

## W16: Confirmation Surgery in Gender Dysphoria: current state and future developments

Workshop Chair: Ervin Kocjancic, United States  
28 August 2018 15:30 - 17:00

Start	End	Topic	Speakers
15:30	15:35	Introduction	Ervin Kocjancic
15:35	15:55	Psychologic aspects of gender dysphoria and pre-surgical counselling	Randi Ettner
15:55	16:05	Metoidoplasty	Loren Schechter
16:05	16:15	Phalloplasty	Loren Schechter
16:15	16:25	Vaginoplasty	Ervin Kocjancic
16:25	16:35	Functional Prosthetic Surgery	Ervin Kocjancic
16:35	16:40	Vascular complications: Management and prevention	Loren Schechter
16:40	16:45	Urethral Complications	Ervin Kocjancic
16:45	17:00	Interactive Discussion	Ervin Kocjancic Loren Schechter Randi Ettner

### **Aims of Workshop**

Gender dysphoria become a commonly treated condition in urology and gynaecology practice and the access to reconstructive surgery allows an increased number of patients to undergo a gender confirmation surgery. General recommendations concerning confirmation surgery can be obtained via [www.wpath.org](http://www.wpath.org). The workshop specifies preoperative and postoperative care, indications for surgery, the actual surgical techniques, their outcomes including quality of life measurements, limitations and complications according to the surgical experiences of gender confirmation surgery and in the available literature. In male to female confirmation surgery the goals of building neovagina can be widely fulfilled even after failed initial surgery.

### **Learning Objectives**

To inform about indications, surgical possibilities and limitations of confirmation surgery in gender dysphoria (transsexualism) male to female and female to male. The delegates will familiarise with the possible voiding dysfunction commonly associated with the above mentioned procedures as well as sexual dysfunction.

### **Learning Outcomes**

- Familiarise the current definitions of the WPATH.
- Learn how to properly manage individuals with gender dysphoria.
- Familiarise with the common surgical techniques used for the confirmation surgery.
- Recognise and treat the frequent voiding dysfunction associated with the gender confirmation surgery.

### **Target Audience**

Urologists, OBGYN, Nursing and physical therapists

### **Advanced/Basic**

Basic

### **Suggested Learning before Workshop Attendance**

[www.wpath.org](http://www.wpath.org).

### **Suggested Reading**

1. An Update on the Surgical Treatment for Transgender Patients. Colebunders B, Brondeel S, D'Arpa S, Hoebeke P, Monstrey S. Sex Med Rev. 2016 Sep 10. pii: S2050-0521(16)30032-4. doi: 10.1016/j.sxmr.2016.08.001. [Epub ahead of print] Review. PMID: 27623991 2. Gender Confirmation 11/8/16, 2:16 PM  
about:blank Page 2 of 4  
Surgery: A New Frontier in Plastic Surgery Education. Schechter LS, Cohen M. Plast Reconstr Surg. 2016 Oct;138(4):784e-5e.

## **Psychologic aspects of gender dysphoria and pre-surgical counselling**

**Randi Ettner, PhD**

**Clinical and forensic psychologist, Chicago, Illinois**

I will present on the role of the mental health professional in gender confirming surgery and the WPATH Standards of Care. The mental health professional is tasked with diagnosing the patient, providing counselling prior to surgery, and then assessing the patient's readiness and eligibility to undergo surgery, in accordance with the WPATH Standards. The mental health professional refers the patient for surgery and provides the surgeon with a written assessment, attesting that the criteria for surgery have been met and the medical necessity of surgery. Co-occurring psychiatric disorders, perioperative risk factors, and post-operative psychological issues will also be discussed, and the importance of the multi-disciplinary approach in optimizing patient care.

### **Suggested reading:**

-Berli, J., Knudson, G., Fraser, L., Tangpricha, V., Ettner, R., et al. Gender confirmation surgery: what surgeons need to know when providing care for transgender individuals. *JAMA Surgery*; 152(4) 2017.

-Ettner, R. Pre-operative evaluation in Schechter (Ed.) *Surgical Management of the Transgender Patient*. Elsevier, 2017.

-DeCupere, G. Mental health issues, in *Principles of Transgender Medicine and Surgery*. Ettner, Monstry & Coleman (Eds). Routledge, 2016.

## **Metoidioplasty and Phalloplasty**

**Loren Schechter**

There are two categories of bottom surgery for transmasculine-identified individuals. These include metoidioplasty and phalloplasty.

### **Metoidioplasty**

This procedure refers to lengthening of the hormonally hypertrophied clitoris, often in conjunction with urethral lengthening to allow micturition while standing. Most often, this procedure is performed in two stages, with a secondary scrotoplasty and placement of testicular implants. At times, a monsoplasty ("mons lift") is also performed so as to lift and reduce prepubic skin and fat.

This presentation will include pre-operative preparation, operative techniques, and post-operative care, including management of complications.

### **Phalloplasty**

This procedure constructs a phallus using fasciocutaneous flaps, most often from the forearm or thigh. Most often, this procedure is performed in conjunction with urethral lengthening. In general, the goals of the phalloplasty procedure include creation of a sensate, aesthetic phallus, with the ability to urinate in a standing position. Additionally, most individuals choose to undergo placement of an implantable penile prosthesis and testicular implants at a second surgical setting. The goal of IPP placement is the ability to engage in penetrative intercourse.

This presentation will include pre-operative preparation, operative techniques, and post-operative care, including management of complications.

## **Vaginoplasty**

**Ervin Kocjancic**

The core surgical interventions that are applied within the context of trans women are; facial feminizing surgery, voice surgery and chondrolaryngoplasty, breast augmentation, and orchiectomy, penectomy and vaginoplasty. Vaginoplasty, which is the last step of the transition process, depicts the construction of a vagina that resembles a biological vagina in form and function. This procedure includes orchiectomy (can be performed as a first stage procedure before vaginal reconstruction), amputation of the penis, creation and lining of the neovaginal cavity, reconstruction of the urethral meatus and construction of the labia and clitoris.

In transgender vaginoplasty, surgical techniques can be divided into three main categories according to the nature and origin of the tissue(s) used for reconstruction: skin grafts; penile-scrotal skin flaps (penile skin inversion technique); and pedicled small or large bowel segments (intestinal vaginoplasty).

The main goals of vaginoplasty are to achieve an esthetically and functionally ideal perineogenital complex that will satisfy the patient. The neovagina should be moist, elastic and hairless with a depth of at least 10 cm and a diameter of 3-4 cm. The clitoris should be small, obscured and sensitive enough to enable complete arousal. Labia minora and majora should resemble the female vulva as much as possible. Innervation of the new genitalia complex should be functionally intact in order to offer a satisfactory level of erogenous stimulation during sexual intercourse. Transwomen who prefer an esthetic outcome without a functional vagina can undergo a vulvoplasty without vaginoplasty.

Penile skin inversion technique is the most investigated and therefore the most evidence-based technique for vaginoplasty. Herein; the inverted penile skin on an abdominal or more inferior pedicle is used as an outside-in skin tube for the lining of the neovagina. Preserved vascularization of the penile skin, its mobility, non-hair-bearing surface, sensate nature, thin connective tissue and relatively minimal tendency to contract represent the main advantages of using penile skin-based flaps. In cases where the penile skin is deficient (circumcision, micropenis etc.), several technical refinements can be applied such as combining the penile skin flap with scrotal and/or urethral flaps. Utilizing a perineal flap together with a scrotal graft in addition to penile skin may also serve well to lengthen the neovaginal cavity. Surgical outcome and sexual function associated with this technique are generally acceptable to good. Using additional urethral and penoscrotal flaps may provide benefit in terms neovaginal depth and lubrication.

Intestinal vaginoplasty is a viable alternative. Especially in cases where no redundant penile and/or scrotal skin is available for grafting, intestinal grafts provide a good alternative. Pedicled bowel segments can also be used when prior neovaginal reconstructive attempts with skin flaps and/or grafts failed in transgender patients. The need to elongate the vagina in transwomen requiring greater depth after a previous neovaginal construction is another indication to proceed with intestinal vaginoplasty. Overall, the outcome of vaginoplasty with pedicled bowel segments does not seem to be inferior to the penile skin inversion technique.

There is a need for prospective randomized studies with standardized surgical procedures, larger patient cohorts and longer follow-up period in order to make a valid comparison between the available vaginoplasty techniques and identify the “ideal” one.

#### Take home message

Penile skin inversion technique remains the method of choice for vaginoplasty in male to female transition.

#### References:

- Bizic MR, Stojanovic B, Djordjevic ML. Genital reconstruction for the transgendered individual. J Ped Urol 2017; 13: 446-452.
- Horbach SE, Bouman MB, Smit JM, Özer M, Buncamper ME, Mullender MG. Outcome of Vaginoplasty in Male-to-Female Transgenders: A Systematic Review of Surgical Techniques. J Sex Med. 2015 Jun;12(6):1499-512.
- Colebunders B, Brondeel S, D'Arpa S, Hoebeke P, Monstrey S. An Update on the Surgical Treatment for Transgender Patients. Sex Med Rev. 2017 Jan;5(1):103-109.
- Bouman MB, van Zeijl MC, Buncamper ME, Meijerink WJ, van Bodegraven AA, Mullender MG. Intestinal vaginoplasty revisited: a review of surgical techniques, complications, and sexual function. J Sex Med. 2014 Jul;11(7):1835-47.

### **Management of Urethral Complications in Gender Confirmation Surgery**

#### **Ervin Kocjancic**

Gender dysphoria can be described as a discrepancy between the gender assigned at birth and gender identity. Individuals with gender dysphoria are becoming increasingly more accepted in society and therefore the number of patients who feel confident enough to seek gender confirmation surgery has increased substantially.

