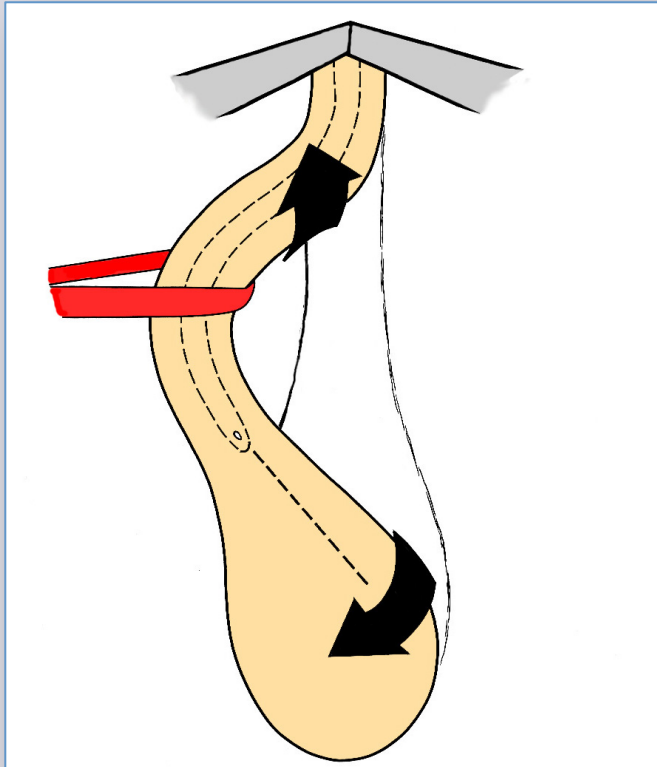
Bulbar urethra



e-mail: info@urethralcenter.it

Websites: www.uretra.it
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“Original” Barbagli’s dorsal onlay graft urethroplasty



One-sided anterior urethroplasty

BJUI
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One-sided anterior urethroplasty: a new dorsal onlay graft technique

Sanjay Kulkarni, Guido Barbagli*, Salvatore Sansalone[†] and Massimo Lazzeri*

Centre for Reconstructive Urethral Surgery, Pune, India; *Centre for Reconstructive Urethral Surgery, Arezzo,
[†]Department of Urology, University Tor Vergata, Rome, and *Department of Urology, Santa Chiara-Firenze, GIOMI
Group, Florence, Italy

Accepted for publication 5 December 2008

BJU Int 2009; 104: 1150-1155

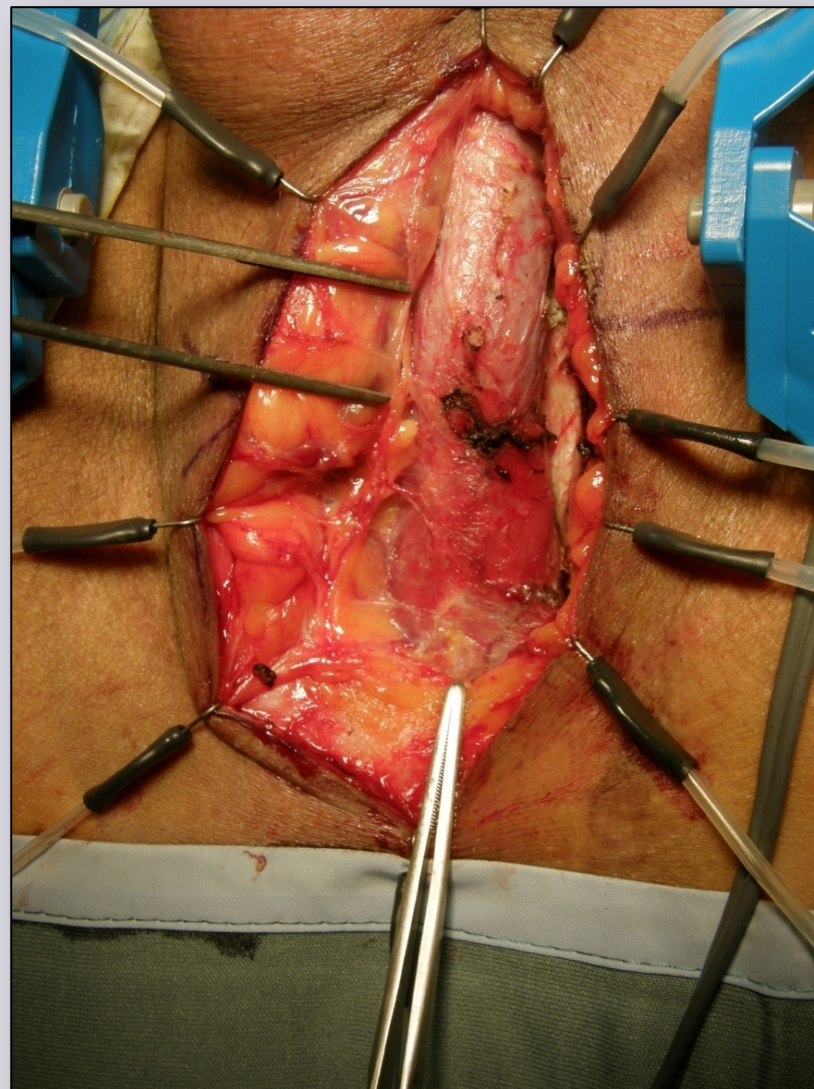
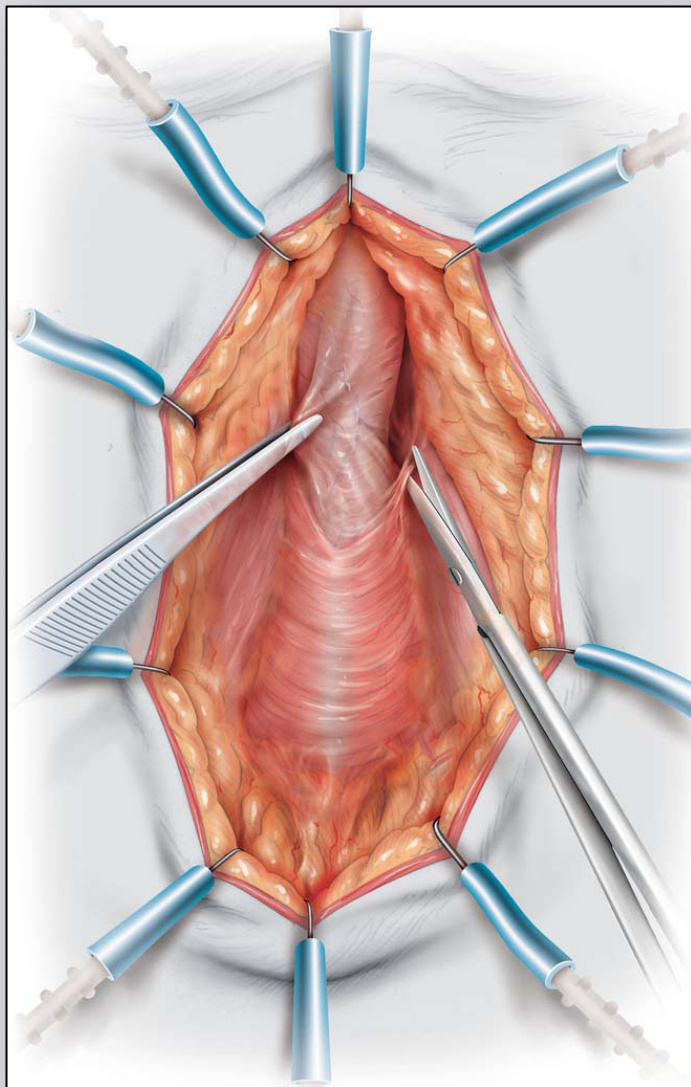


Sanjay B. Kulkarni, M.D.
Center for Reconstructive Urology
Pune - India

e-mail: info@urethralcenter.it

Websites: www.uretra.it
www.urethralcenter.it

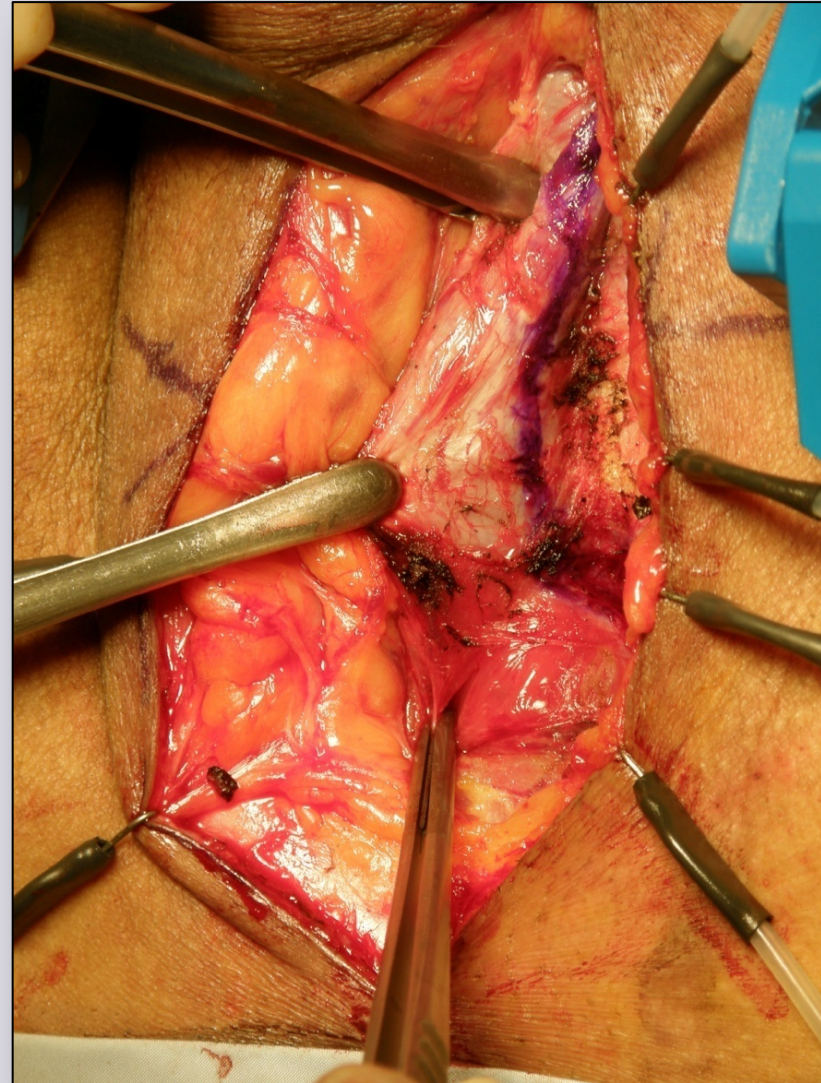
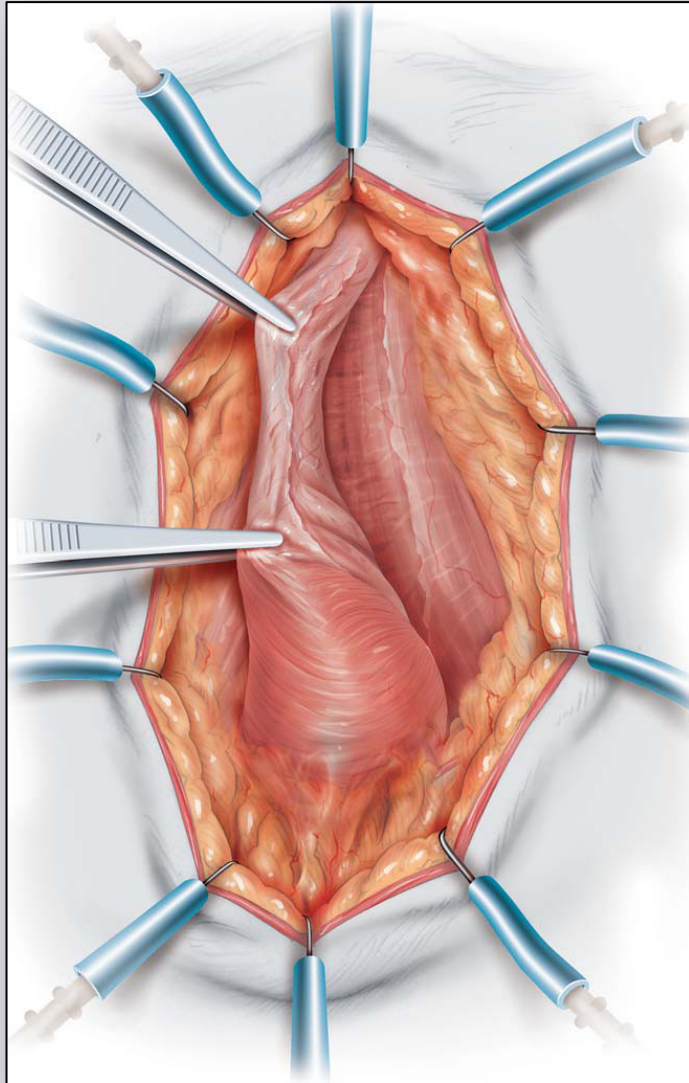
One-sided anterior urethroplasty