Genital reconstructive surgery, which is the last step of an individual's transition, involves labiaplasty, clitoroplasty, vaginoplasty in transgender women and vaginectomy, phalloplasty or metoidioplasty, scrotoplasty, placement of penile/testicular prostheses in transgender men.

Urethral complications are one of the most common urologic sequelae after gender confirmation surgery. Urethral fistula and stricture (including meatal stenosis) represent the most frequent urethral complications in trans patients.

#### Urethral complications after phalloplasty:

Radial forearm free flap phalloplasty (RFFP) is the current standard of care for most female to male gender confirmation surgeries. A meta-analysis of 11 forearm phalloplasty series demonstrated significantly high stricture and fistula rates, ranging from 20 to 77%. Some technical modifications, such as vascularized paravaginal tissue flaps, additionally covered by bulbospongiosus muscle proximally and non-epithelialized paravaginal tissue flaps, have been proposed to lower this high complication rate. However, it still remains a major cause of morbidity.

Urethral stricture after phalloplasty can initially be managed by endoscopic interventions; dilation and/or direct visualization internal urethrotomy. However, in patients with longer or multifocal strictures, or in whom endoscopic management fails, urethroplasty must be performed. Approach to urethroplasty depends on location of the stricture and length of the affected segment with meatotomy, Heineke-Mikulicz principle, excision and primary anastomosis, free graft urethroplasty, pedicled flap urethroplasty, 2-stage urethroplasty, and perineal urethrostomy, which may be followed by urethral reconstruction represent the available options.

Urethral fistulas may heal within three months when the urinary stream is diverted with a suprapubic urinary catheter; 17–35% of fistulas appear to heal without further surgery. Otherwise, further reconstructive surgery involving the interposition of local or extragenital tissue substitutes becomes inevitable.

#### Urethral complications after vaginoplasty:

Urethral stricture is less prevalent after vaginoplasty when compared with the probability after phalloplasty. A recent systematic review and meta-analysis reported a mean urethral stricture rate of 1%. These patients usually present 2-3 months after the primary surgery, initially with reduction in urine flow, and then overflow incontinence. Urethral dilations may not solve the problem in a durable manner. Meatoplasty is usually effective, although a few do go on to long-term intermittent catheterization.

#### Take home message

Urethral complications after gender confirmation surgery are common despite technical refinements, may necessitate further reconstructive interventions and might be the cause of chronic morbidity.

#### References:

- 1-) Manrique OJ, Adabi K, Martinez-Jorge J, Ciudad P, Nicoli F, Kiranantawat K. Complications and Patient-Reported Outcomes in Male-to-Female Vaginoplasty-Where We Are Today: A Systematic Review and Meta-Analysis. *Ann Plast Surg.* 2018 Jun;80(6):684-691.
- 2-) Nikolavsky D, Yamaguchi Y, Levine JP, Zhao LC. Urologic Sequelae Following Phalloplasty in Transgendered Patients. *Urol Clin North Am.* 2017 Feb;44(1):113-125.
- 3-) Santucci RA. Urethral Complications After Transgender Phalloplasty: Strategies to Treat Them and Minimize Their Occurrence. *Clin Anat.* 2018 Mar;31(2):187-190.
- 4-) Dy GW, Sun J, Granieri MA, Zhao LC. Reconstructive Management Pearls for the Transgender Patient. *Curr Urol Rep.* 2018 Apr 11;19(6):3

**DYSPHORIA: CURRENT STATE AND FUTURE DEVELOPMENTS** ICS 2018 PHILADELPHIA

Affiliations to disclose\*:

Dr. Ervin Kocjancic, MD, Urology  
 Dr. Loren Schechter MD, Plastic Surgery  
 Dr. Randi Ettner, Clinical and Forensic Psychologist

\* An Essential Site user (the last part) that you may have with your business organization with respect to the subjects mentioned during your presentation.

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**Education Opportunity** ICS 2018 PHILADELPHIA

- Cadaver Classes for Phalloplasty and Vaginoplasty techniques @Weiss Memorial Hospital, Chicago
- Short rotation/Observership
- Fellowship Program

International fellowship in Genito-Urinary and transgender Surgery

For inquiry and applications:  
<https://chicago.medicine.uic.edu/departments/academic-departments/urology/clinical-services/pelvic-health-and-reconstructive-urology/>

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ICS 2018  
PHILADELPHIAICS 2018  
PHILADELPHIA**WORKSHOP SCHEDULE**

- **PSYCHOLOGIC ASPECTS OF GENDER DYSPHORIA AND PRE SURGICAL COUNSELING R.E.**
- **METOIDOPLASTY L.S.**
- **PHALLOPLASTY L.S.**
- **VAGINOPLASTY E.K.**
- **FUNCTIONAL PROSTHETIC SURGERY E.K.**

- **VASCULAR COMPLICATIONS: MANAGEMENT AND PREVENTION L.S.**
- **URETHRAL COMPLICATIONS E.K.**

**-INTERACTIVE DISCUSSION**

## The Role of the Mental Health Professional in Gender Confirming Surgery

Randi Ettner

## Historical assessment for surgery

- MHP viewed as gatekeeper
- Patients wanted autonomy - tension
- Binary assumption - triadic treatment; M-F; F-M
- Many "hoops"
- Few surgeons, cost-prohibitive, long waits

## WPATH SOC 7

Depathologized gender incongruity

Acknowledges shared decision making and harm reduction

*Flexible* guidelines-health care needs are diverse and must be individual

Provides criteria to assess for hormones and surgery

## Criteria: breast/chest surgery

- Persistent, well-documented gender dysphoria
- Capacity to make a fully-informed decision and consent for treatment
- Age of majority
- If significant medical or mental health concerns present, must be reasonably well controlled

## Hysterectomy, salpingo-oophrectomy or orchiectomy

- Persistent, well-documented gender dysphoria
- Capacity to make a fully informed decision
- Age of majority
- If significant medical or mental health concerns, must be well controlled
- 12 continuous months of hormone therapy

## Metoidoplasty, phalloplasty or vaginoplasty,

- Persistent, well-documented gender dysphoria
- Capacity to make a fully informed decision
- Age of majority
- If significant medical or mental health concerns, must be well controlled
- 12 continuous months of hormone therapy
- 12 continuous months of living in a gender role consistent with gender identity (social role transition)

### Role of MHP

- Diagnose gender dysphoria
- Determine readiness and eligibility
- Assess and refer for surgery
- Prepare for surgery
- Provide information/manage expectations
- Collaborate and be a resource
- Provide perioperative support
- Consult complicated cases (eg schizophrenia, anomalous surgical requests)

### Referral for surgery

- Qualified MHP provides letter
- Purpose: to document readiness and eligibility
- One referral for chest/breast surgery
- Two referrals for genital surgery:  
one from MHP who followed the patient  
another is from MHP for 2<sup>nd</sup> opinion

### Contents of Referral Letter

- Identifying characteristics
- Psychosocial assessment, including diagnoses
- Criteria met, supports request for surgery
- Duration and nature of relationship with patient
- MHP is available for consultation and collaboration
- Provides relevant information that informs care (eg pt has trauma hx)

### Preparation for surgery

- Understands risks, procedure, post-operative care (70% don't know risks)
- Has realistic expectations
- Explore rationale: Why surgery *now*? Why this surgery? Why this surgeon?
- Plans for post-op care and support

### Collaborative Care

- Gender surgery require multidisciplinary care
- Continuous care, not episodic, yields best outcomes
- Trained providers join as a team, literally or virtually, to collaborate for optimal care
- Empowers patients by creating support network and advocates
- Care is customized to reflect individual needs
- Each provider has deep but specific knowledge

### Mental Health Issues and Post-op Concerns

- Surgery is stressful-stress can trigger pre-existing psych issues
- Pts with anxiety dx - more post-op pain
- Pts with schizophrenia - higher post-op mortality
- Pts with hx of PTSD - tend to have poorer outcomes

## Post-op psychiatric disorders

- PTSD from complications
- Depression due to disappointment, disfigurement, catheters, etc.
- POCD post-op cognitive decline- rare more common in pts over 60 - (not due to anesthesia)
- Destabilization from prolonged convalescence
- SSRI's may be helpful if adjustment dx during 1<sup>st</sup> year

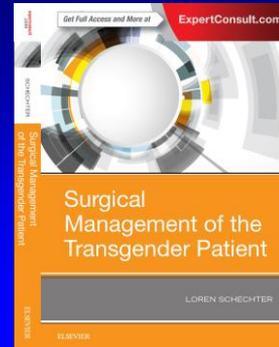
**GENDER CONFIRMATION SURGERY  
METOIDIOPLASTY  
ICS  
PHILADELPHIA, PA  
AUGUST 28, 2018**



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**Disclosure**



**Gender Dysphoria:** Varying degrees of dissatisfaction with anatomic gender & desire to possess secondary sexual characteristics of opposite sex

**Goal of Therapy:** Lasting personal comfort with gendered self in order to maximize psychological well-being & self-fulfillment



Alice came to a fork in the road and saw a Cheshire cat in a tree. "Which road do I take?" she asked. "Where do you want to go?" was his response. "I don't know," Alice answered. "Then," said the cat, "it doesn't matter."

Alice in Wonderland, Lewis Carroll, 1865



Radial forearm phalloplasty



Postop vaginoplasty

Gender confirmation surgery provides appropriate physical morphology & alleviates extreme psychological discomfort

The Standards of Care for Gender Identity Disorders, Seventh Version, WPATH

**Standards of Care for the Health of Transsexual, Transgender, and Gender-Nonconforming People, Version 7**

E. Coleman, W. Bockting, M. Botzer, P. Cohen-Kettenis, G. DeCuypere, J. Feldman, L. Fraser, J. Green, G. Knudson, W. J. Meyer, S. Monstrey, R. K. Adler, G. R. Brown, A. H. Devor, R. Ehrbar, R. Ettner, E. Eyler, R. Garofalo, D. H. Karasic, A. I. Lev, G. Mayer, H. Meyer-Bahlburg, B. P. Hall, F. Praeflin, K. Rachlin, B. Robinson, **L.S. Schechter**, V. Tangpricha, M. van Tolzenburg, A. Vitale, S. Winter, S. Whittle, K. R. Wyllie & K. Zucker

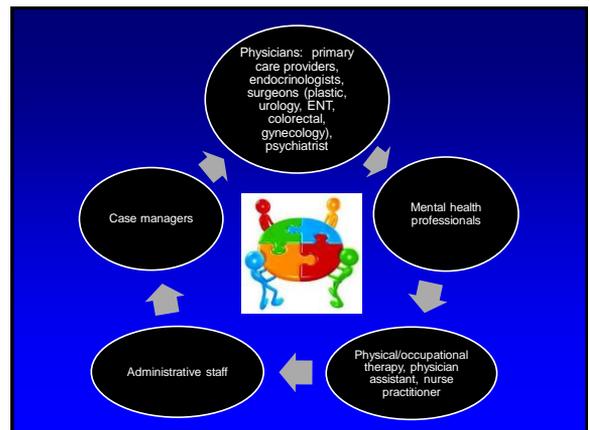
- Intended to provide flexible direction for the treatment of transgender individuals
- Individual centers may vary (hormonal therapy & real-life test)
- Not intended as barrier to surgery...identify patients who would benefit from surgery

First version published in 1979

Beginning version 8



**wpath.org**



## Surgical Training

THE JOURNAL OF  
SEXUAL MEDICINE

### Gender Confirmation Surgery: Guiding Principles

Loren S. Schechter, MD, FACS,<sup>1</sup> Salvatore D'Avella, MD, PhD,<sup>1</sup> Minnie N. Cohen, MD,<sup>1</sup> Ervin Kocjanec, MD,<sup>1</sup> Karol E. Y. Claes, MD,<sup>1</sup> and Stan Monstrey, MD, PhD<sup>2</sup>

#### ABSTRACT

**Background:** In this time, no formal training or educational program exists for surgeons or surgery residents interested in performing gender confirmation surgery.

**Aim:** To propose guiding principles designed to aid with the development of formal surgical training programs focused on gender confirmation surgery.

**Methods:** We use expert opinion to provide a "line of fit kind" framework for training surgeons to care for transgender and gender nonconforming individuals.

**Outcomes:** We describe a multidisciplinary treatment model that describes an educational philosophy and the treatment of quality parameters.

**Results:** This article represents the first step in the development of a structured educational program for surgical training in gender confirmation procedures.

**Clinical Implications:** The World Professional Association for Transgender Health Board of Directors unanimously approved this article as the framework for surgical training.

**Strengths and Limitations:** This article builds a framework for surgical training. It is designed to provide concepts that will likely be modified over time and based on additional data and evidence gathered through outcome measurements.

**Conclusion:** We present an initial step in the formation of educational and included guidelines for training surgeons in gender confirmation procedures. *Schacter LS, D'Avella S, Cohen MN, et al. Gender Confirmation Surgery: Guiding Principles. J Sex Med 2017;XXXX-XXXX.*

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**Key Words:** Gender Confirmation Surgery; Phalloplasty; Metoidioplasty; Vaginoplasty; Gender Surgery; Fellowship.

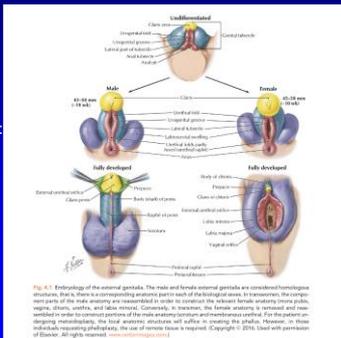
## Metoidioplasty v. Phalloplasty

- Lengthen clitoris
- Urination while standing
- Minimize donor site
- No penetrative intercourse
- Maintain sensate glans
- Urination while standing – Urethral morbidity
- Penetrative intercourse
- Donor site & surgical risks



### Conversion of metoidioplasty to phalloplasty

**Indifferent stage: 4<sup>th</sup> week**  
**Distinguishing characteristics: 9<sup>th</sup> week**  
**Differentiation complete: 12<sup>th</sup> week**



**Male**

Masculinization:  
androgens  
produced by  
fetal testes

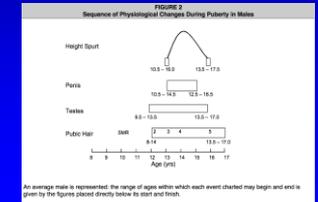
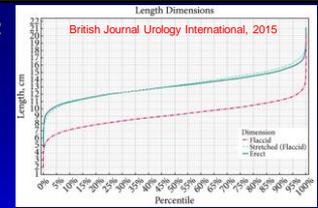
**Female**

Feminization:  
absence of  
androgens

**Abnormally small phallus: 2  
std deviations below mean  
< 6 cm flaccid  
< 9.5 cm on stretch**

**Microphallus: 2.5 std  
deviations below mean  
< 5.2 cm flaccid  
< 8.5 cm on stretch**

**Maximum growth of  
penis between 12-16 yrs**



An average male is represented by the range of ages within which each event started may begin and end is given by the figures placed directly below to start and finish.

Source: Adapted from Tanner JM. Growth at adolescence. Oxford: Blackwell Scientific Publications; 1962. Reprinted with permission. <http://www.tanner-trust.com>

### Perineal hypospadias & cryptorchidism



### Radial forearm phalloplasty

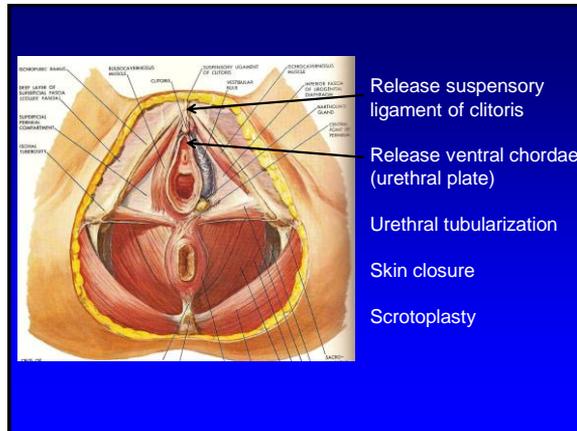
### Metoidioplasty: clitoral virilization

Effect	Expected onset	Expected maximum effect
Sex reassignment	2-4 months	1-2 years
Facial/body hair growth	2-4 months	2-5 years
Body hair loss	<12 months	Variable
Increased muscle mass/strength	6-12 months	2-5 years <sup>1</sup>
Balds for receding hairline	2-6 months	2-5 years
Onset of menses	2-6 months	0/0
Clitoral enlargement	2-6 months	1-2 years
Vaginal atrophy	2-6 months	1-2 years
Decreased libido	2-10 months	1-2 years





Secondary scrotoplasty with mons lift



- Release suspensory ligament of clitoris
- Release ventral chordae (urethral plate)
- Urethral tubularization
- Skin closure
- Scrotoplasty

## Metoidioplasty: Outcomes/Techniques

Long-term outcome of metaidioplasty in 70 female-to-male transsexuals  
Hage, et. al.  
Ann Plast Surge 2006; 57 312-316

**TABLE 1. Distribution of the Number of Events per Patient**

	No. Events per Patients					Total	
	0	1	2	3	4		5
Primary scrotoplasty	6	17	10	9	4	1	47
Secondary scrotoplasty	1	5	8	6	0	0	20
No scrotoplasty	1	0	1	0	1	0	3
All	8	22	19	15	5	1	70

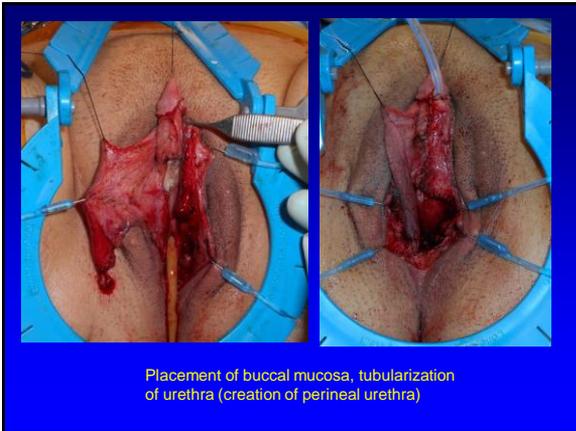
Number of events per patient is after metoidioplasty in our series of 70 patients (All), in the subgroup of 47 patients in whom scrotoplasty was performed primarily in combination with metaidioplasty, in the subgroup of 20 patients in whom scrotoplasty was performed secondarily, and in the subgroup of 3 patients in whom no scrotoplasty was performed in combination or after metaidioplasty. The reported events consisted of immediate postoperative complication, urethral fistula, urethral stricture, loss of testicular prosthesis, and dislocation of a testicular prosthesis.