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Websites: www.uretra.it
www.urethralcenter.it

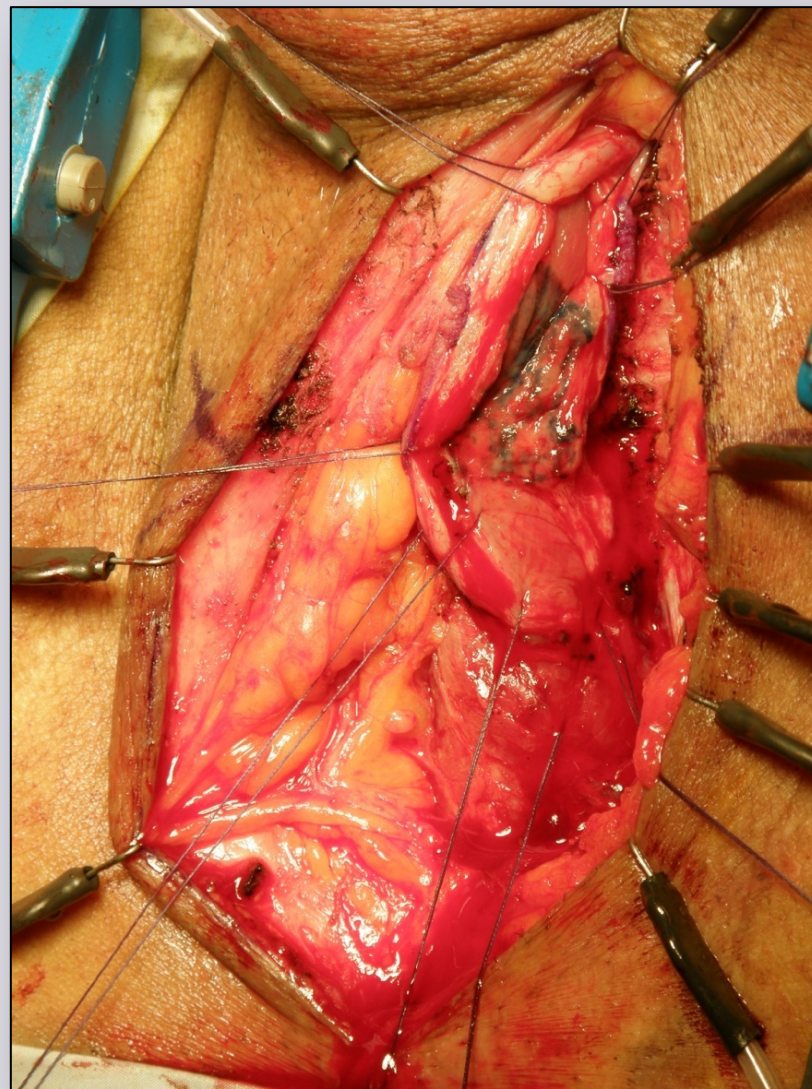
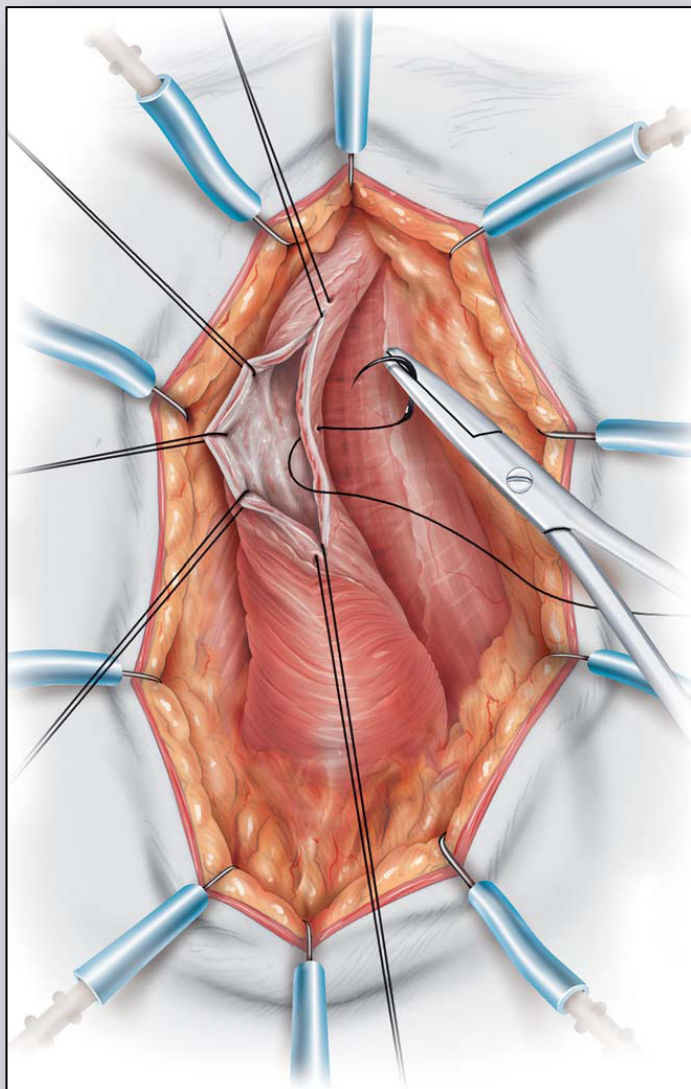
One-sided anterior urethroplasty



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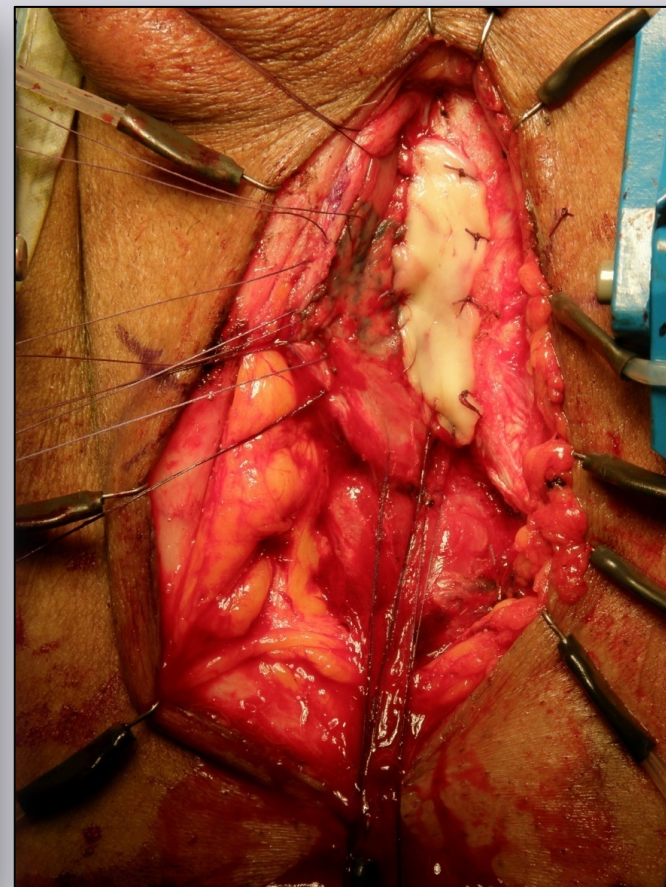
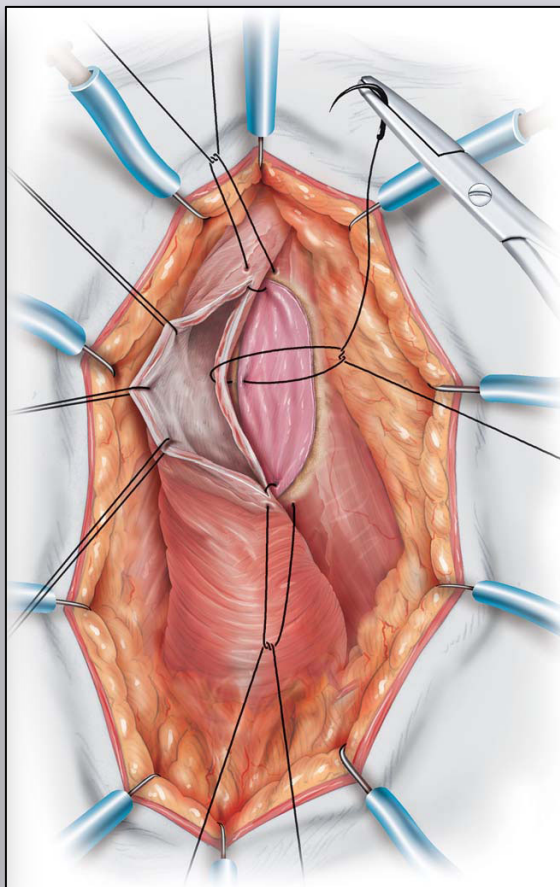
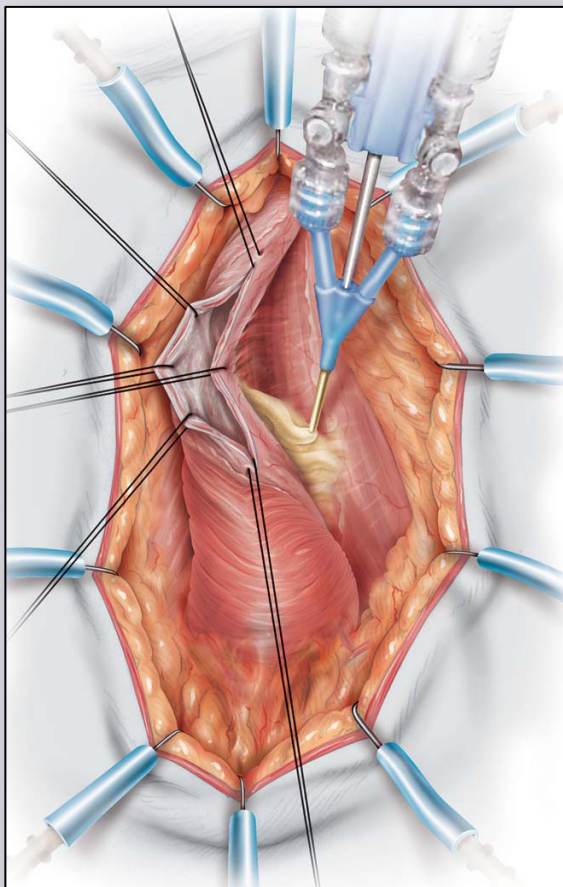
One-sided anterior urethroplasty



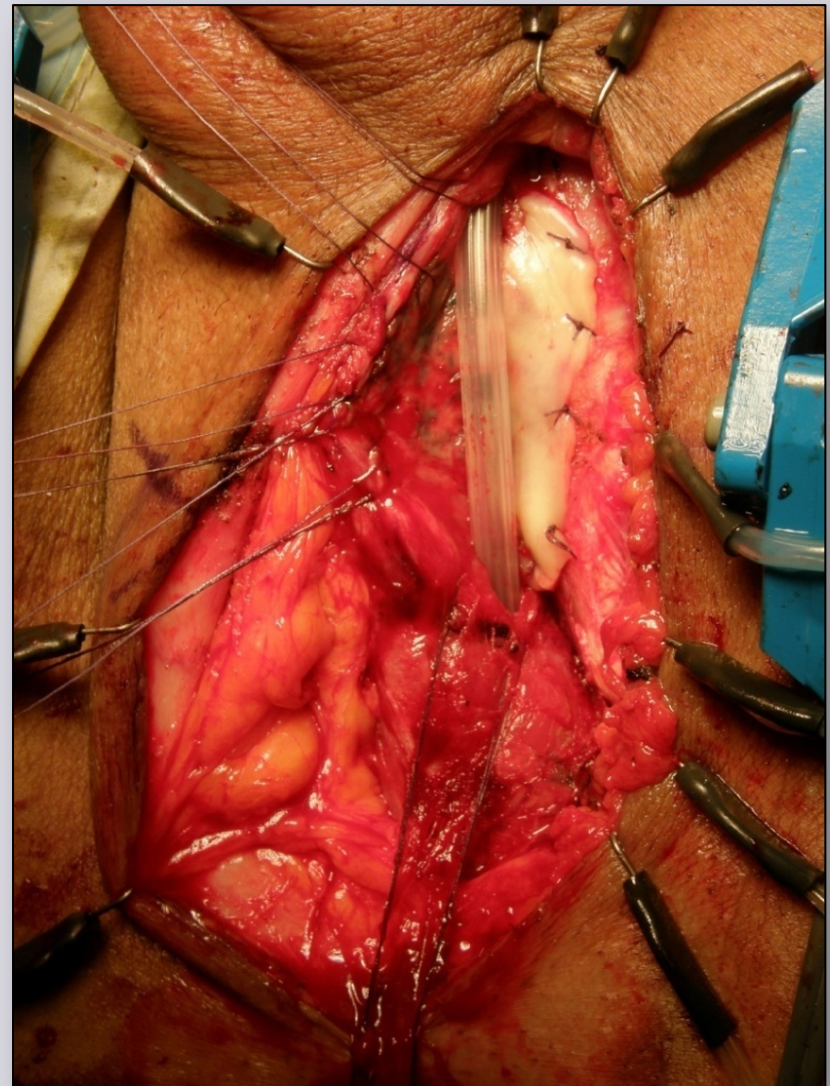
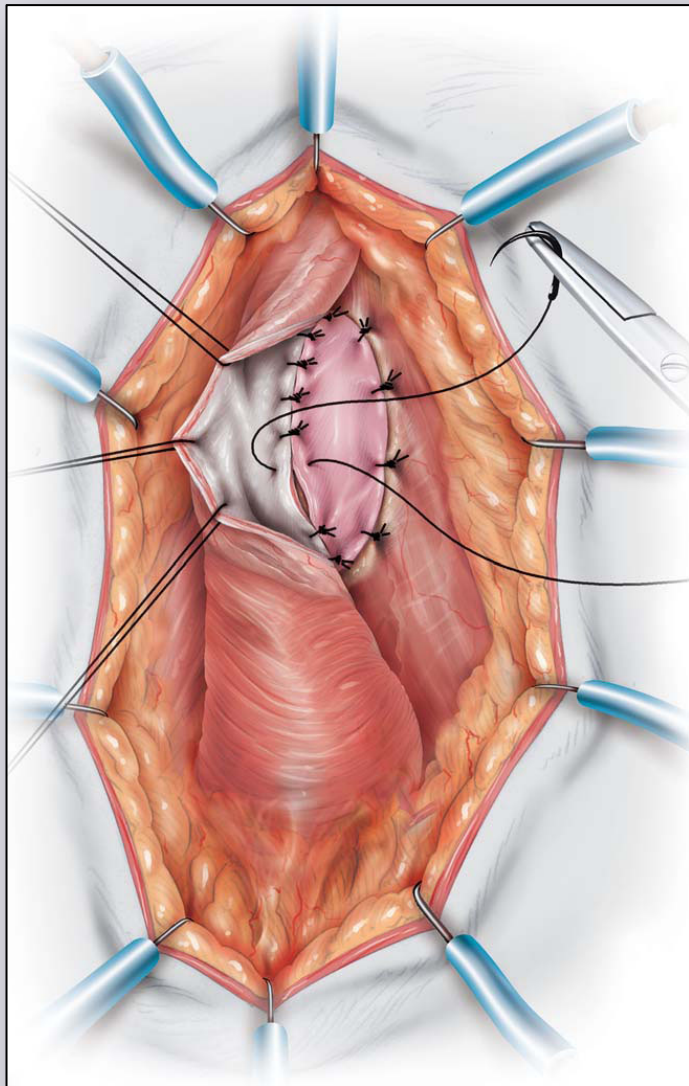
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One-sided anterior urethroplasty



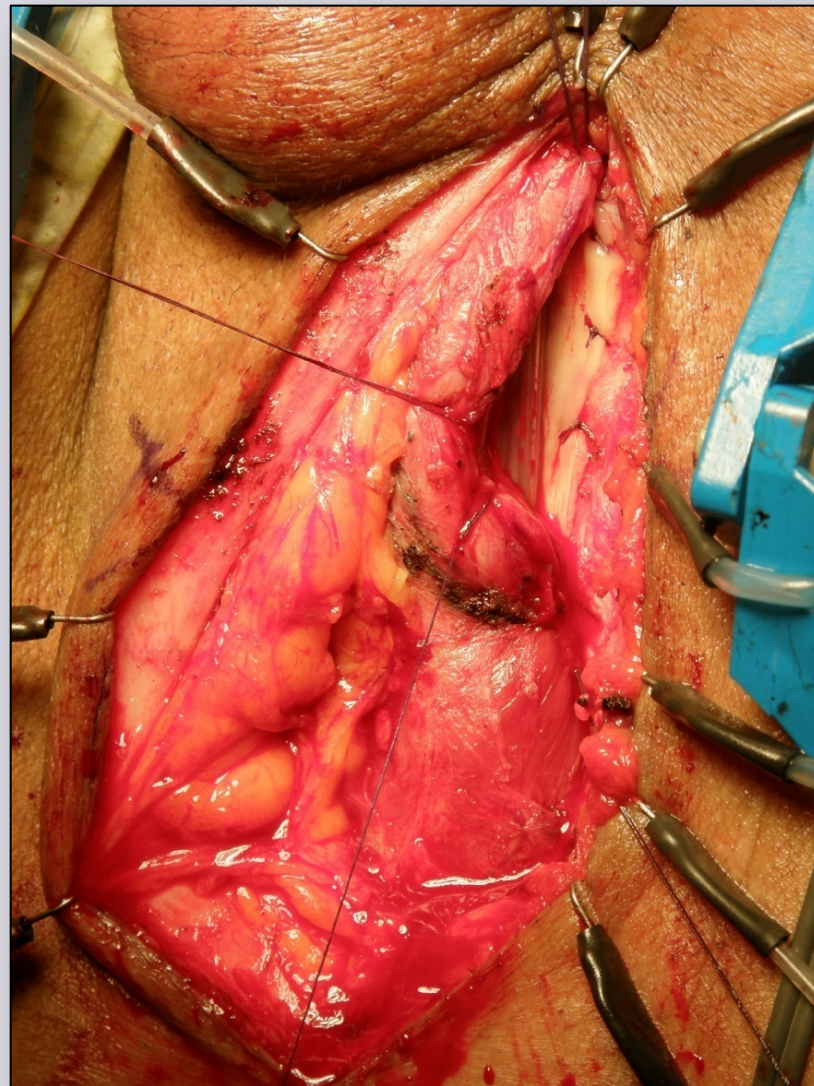
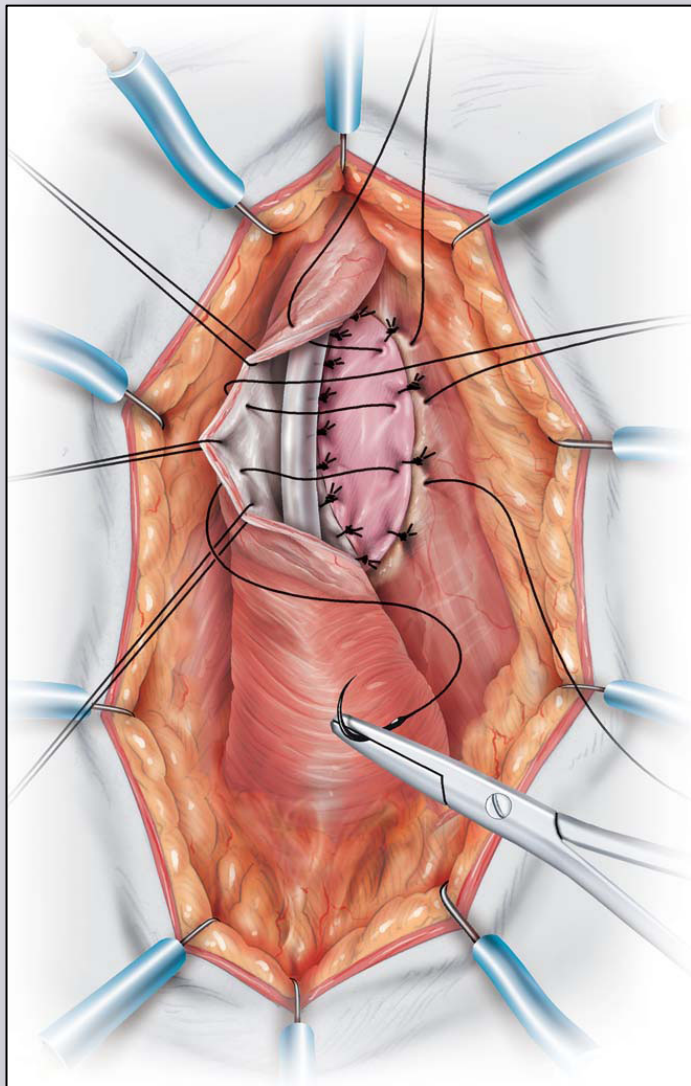
One-sided anterior urethroplasty