Length of stay: 10 days

<b>Complications:</b>	<b>Outcomes:</b>
Immediate 33%	Average of 2.6 procedures per patient
Fistula 37%	
Stricture 36%	11.4% "uneventful"
Prosthesis	
• Loss 31%	17% subsequent phalloplasty
• Dislocation 49%	



Release of Chordae



**Mons Lift/Resection:**

Staged procedure performed 3 months following metoidioplasty

Removal of skin and fatty tissue overlying pubis



**Secondary Scrotoplasty:**

Retrodisplacement of labia majora for secondary scrotoplasty



Secondary scrotoplasty & placement of testicular implants



Metoidioplasty with second stage scrotoplasty, mons lift, and placement of testicular implants



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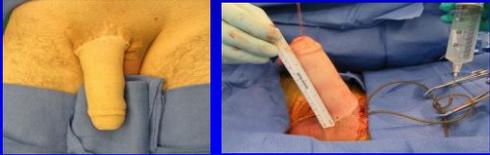


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### Phalloplasty Goals

- Aesthetic phallus
- Tactile & erogenous sensation
- Void while standing
- Minimal morbidity (including donor site)
- Aesthetic scrotum
- Ability to experience sexual satisfaction



**Radial forearm phalloplasty: placement of 3 piece, 2 cylinder hydraulic penile prosthesis**

Penile reconstruction: is the radial forearm flap really the standard technique, Monstrey, PRS 124: 510, 2009

### RFF Phalloplasty

	Overall (%)	1992-1997 (%)	1997-2001 (%)	2001-2007 (%)
<b>Flap-related</b>				
No.	267	59	62	167
Anastomotic revision	34 (12)	8 (13.6)	7 (11.2)	19 (11.3)
Complete flap loss	2 (0.7)	1 (1.7)	1 (1.6)	0
Marginal partial necrosis (13 additional operations)	21 (7.5)	6 (10)	5 (8)	10 (6)
<b>Urologic</b>				
Early fistula (closing spontaneously)	51 (17.7)	12 (20)	12 (19.4)	27 (16.1)
Stricture treated conservatively	21 (7.3)	5 (8.4)	5 (8)	11 (6.5)
Fistula/stricture requiring urethroplasty (97 additional operations)	52 (18.1)	12 (20)	12 (19.4)	28 (16.7)
<b>Various</b>				
Minor pulmonary embolism	3 (1)	1 (1.7)	2 (3.2)	0
Regrafting of defect on arm	2 (0.7)	1 (1.7)	1 (1.6)	0
Nerve compression (early cases)	2 (0.7)	2 (3.3)	0	0
Delayed wound healing in groin area (four additional operations)	32 (11.1)	9 (15.2)	7 (11.2)	16 (9.6)
<b>Erectile prosthesis (130 prostheses)</b>				
No.	130	21	32	77
Revision surgery	58 (44.6)	13 (62)	16 (50)	29 (37.6)
Incapacity to perform sexual intercourse	26 (20)	6 (28.5)	7 (22.6)	13 (17)

**Tactile sensation: 100%**

**Postoperative patients who were sexually active: 100% achieve orgasm**

**Ultimately, all patients able to void (52 patients required 97 procedures)**

Penile reconstruction: is the radial forearm flap really the standard technique, Monstrey, PRS 124: 510, 2009

### RFF Phalloplasty: Outcomes/Techniques

#### Urologic

- Urologic complications 41%
  - Other series up to 80%
- All patients ultimately able to void
- Most complications at "neo-urethra and native urethra," not along flap urethra

56 patients who had radial forearm phalloplasty  
-Mean number of surgical procedures: 6

#### Flap

- Anastomotic revision 11.3%
- Partial flap necrosis 7.2%
  - Larger flaps
- No longer operate on smokers

Penile reconstruction with the radial forearm flap: an update  
Doornant, Handchir Mikrochir Plast Chir 2011; 43: 208-214

Long-term outcome of forearm free-flap phalloplasty in the treatment of transsexuals: Leriche, BJU International 101, 1297-1300, 2008



**Male anatomy**

Radial forearm phalloplasty

**Average Male Dimensions:**

Flaccid: 8.6-9.3 cm (3.4-3.7 in)

Erect: 12.9-14.5 cm (5.1-5.7 in)

Circumference: 8.8-10 cm (3.5-3.9 in)

**Flap Dimensions:**

Approximately (distal wrist crease to elbow flexion crease) 21-23 cm

Flap length: 13-17 cm

Recipient site (pubis) to femoral vessels approximately 9 cm\*

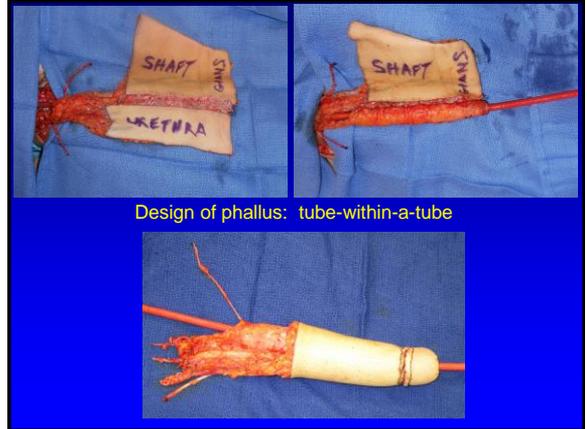
\*Issue: arterial pedicle length

### Radial Forearm Phalloplasty

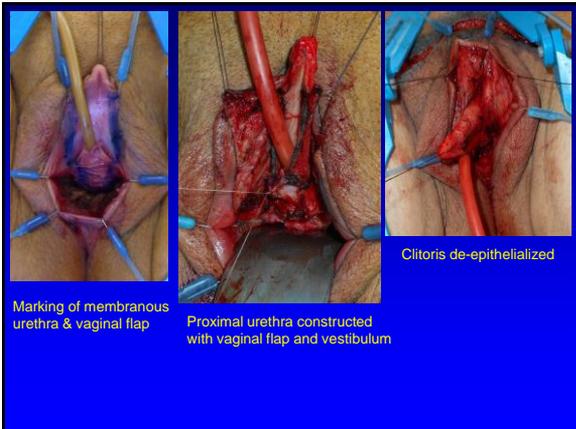


**Single stage reconstruction of urethra ("tube-within-tube")**

- May require preop electrolysis
- Urethra 4 cm in width
- Volar positioning of urethra



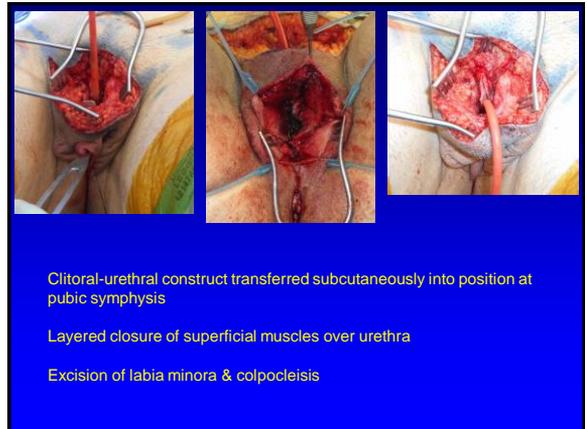
Design of phallus: tube-within-a-tube



Marking of membranous urethra & vaginal flap

Proximal urethra constructed with vaginal flap and vestibulum

Clitoris de-epithelialized



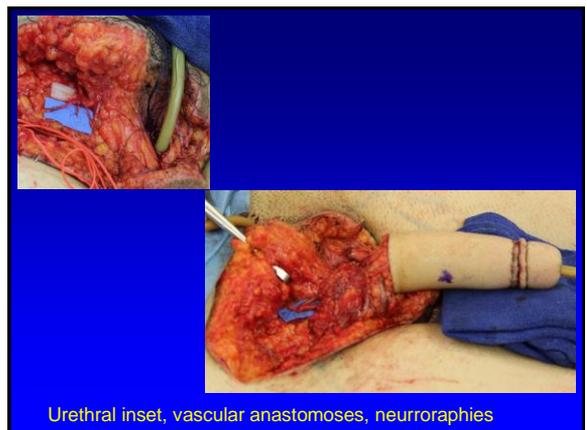
Clitoral-urethral construct transferred subcutaneously into position at pubic symphysis

Layered closure of superficial muscles over urethra

Excision of labia minora & colpocleisis



Scrotoplasty with medial transposition of labia majora



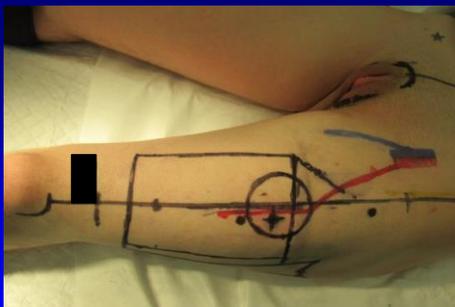
Urethral inset, vascular anastomoses, neurorrhaphies