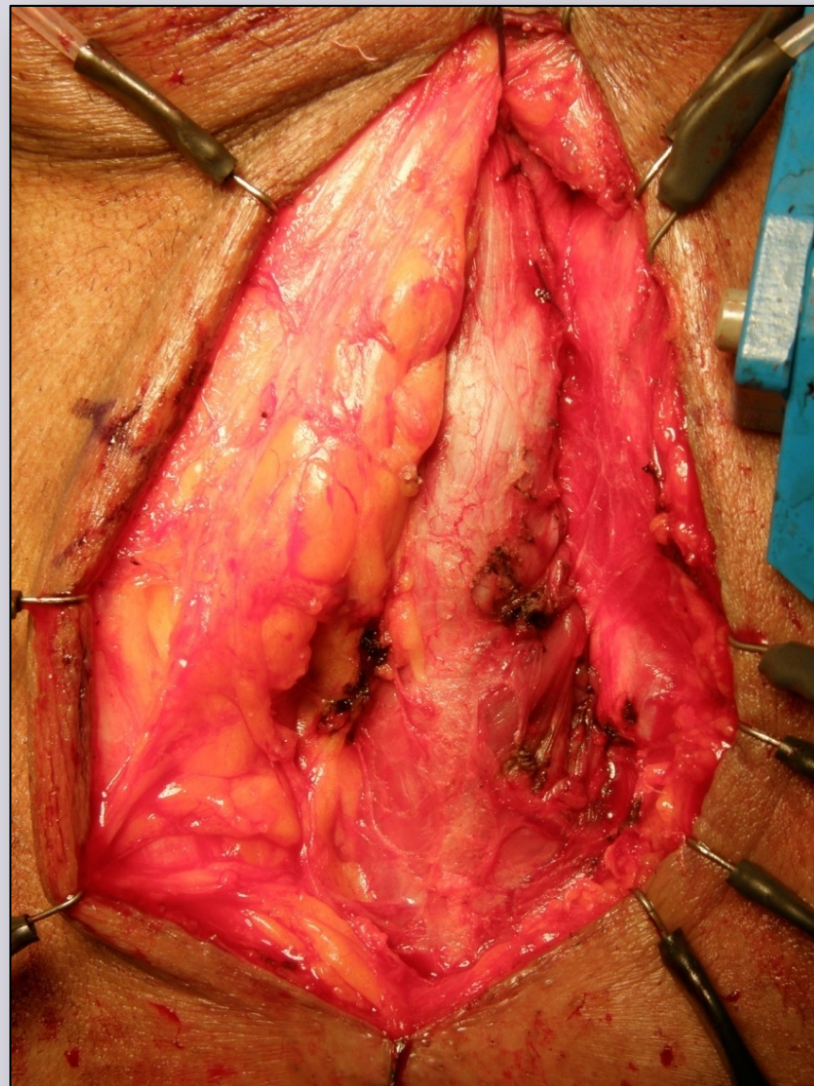
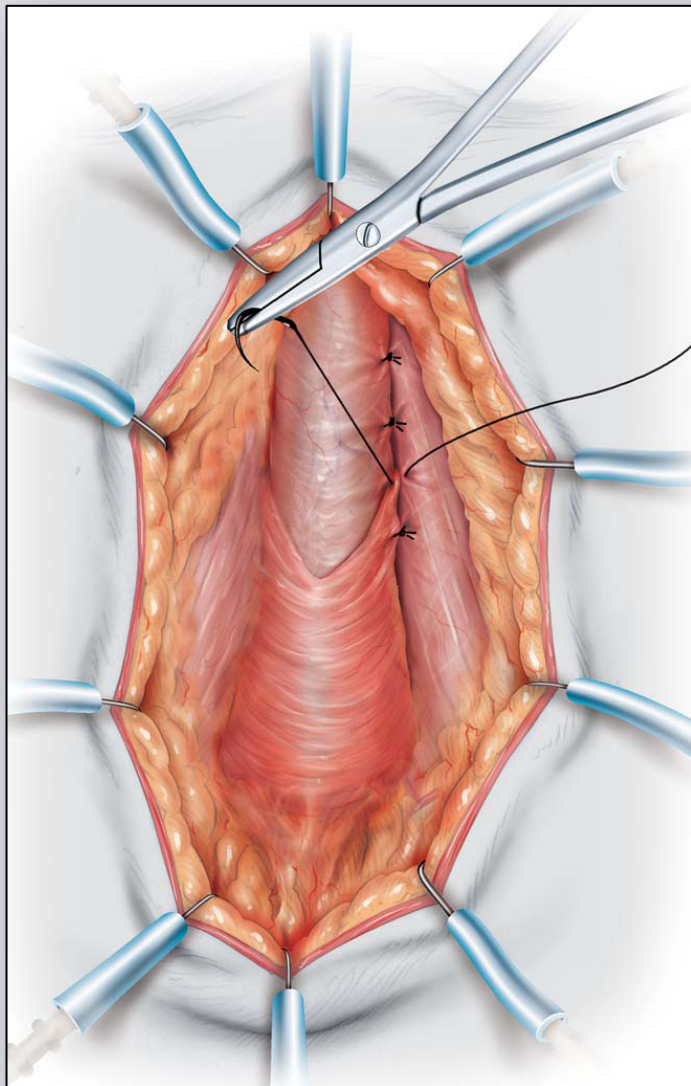
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One-sided anterior urethroplasty



One-sided anterior urethroplasty



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Pan-urethroplasty by perineal approach

V31

A NEW TECHNIQUE OF URETHROPLASTY FOR BALANITIS XEROTICA OBLITERANS. *Sanjay B. Kulkarni, Jyotsna S. Kulkarni, Deepak V. Kirpekar.* Pune, India. (Presented by Sanjay B. Kulkarni)

INTRODUCTION AND OBJECTIVES: Balanitis Xerotica Obliterans (BXO) is a common cause of urethral stricture. In past use of genital skin resulted in restenosis, requiring repeat operations. We wish to demonstrate a new technique of Single stage repair using Buccal Mucosa Graft (BMG) as Dorsal Onlay Graft (DOG) for the penile and bulbar urethra through perineal incision only.

J Urol 2000, 163(4): 352 (abstr. V31)

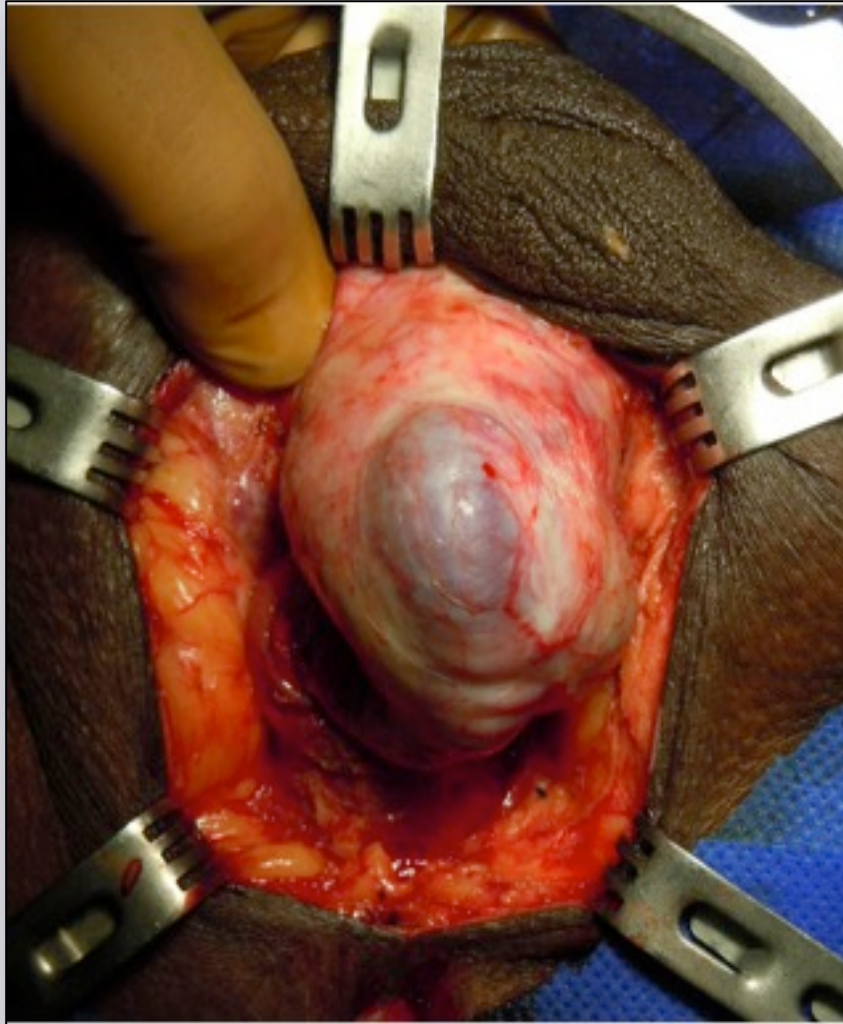


Sanjay B. Kulkarni, M.D.
Center for Reconstructive Urology
Pune - India

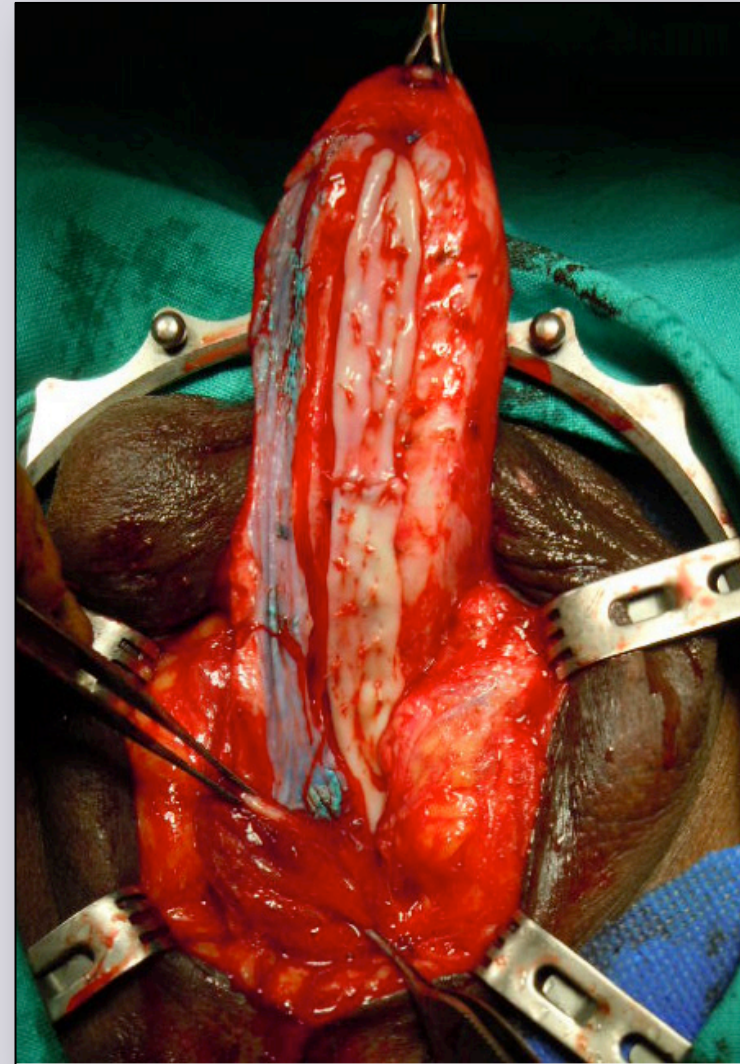
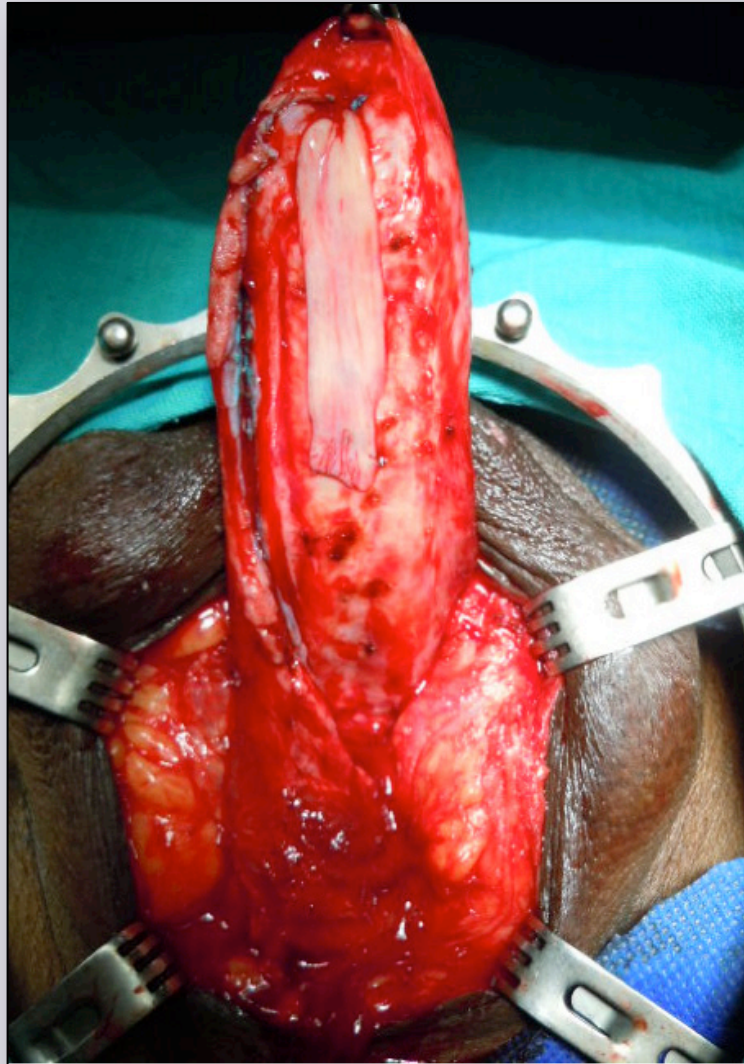
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Kulkarni's technique by perineal approach



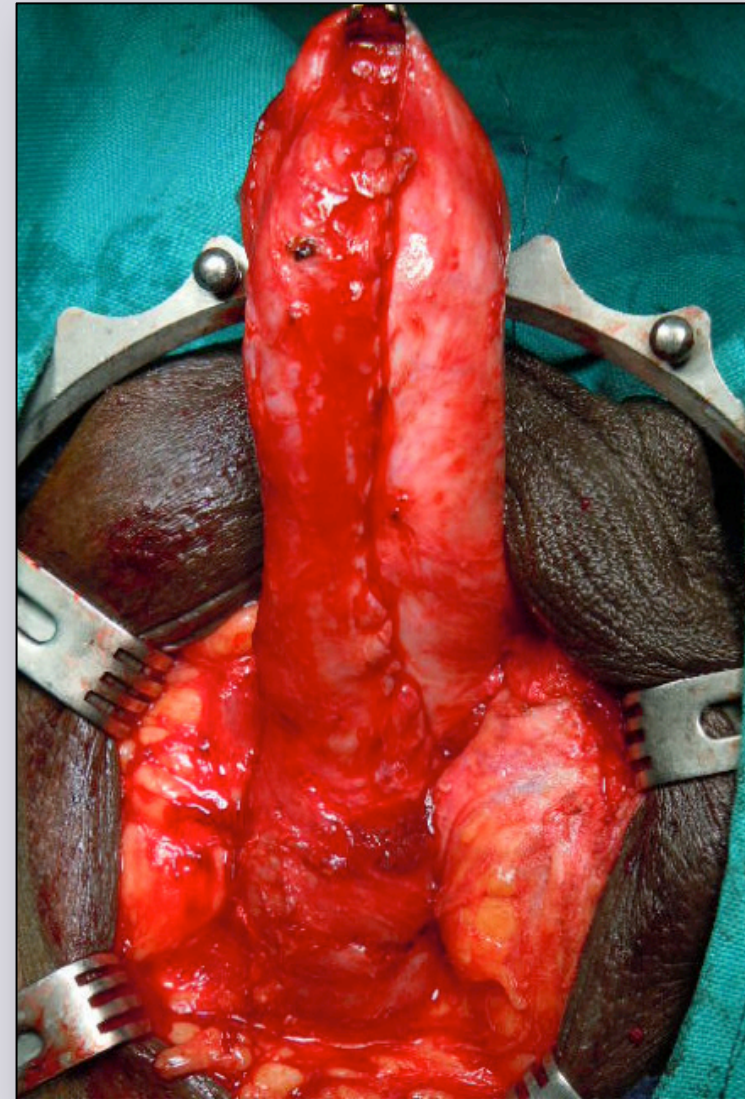
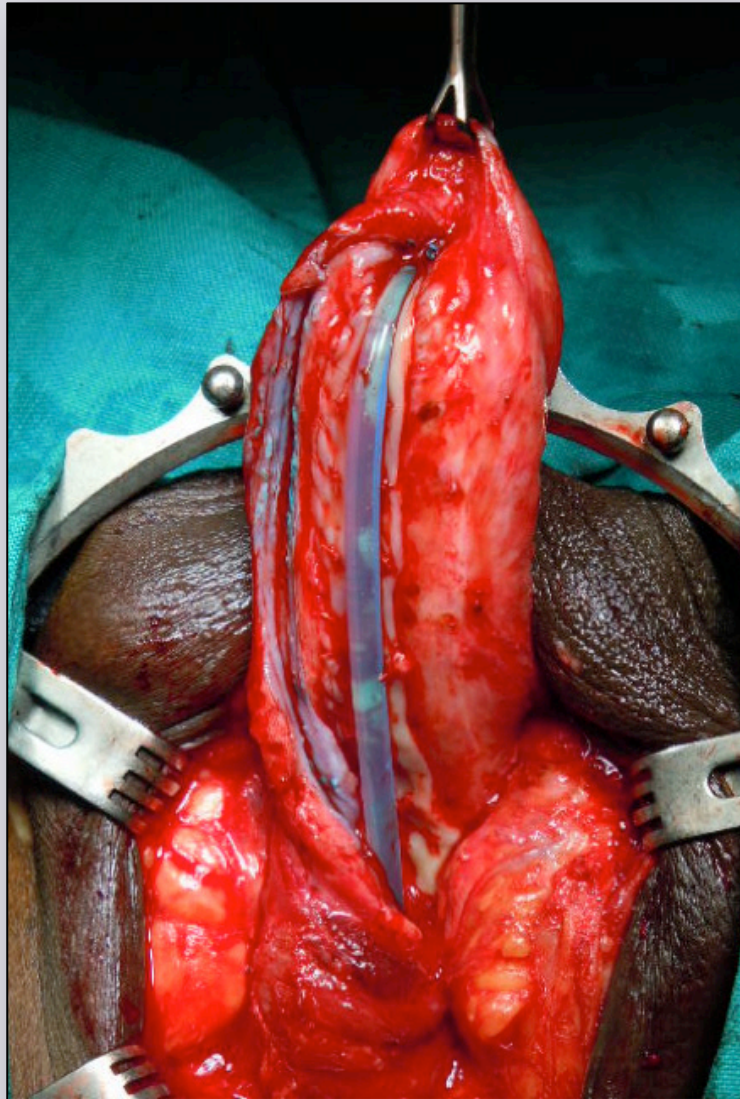
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Kulkarni's technique by perineal approach



Non-transecting bulbar urethroplasty

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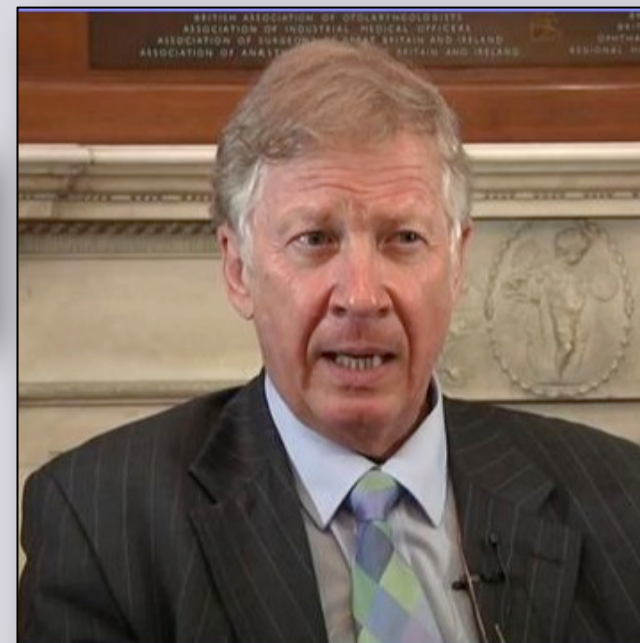
Non-transecting anastomotic bulbar urethroplasty: a preliminary report