Testicular implants and revision glansplasty

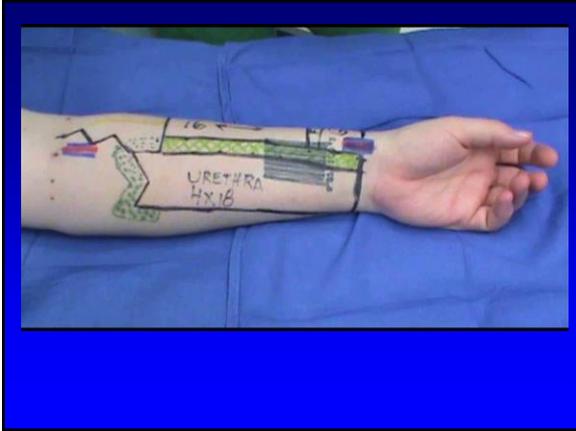


Placement of bilayer wound matrix topical silver and npwt



ALT donor site markings





*LOREN S. SCHECHTER, MD, FACS*  
*LSS@UNIVPLASTICS.COM*

# Update in Vaginoplasty Technique

## Surgical Interventions for MTF Gender Confirmation

Facial feminizing surgery

Voice surgery and chondrolaryngoplasty

Breast augmentation

Vaginoplasty

**SURGEON**



**PLASTIC SURGEON**



Vaginoplasty

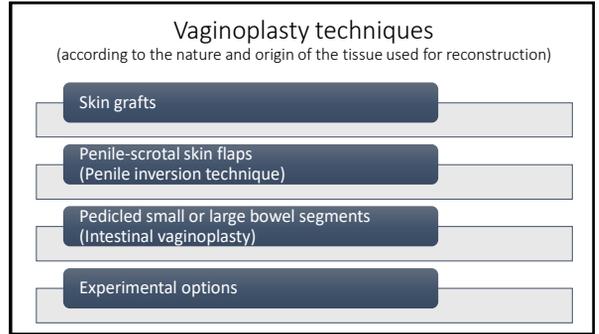
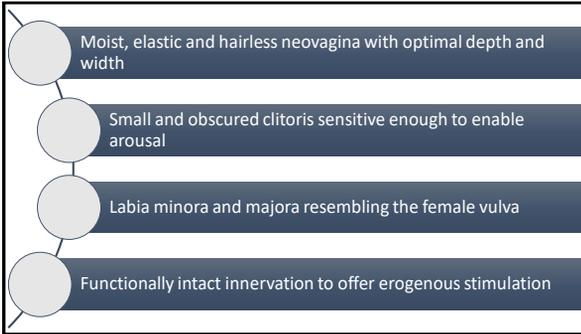
Orchiectomy

Radical Penectomy

Perineal Prostatectomy

Reconstruction of the urethral meatus

Labiaplasty & clitoroplasty



### Skin Grafts

- Hage and Karim;
  - FTG from the lower abdomen (n= 7)
  - No postop. complications (f/u 7 months)
  - Pleasant cosmetic and functional outcome
  - Mean neovaginal depth of 12 cm
- Siemssen and Matzen;
  - FTG of penile skin, STG or a combination of both (n= 11)
  - Vaginal stenosis (45%)**

### Penile Inversion Technique

- The most frequently performed
- Inverted penile skin on a pedicle used as an outside-in skin tube
- Advantages of penile skin;
  - Vascularization
  - Mobility
  - Non-hair-bearing surface
  - Sensate nature
  - Thin connective tissue
  - Minimal tendency to contract

### On the Origin of Pedicled Skin Inversion Vaginoplasty

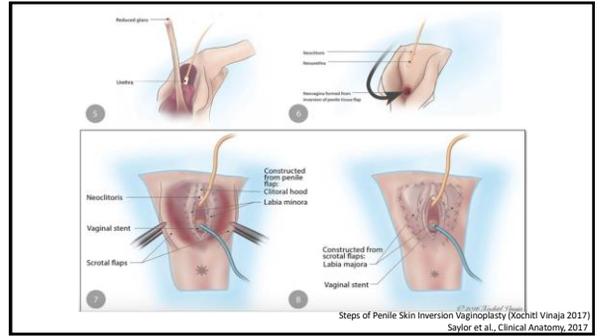
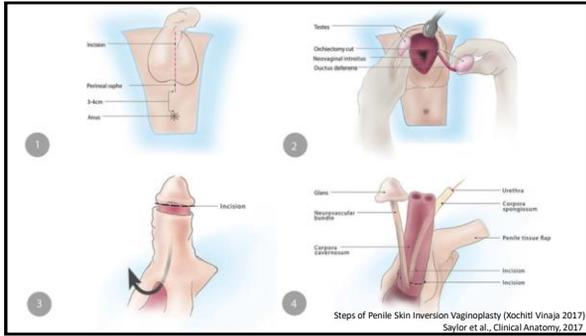
*Life and Work of Dr Georges Burou of Casablanca*

J. Joris Hage, MD, PhD,\* Refaat B. Karim, MD, PhD,† and Donald R. Laub Sr, MD‡

After ligation and dissection of both c. cavernosa and transection of the spongiosus bulb and urethra, all erectile bodies were being dissected off and the distal, coronal edge of the penile skin was closed. This yielded the skin tube that was inserted as neovaginal lining.

*Ann Plast Surg 2007;59:723-729*

**Figure 1** The operation of George Burou of Casablanca. From: Proceedings of The Second Interdisciplinary Symposium on Gender Dysphoria syndrome, Author's collection. (A) The vertical perineal incision; (B) the inverted penile skin tube; (C) the vaginal stent in place; (D) the final result.

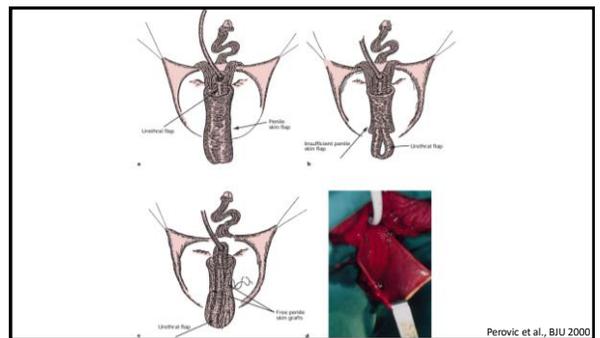
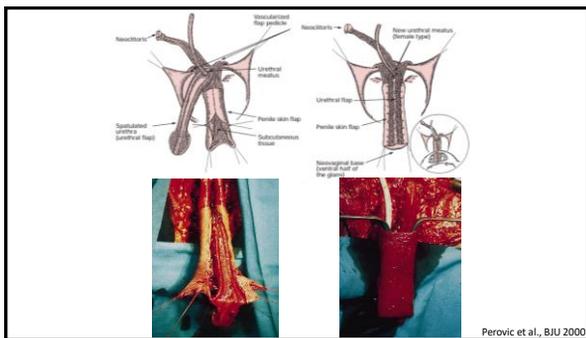


### Need for Technical Refinements

- Achieve the largest possible vaginal depth and width
  - Especially when penile skin is deficient (<12cm)
- Increase the moisture and lubrication level of the neovagina
  - Decrease the incidence of vaginal stenosis
  - Improve sexual satisfaction
- Provide a more esthetic mons pubis by decreasing the abdominal tension

### Penile skin can be combined with...

- Scrotal (Selvaggi et al.) and/or urethral flaps (Perovic et al.)
- Spatulated urethral flap + scrotal skin graft (Papadopoulos et al.)
- Scrotal FTG and/or posteriorly based scrotal skin flap (Van Noort et al.)
- Spatulated urethral flap (Perovic and Djordjevic)
- Perineal flap + scrotal graft (Kocjancic and Schecter)



**Inverted Penile Skin with Scrotal Graft and Omission of Sacrospinal Fixation: our Novel Vaginoplasty Technique**



**Inverted Penile Skin with Scrotal Graft and Omission of Sacrospinal Fixation: our Novel Vaginoplasty Technique**



**Direct Visual Dissection of Rectoprostatic Space**

- Denonvillier's fascia opened;
  - Extended rectoprostatic dissection
    - Omission of sacrospinal fixation
    - Preventing damage to the pudendal neurovascular bundle
- Inadvertent rectal injuries;
  - Rectovaginal fistula:
  - Prompt recognition..!

**Inverted Penile Skin with Scrotal Graft and Omission of Sacrospinal Fixation: our Novel Vaginoplasty Technique**



**Inverted Penile Skin with Scrotal Graft and Omission of Sacrospinal Fixation: our Novel Vaginoplasty Technique**



**Inverted Penile Skin with Scrotal Graft and Omission of Sacrospinal Fixation: our Novel Vaginoplasty Technique**



**Inverted Penile Skin with Scrotal Graft and Omission of Sacrospinal Fixation: our Novel Vaginoplasty Technique**



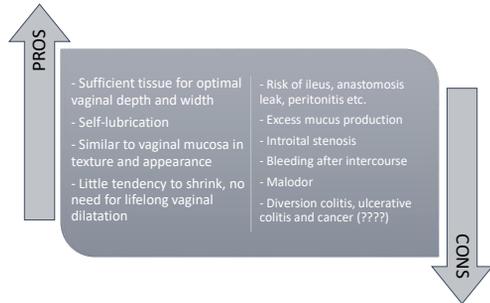
**The Chicago Experience**

- > 2015, n= 46, vaginoplasty for gender confirmation surgery
- Median age: 38 years
- Median surgical time: 360 mins
- Median surgical vaginal length: 15 cm
- Median hospital stay: 7 days
- No intraoperative complications
- Neovaginal prolapse (n= 1, morbidly obese patient)
- Median follow-up: 12 mos



**Intestinal Vaginoplasty**

- No redundant penile and/or scrotal skin is available for grafting;
  - Penile skin length <7cm
- Failed neovaginal reconstructive attempts with penile skin-based options
- Elongate the vagina after a previous neovaginal construction

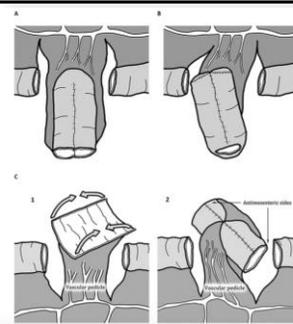


Harvest of the intestinal segment (Open / Lap, sigmoid colon or ileum)

Perineal incision and dissection of the neovaginal cavity

Perineal-vaginal-bowel anastomoses

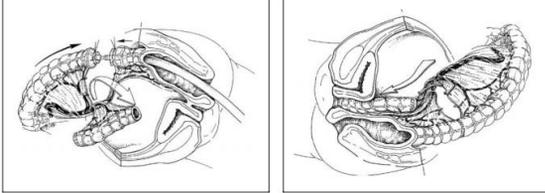
Neovaginal fixation to prevent prolapse



- Preservation of the vascular pedicle of the intestinal segment
- Harvested segments: 7,5 - 20 cm.
- Creation of the neovaginal pouch
- Transfer of the graft to the perineum while minimizing vascular tension
- Rectoprostatic dissection
- Neovaginal fixation to prevent prolapse

Bouman et al., Journal of Sexual Medicine, 2014

**Laparoscopic Technique for Secondary Vaginoplasty in Male to Female Transsexuals Using a Modified Vascularized Pedicled Sigmoid**



Wedler et al., Gynecol Obstet Invest 2004

**Complications & Results of Intestinal Vaginoplasty**

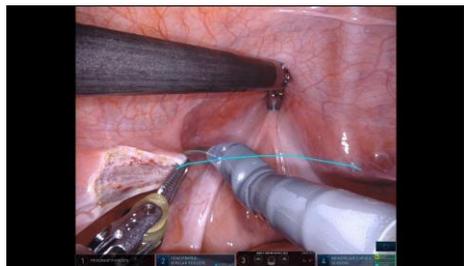
- Low prevalence and severity of perioperative complications;
  - Sigmoid-derived: 6.4%
  - Ileum-derived: 8.3%
- Intestinal stenosis (necessitating revision surgery)
  - Sigmoid-derived: 4.1%
  - Ileum-derived: 1.2%
- Sexual satisfaction: 85.7%
  - Subjective assessment..!

Bouman et al., Davies et al., Hensle et al.

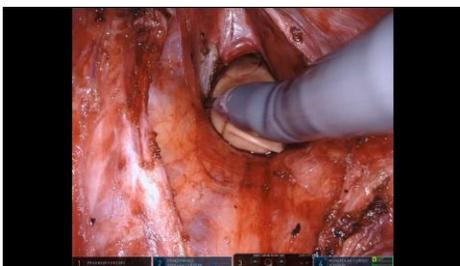
**Vaginoplasty in genital malformations**



**Peritoneal incision**



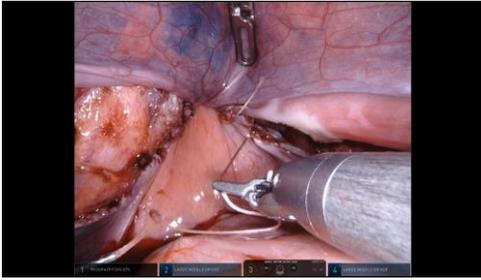
**Flap transposition and suturing**



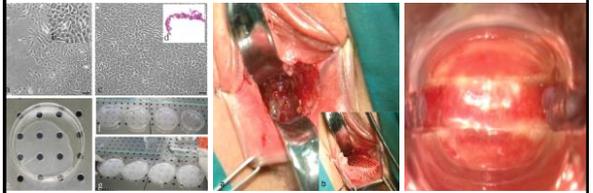
**Measurement of neovaginal depth**



### Closure of neovaginal apex



### Future



From: Vaginoplasty using autologous in vitro cultured vaginal tissue in a patient with Mayer–von Rokitansky–Küster–Hauser syndrome  
 Hum Reprod. 2007;22(7):2025–2028. doi:10.1093/humrep/dm096  
 Hum Reprod © The Author 2007. Published by Oxford University Press on behalf of the European Society of Human Reproduction and Embryology. All rights reserved. For Permissions, please email: journals.permissions@oxfordjournals.org

### The Use of Cultured Autologous Oral Epithelial Cells for Vaginoplasty in Male-to-Female Transsexuals: A Feasibility, Safety, and Advantages Clinical Pilot Study

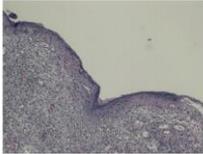


Fig. 2. Histologic specimen of a biopsy performed in a lateral wall of the neovagina during the third surgical step. A normal oral epithelium lining can be observed (hematoxylin and eosin; original magnification,  $\times 10$ ).



Fig. 3. Case 1. (Left) Postoperative aspect of genitalia 1 year after surgery on frontal view. (Right) Postoperative aspect of neovaginal mucosa 1 year after surgery.

Dessy et al., *Plast. Reconstr. Surg.* 133: 158, 2014

### Conclusions - I

- Wider acceptance of gender dysphoria
- Standardized and integrated multidisciplinary approach
- Vaginoplasty: the last step of the MTF transition process
- Relevant evidence with drawbacks;
  - Small sample size
  - Insufficient description of the surgical technique
  - Variable outcome parameters usually lacking QoL issues
  - Subjective outcome assessment, no PROs or validated questionnaires
  - Short f/u duration

### Conclusions - II

- Penile skin inversion: the most investigated technique for vaginoplasty;
  - Acceptable-good cosmetic & functional outcome
  - Additional urethral and penoscrotal flaps for neovaginal depth and lubrication
- Intestinal vaginoplasty: a viable, noninferior alternative, especially for 2<sup>o</sup> cases.
- Tissue-engineering based solutions deserve further clarification
- Higher level of evidence needed to identify the “ideal” vaginoplasty technique

INFLATABLE PENILE PROSTHESIS IMPLANTATION POST PHALLOPLASTY: SURGICAL TECHNIQUE, CHALLENGES, AND OUTCOMES



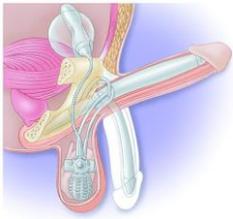
### INTRODUCTION

- Phalloplasty for Gender Confirmation
- Favor radial forearm free flap technique
- Staged placement of erectile prosthesis
- Typical Complications
  - Infection: 4.2 - 11.9%
  - Exposure: 4.2 - 8.1%
  - Malposition: 12.6 - 14.6%
  - Mechanical Dysfunction: 10.5 - 15.4% (5-10 year lifetime for device)



### ERECTILE PROSTHESIS

- Prostheses available
  - Designed for placement within corpora cavernosa
- Phalloplasty – no corpora
- Challenges
  - Prevent exposure
  - Anterior projection
    - Well-anchored prosthesis



<http://www.bostonscientific.com/>



### ERECTILE PROSTHESIS

- Malleable
  - Semi-rigid rod
  - Metal fatigue
  - Constant pressure against flap
- Inflatable
  - Single or paired inflatable rods
  - Pump placed within scrotum to activate
  - Can be deflated when not in use
  - Component failure



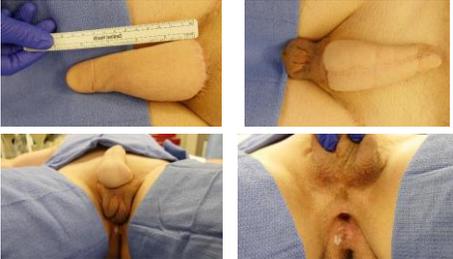
<http://www.medicalego.com/>



<http://www.tylenkimplants.com/>



### 34 Y/O 1 YEAR S/P RFFF PHALLO




### PROSTHESIS




## ADM SLEEVE



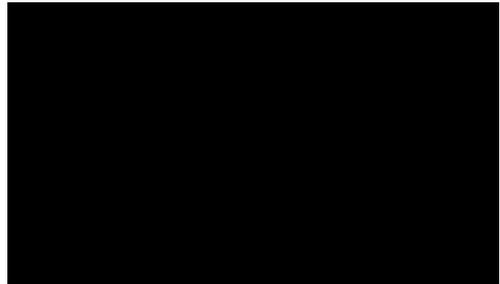
## ADM SLEEVE



## ADM SLEEVE



## SURGICAL TECHNIQUE



## ANCHOR PLACEMENT



## ANCHOR PLACEMENT

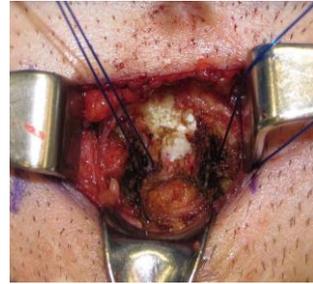


### ANCHOR PLACEMENT



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— Changing medicine for good —

### ANCHOR PLACEMENT



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### PLACEMENT OF PUMP



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### RESULT



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Intraoperative inflation of prosthesis UNIVERSITY OF ILLINOIS  
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## COMPLICATIONS OF PENILE PROSTHESIS

- Infection
  - Antimicrobial coating
- Erosion
  - Glans
  - Urethra
- Migration
- Mechanical failure
- Capsular contracture

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## PENILE PROSTHESIS PLACEMENT

- Last 18 months
  - 1/10 patients required explantation of prosthesis for infection
  - Others with satisfactory intercourse
- Optimizations
  - Use of ADM sleeve
    - Reduce risk of exposure
  - Cortical tunnel and anchoring of tip extender
    - Reduce risk of malposition
    - Improve projection/position of erection
- Room for greater improvement
- Future – an FDA-approved prosthesis for phalloplasty

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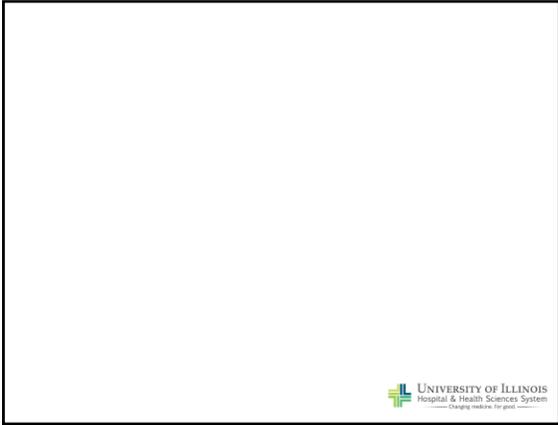
Radial forearm phalloplasty: implant failure  
Tunnel created between urethra and skin of shaft