Daniela E. Andrich and Anthony R. Mundy

Institute of Urology, London, UK

Accepted for publication 21 April 2011

BJU Int 2011, 109: 1090-1094

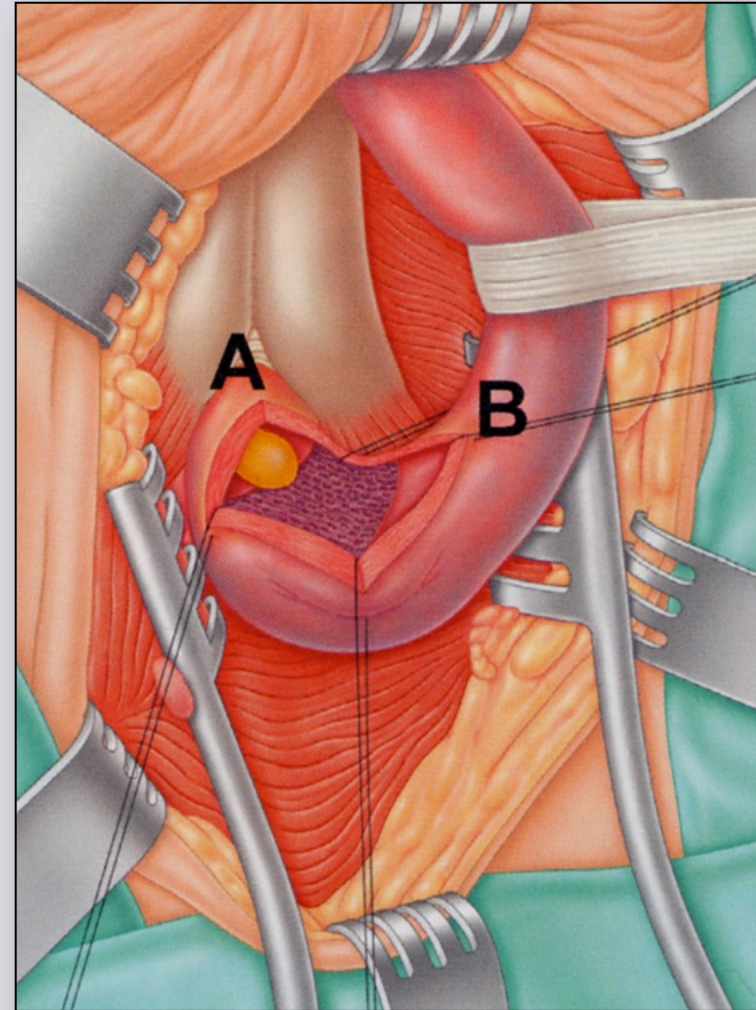
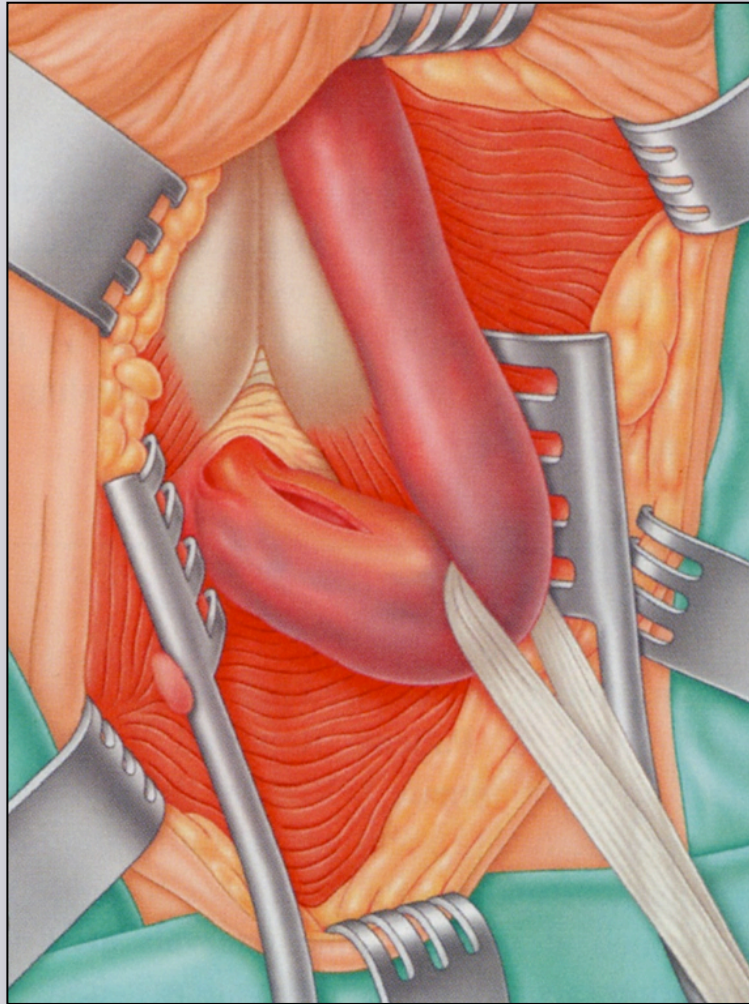


Prof. A.R. Mundy
Institute of Urology
London - UK

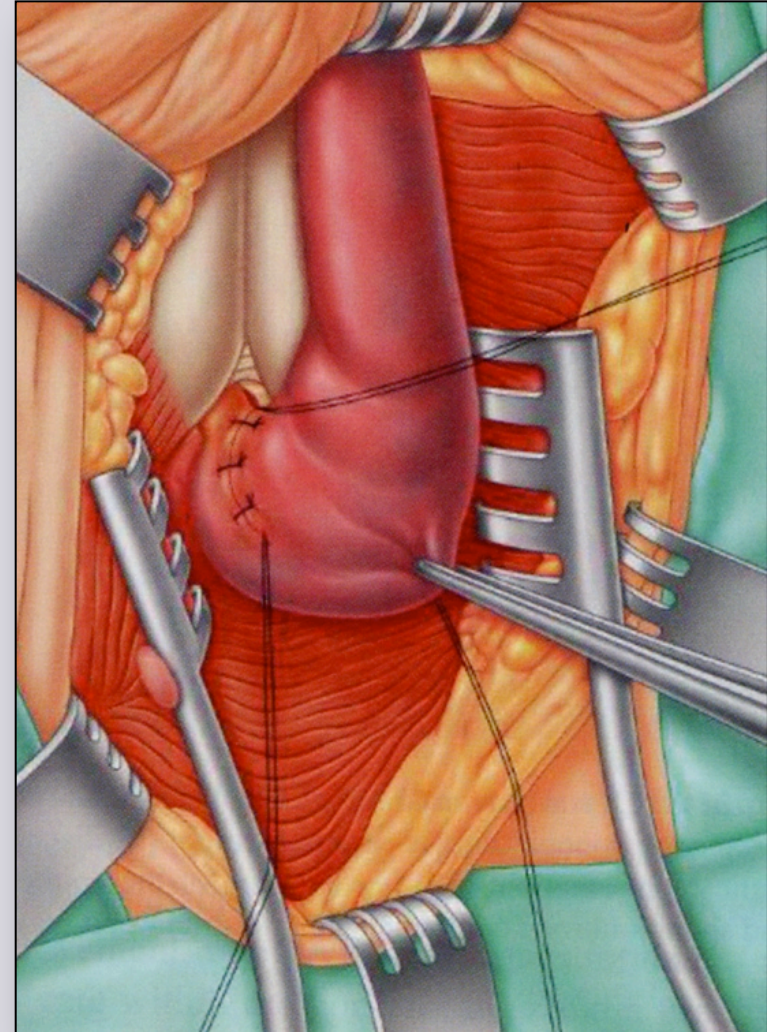
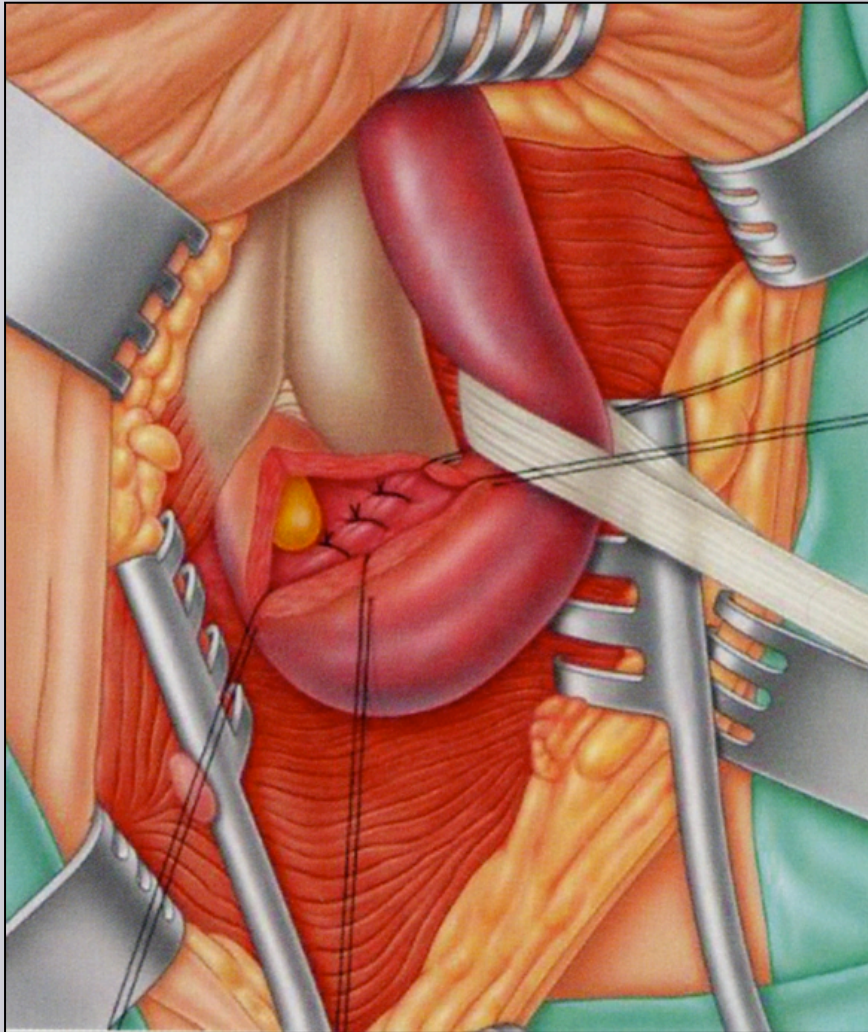
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Mundy's non-transecting bulbar urethroplasty

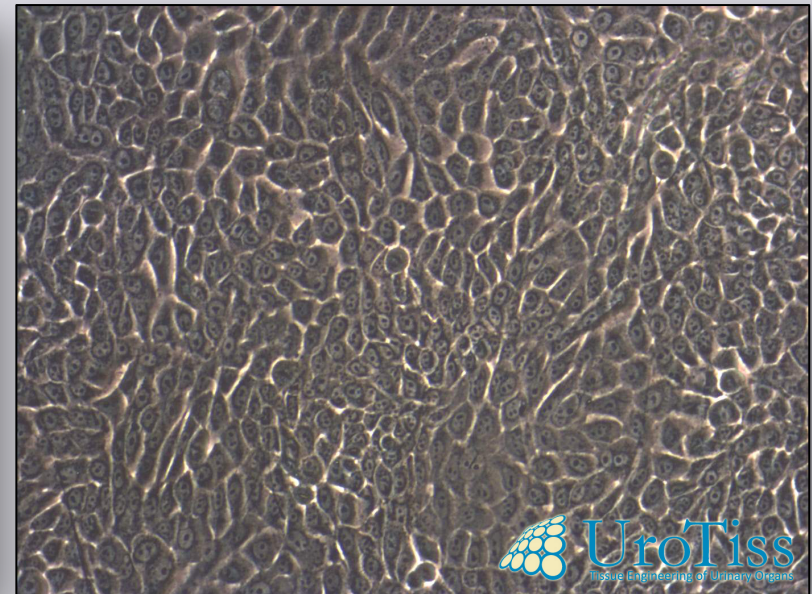
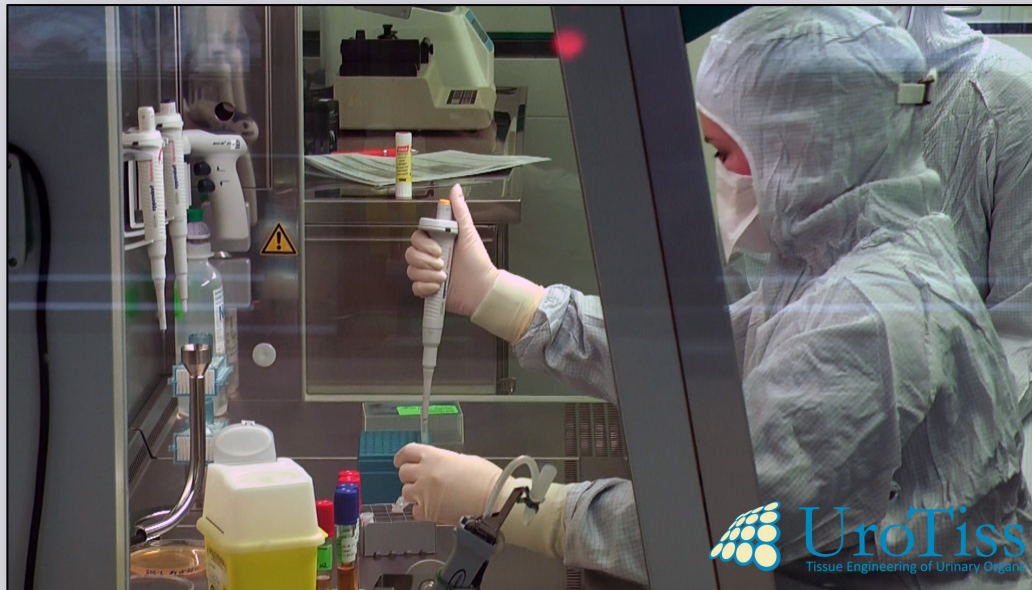


Mundy's non-transecting bulbar urethroplasty



Dorsal inlay urethroplasty using tissue engineered material



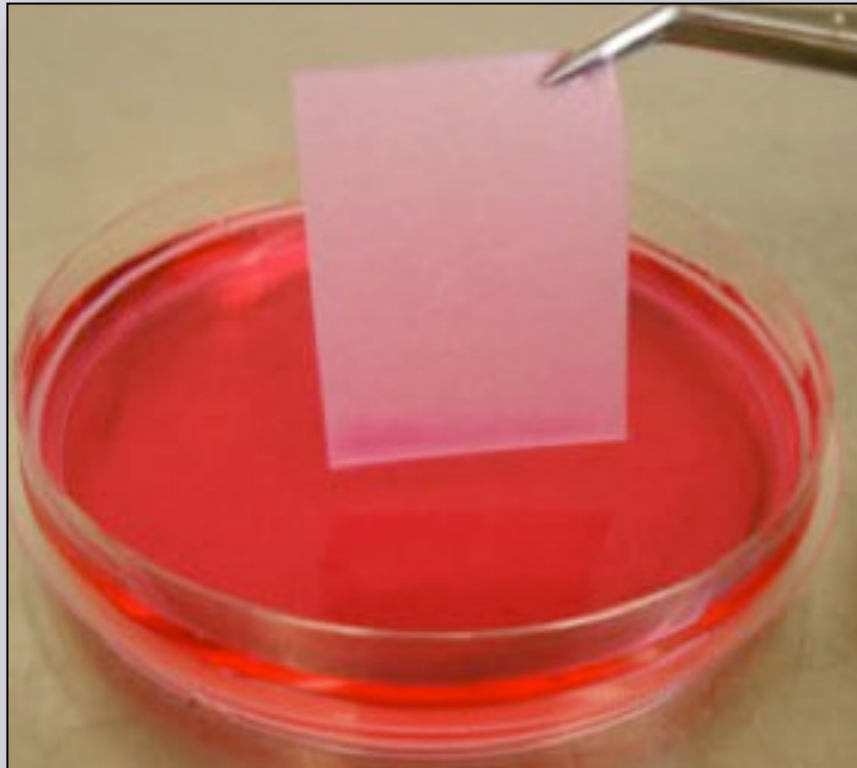


In the GMP laboratory, the oral cells were expanded and cultured on the surface of a biocompatible scaffold

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MukoCell



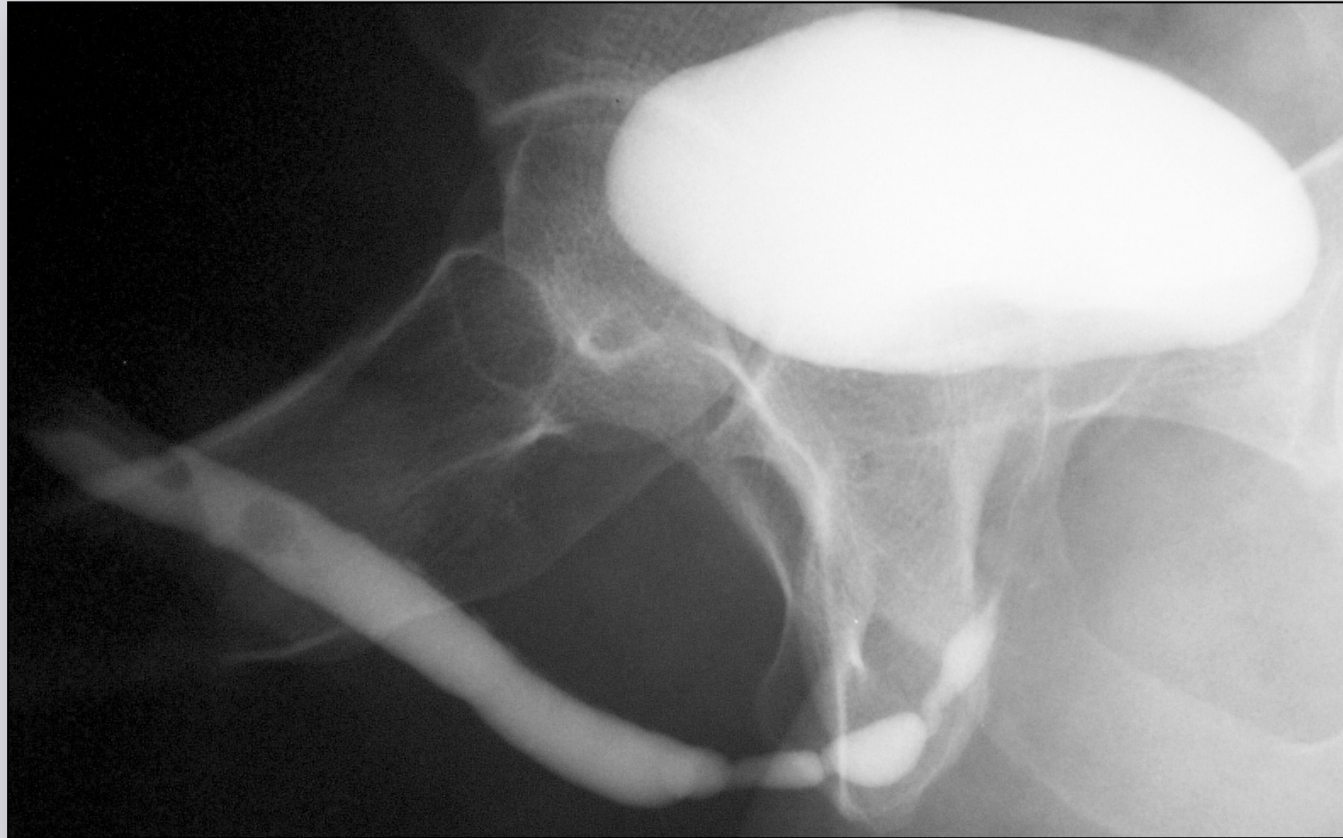
3 weeks later



48 hours for transplant

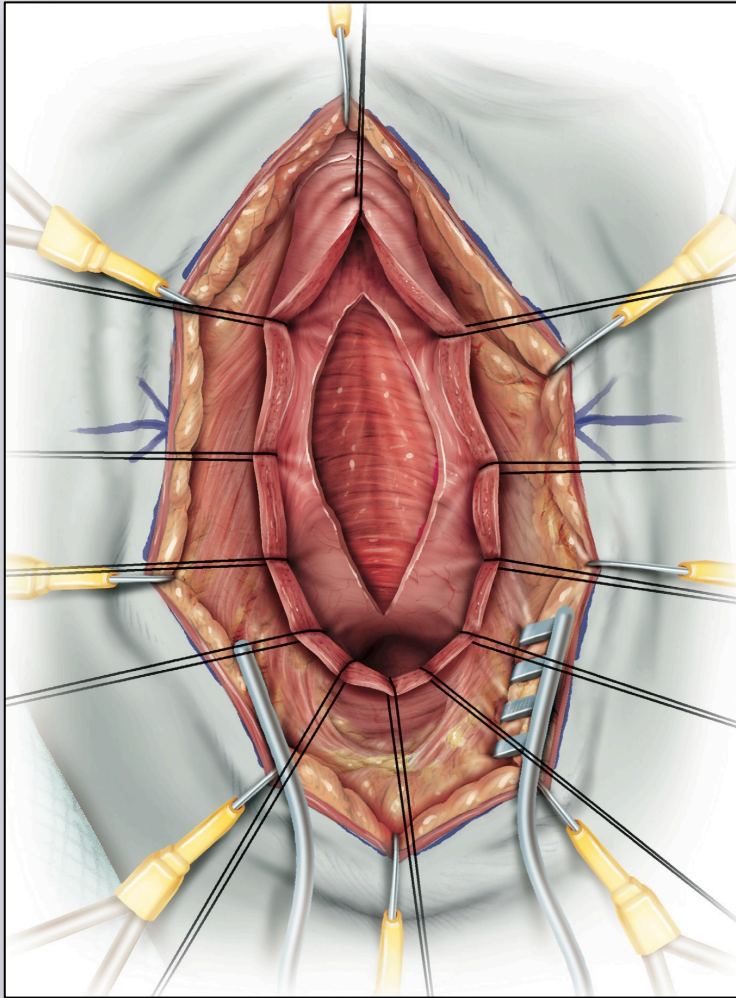
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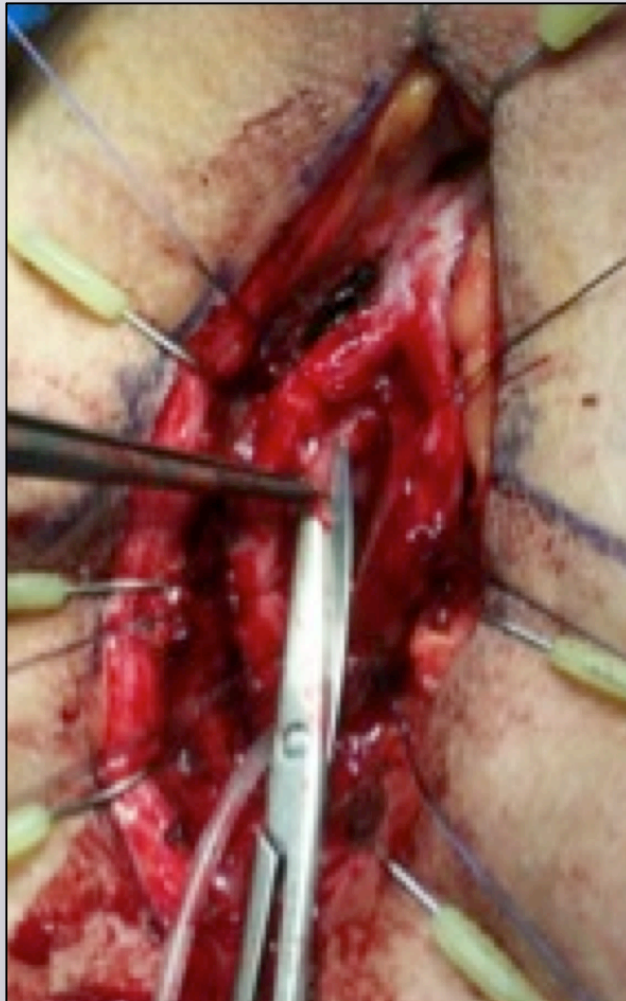