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## REFERENCES

- Hoebeke PB, Decaestecker K, Beysens M, Opendakker Y, Lumen N, Monstrey SM. Erectile Implants in Female-to-Male Transsexuals: Our Experience in 129 Patients. *European Urology*. 2010;57(2):334-341. doi:10.1016/j.eururo.2009.03.013
- Falcone M, Garaffa G, Gillo A, Dente D, Christopher AN, Ralph DJ. Outcomes of inflatable penile prosthesis insertion in 247 patients completing female to male gender reassignment surgery. *BJU Int*. 2018;121(1):139-144. doi:10.1111/bju.14027
- Neuville P, Morel-Journel N, Maucourt-Boulch D, Ruffion A, Paparel P, Terrier J-E. Surgical Outcomes of Erectle Implants After Phalloplasty: Retrospective Analysis of 95 Procedures. *The Journal of Sexual Medicine*. 2016;13(11):1758-1764. doi:10.1016/j.jsxm.2016.09.013

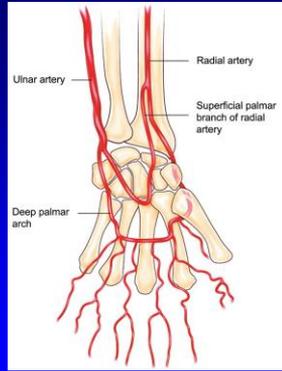
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**GENDER CONFIRMATION SURGERY  
ICS  
PHILADELPHIA, PA  
AUGUST 28, 2018**



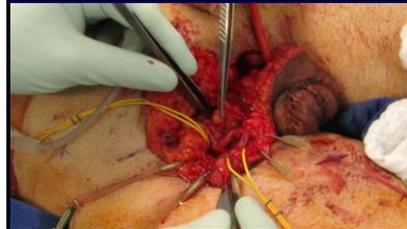
**LOREN S. SCHECHTER, MD, FACS**  
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[WWW.UNIVPLASTICS.COM](http://WWW.UNIVPLASTICS.COM)



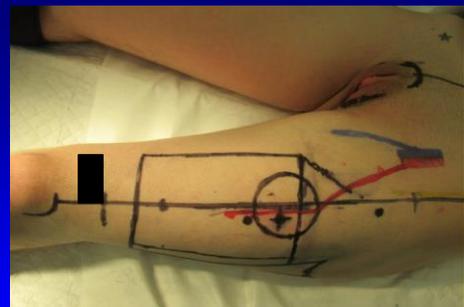
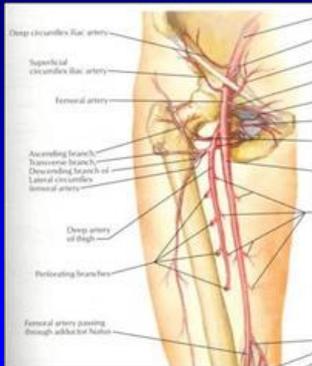
**Allen's test:**

-Utility is questionable

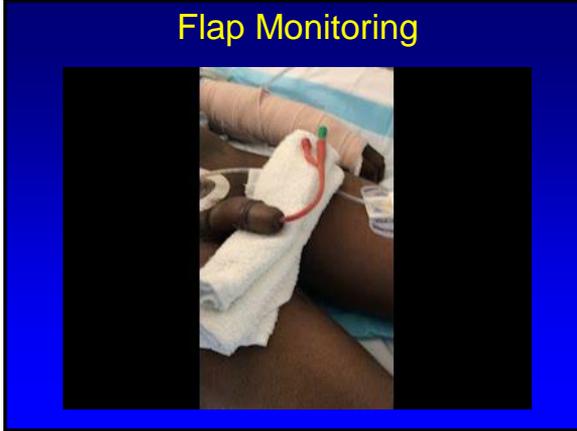
-No direct correlation with ischemic complications



**Construction of AV loop  
between great saphenous  
vein and femoral artery**



**ALT donor site markings**



### Conclusions

- Surgery is a proven therapy for patients with gender dysphoria
- Optimal outcomes occur in multi-disciplinary clinics
- Additional outcomes research to identify potential risk factors and objective grading method for post-operative results



# Urethral Complications

ERVIN KOCJANCIC  
Lawrence S. Ross Professor Urology  
Vice Chair of Department of Urology  
Director of Pelvic Health and  
Reconstructive Urology  
University of Illinois at Chicago

University of Illinois Medical Center

## Indian Journal of Plastic Surgery

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[Indian J Plast Surg](#). 2013 May-Aug; 46(2): 283–293.  
doi: [10.4103/0970-0358.118606](#)

### Phalloplasty: The dream and the reality

[Mamoon Rashid](#) and [Muhammad Sarmad Tamimy](#)<sup>1</sup>

University of Illinois Medical Center

European  
Urology

European Urology 44 (2003) 611–614

### Urethroplasty in Female-to-Male Transsexuals

Dorothea Rohrmann, Gerhard Jakse\*

*Urological Clinic, University Clinic Aachen, Pauwelsstrasse 30, D-52057 Aachen, Germany*

First published online 22 July 2003

58% of patients with a newly constructed urethra  
develops fistulae and/or stricture

University of Illinois Medical Center

## Location Fistulae

- Anastomosis phallic and bulbar urethra (majority)
- Between the bulbar and the female urethra

## Location Stricture

- Anastomosis phallic and bulbar urethra (majority)
- Between the bulbar and the female urethra

University of Illinois Medical Center

## Urethral Fistulae

- Suprapubic abdominal flaps: 55% fistula rate
- Local Flaps: 15 – 22% fistula rate
- Pedicled flaps (ALTF): < 10%

Typical location: Junction of the neo-urethra and  
Native Urethra

University of Illinois Medical Center

## Urethral Stricture

- Suprapubic abdominal flap 64%
- RFFF 31%
- Mean stricture length 3.5cm
- Stricture location:
  - Anastomosis (most common)
  - Meatus
  - Multiple sites
  - Phallic urethra

University of Illinois Medical Center



# Reconstructive Urology

Long-term outcome of forearm free-flap phalloplasty in the treatment of transsexualism

Albert Leriche, Marc-Olivier Timsit, Nicolas Morel-Journel, André Bouillot, Diala Demele and Alain Ruffion  
 Department of Urology, Henry Gabrielle Hospital, University of Lyon I, Lyon, France  
 Accepted for publication 14 September 2007

University of Illinois Medical Center

1986 – 2002:  
 56 phalloplasty with Radial forearm  
 Tube in tube distally; tabularized vaginal urethral lengthening prox.  
 68% received an IPP  
 1 Plastic surgeon 1 Urologist

Complication	N (%)	TABLE 1 Complications of the flap, prosthesis and urethra
<b>Flap</b>		
Loss	3	
Cephalic vein thrombosis	1	
Arterial ischaemia	1	
Infection	5	
Distal limited necrosis	2	
Haematoma	2	
Total	14 (25)	
<b>Prosthesis and urethra</b>		
Urinary fistula requiring perineal urethrostomy	7	
Urinary fistula with conservative treatment	8	
Urinary retention	3	
Prosthesis change	8	
Prosthesis explantation	3	
Total	29 (55)	

University of Illinois Medical Center

## Conclusion ...

- Urethroplasty plays a major role in overall morbidity ...
- Half of late complications were urethral strictures and urinary fistulae
- Most common area of urethral complications at the distal anastomosis
- Perineal urethrostomy recommended

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## Urethral Stricture

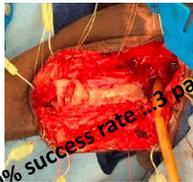
- Suprapubic abdominal flap 64%
- RFFF 31%
- Mean stricture length 3.5cm
- Stricture location:
  - Anastomosis (most common)
  - Meatus
  - Multiple sites
  - Phallic urethra

**Stricture recurrence rate after various treatment is up to 61.9%**

Lumen N, Monstrey S, Goessaert AS, Oosterlinck W, Hoebeke P. Urethroplasty for strictures after phallic reconstruction: A single-institution experience. Eur Urol. 2011;60:150-8

## Fasciocutaneous flap reinforcement of ventral onlay buccal mucosa grafts enables neophallus revision urethroplasty

Stelios C. Wilson\*, John T. Stranix\*, Kiranpreet Khurana, Shane D. Morrison, Jamie P. Levine and Lee C. Zhao



BMG



Flap



**100% success rate ... 3 patients ... 6 - 13 months Follow up**

## Urethral lengthening

## Urethral Reconstruction

Single or staged approach

- |                      |                    |
|----------------------|--------------------|
| I. Pendulous urethra | II. Fixed urethra: |
| Prelamination        | Local Vagina       |
| Prefabrication       | Labial flap        |
| Tube – in Tube       |                    |
| Separate flaps       |                    |

- Extension of the urethra to the clitoris using vaginal mucosa reduces greatly the risk of Urethral Fistula formation
- Colpolcasis offers a great vascular support for the anastomosis site
- Could be performed as a stage procedure



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### Vestibular neo-urethra

Perineal exposure:  
Vestibulum and vagina will form proximal urethra

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### Vestibular neo-urethra

Marking of membranous urethra & vaginal flap

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### Vestibular neo-urethra

Vaginectomy entails removal of epithelium with preservation of muscular layer

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### Vestibular neo-urethra

Vestibular incisions extend on to ventral clitoris

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### Vestibular neo-urethra

Elevation of vaginal flap & tubularization of vestibulum  
Extension of incision on to ventral clitoris  
Vestibulum remains attached dorsally to corporal bodies

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### Vestibular neo-urethra



Tubularization of vestibulum

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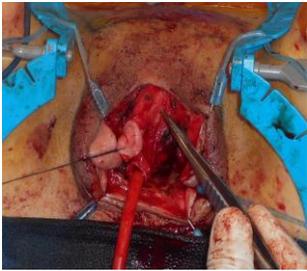
### Vestibular neo-urethra



Construction of membranous urethra

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### Vestibular neo-urethra



Relationship of clitoral nerve, urethra, and glans clitoris

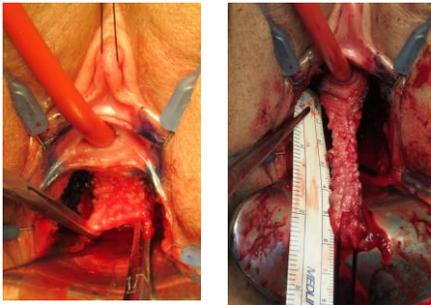
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### Vaginal flap



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### Vaginal flap



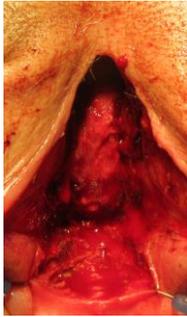
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### Vaginal flap

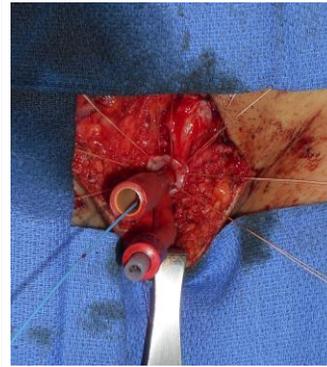


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Vaginal flap



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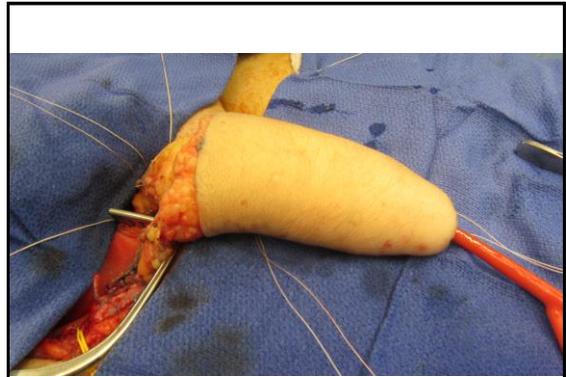
Construction of membranous urethra & clitoral fixation

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Scrotum Closure

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**Surgery for Urethral Stricture Disease after Radial Forearm Flap Phalloplasty – Management Options in Gender Confirmation Surgery**

*Neha R. Mahdavi, Nikita Abhyankar, Valerio Jacovelli, Loren Schachtel, Ervin Kocjanich*

**Introduction**

- Increasing requests for phalloplasty
- Urethral complications are not uncommon, including strictures or fistula
- Ongoing need for assessment of techniques and outcomes

**Methods**

- Study design: Retrospective cohort study of urethral complications following radial forearm flap phalloplasty
- Two institutions
- January 2015 to July 2016
- Multidisciplinary team: Plastic Surgeon and Reconstructive Urologist

**Results**

- Options for urethroplasty
- One or two staged
- With or without buccal mucosa

**Conclusions**

- Urethral reconstruction may require additional procedures
- Results suggest traditional techniques are viable treatment options
- Single versus two stage urethroplasty with buccal mucosa may be helpful in the management of urethral strictures and fistula after phalloplasty

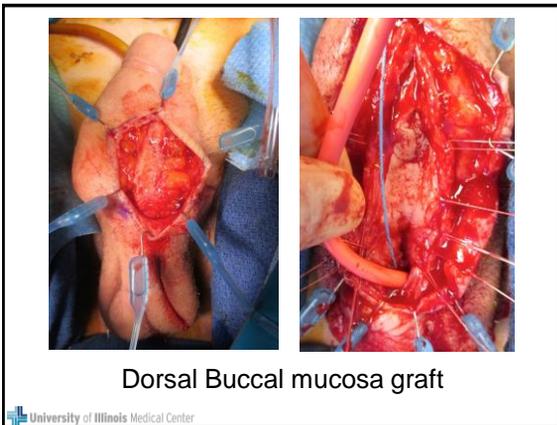
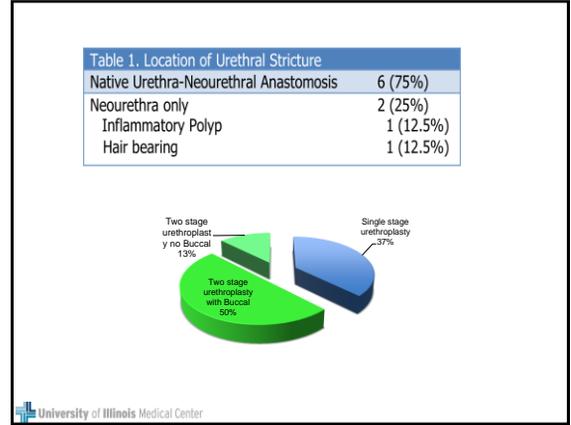
Urethroplasty Technique	Number of Patients	Percentage
Native Urethra-houstrhal Anastomosis	6	67.5%
Neourethra only	2	25%
Inferior vena cava flap	1	12.5%
Hair bearing	1	12.5%

**Figure 1:** Native-urethral stricture identified

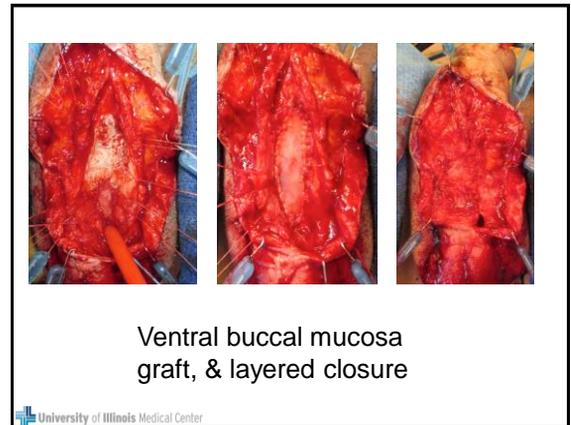
**Figure 2:** Buccal mucosa on-lay graft

**Figure 3:** Distribution of urethroplasties by type

- Three month follow-up
- Three recurrent strictures (37.5%)
- 2 treated with laser incision
- 1 repeat urethroplasty



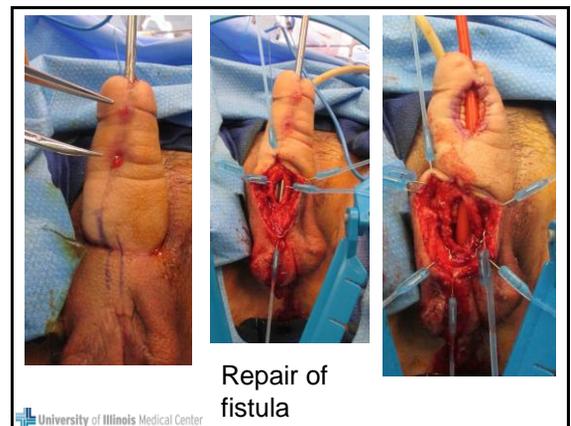
Dorsal Buccal mucosa graft



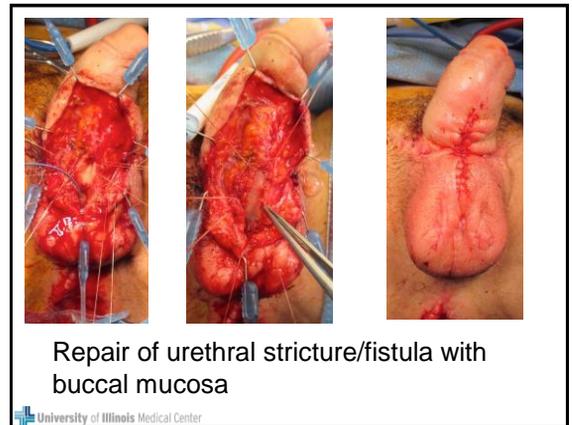
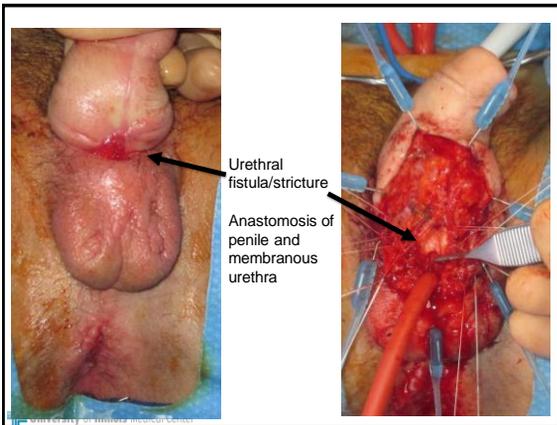
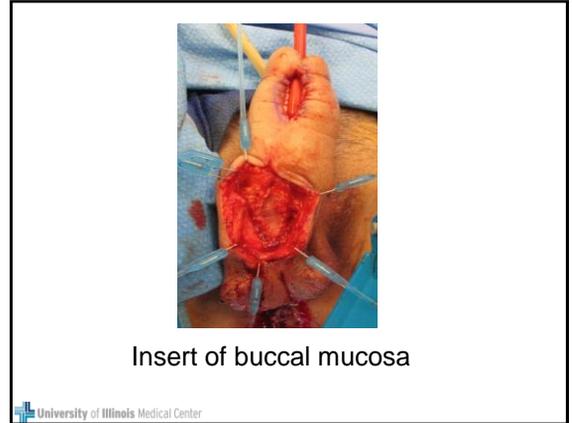
Ventral buccal mucosa graft, & layered closure



Fistula repair



Repair of fistula



### Conclusion

- Urethral reconstruction may require additional procedures
- Results suggest traditional techniques are viable treatment options
- Single and two stage urethroplasty with buccal mucosa are both viable options in the management of urethral strictures and fistulas after phalloplasty