On this preliminary phase of the study we decided to include only patients with bulbar urethral stricture ranging from 2 to 6 cm in length. The aim of our preliminary study was investigating the safety, feasibility and effectiveness of MukoCell in urethral reconstruction.

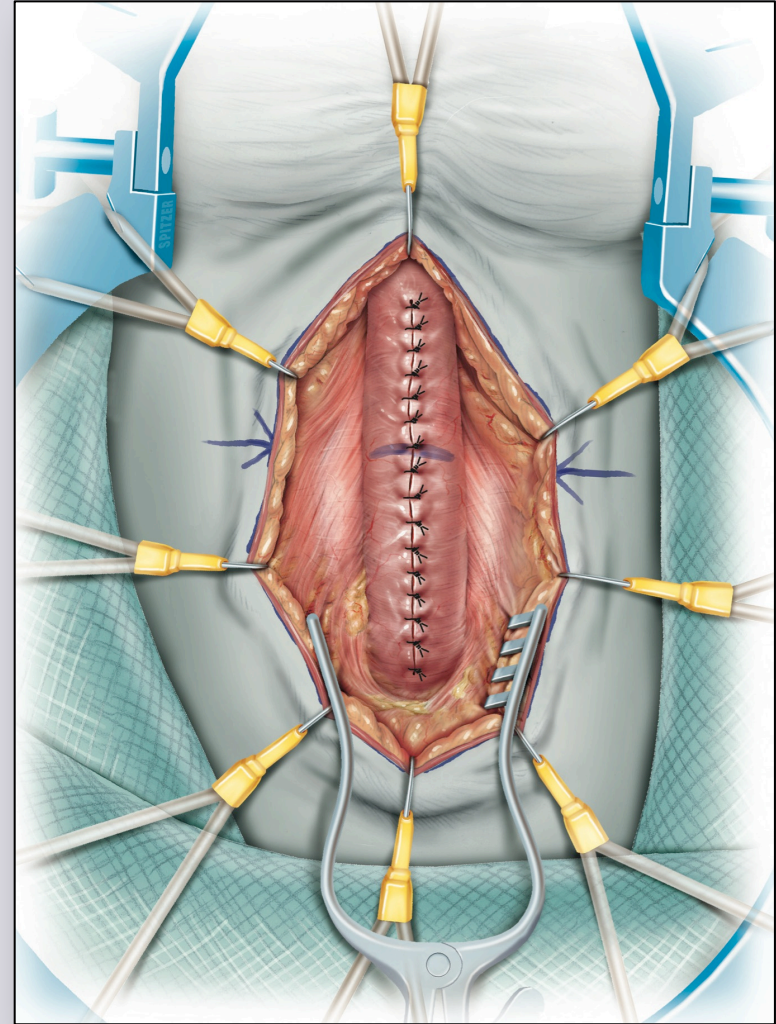
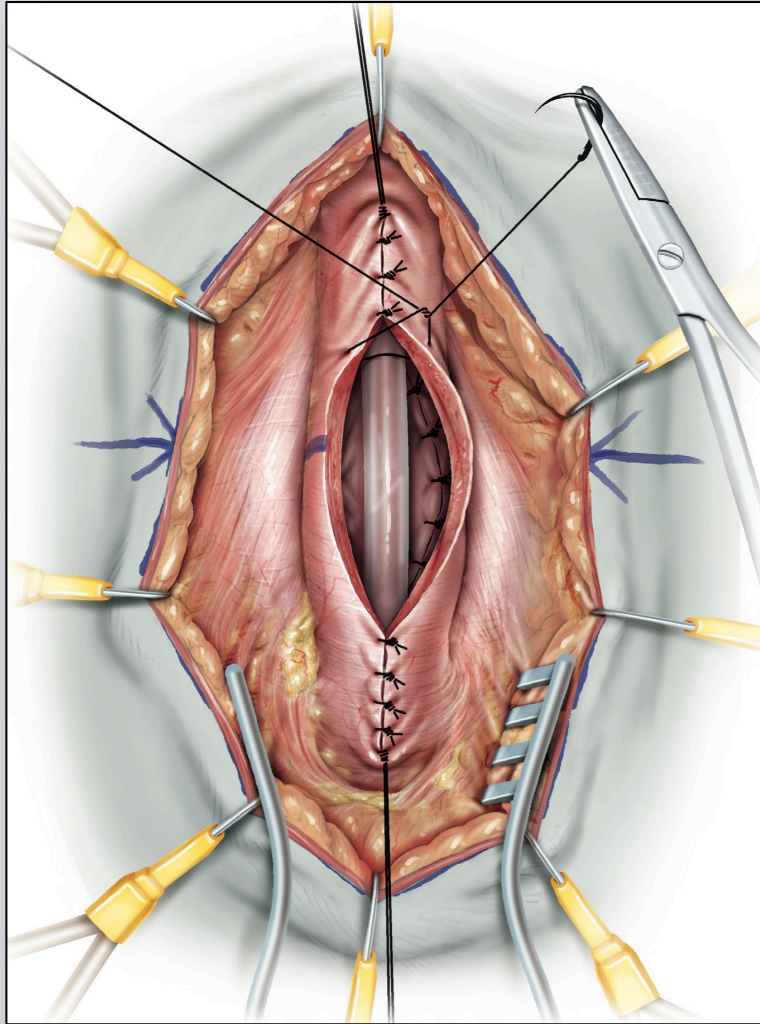
Dorsal inlay technique



Dorsal inlay technique



Dorsal inlay technique



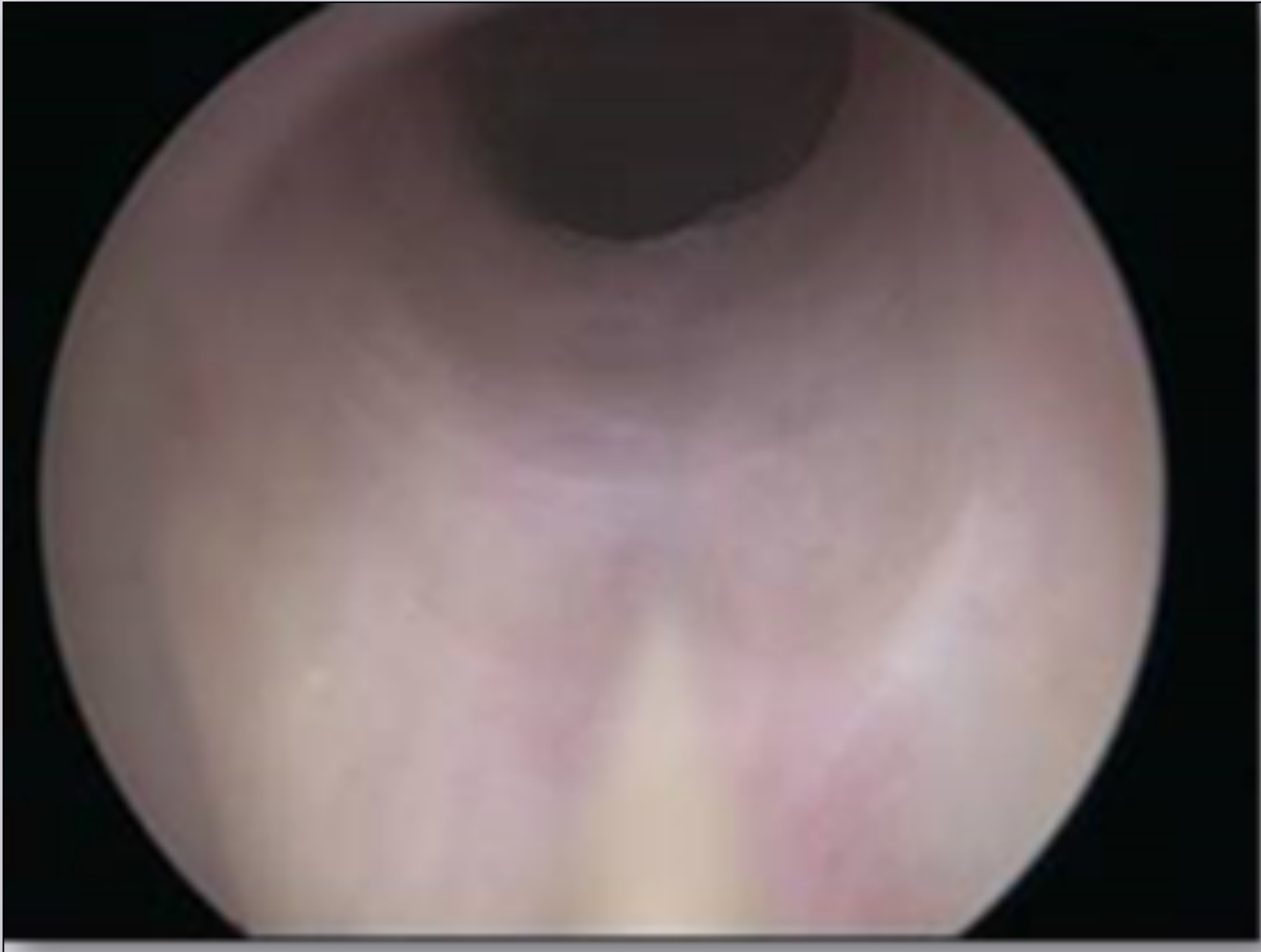
Post-operative voiding cysto-urethrography



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