Metoidioplasty and Phalloplasty

EXPLORING YOUR SURGICAL OPTIONS
Objectives

• **REVIEW** your surgical options

• **UNDERSTAND** the objectives of genital surgeries

• **LEARN** about prevention and treatment of possible complications
Decision-Making Considerations for Lower Surgery

**Appearance**
- Length
- Width
- Donor Site Scar (phallo)

**Complications/Risks**
- Urethral Lengthening
- Graft (phallo)
- Flap (phallo)
- Implants
- Unresolved dysphoria

**Function**
- Stand to pee
- Sexual
- Fertility
Lower Surgeries

**METOIDIOPLASTY**

- Surgery that results in a phallus formed from existing glans tissue

**PHALLOPLASTY**

- Surgery that results in a phallus formed from a tube of skin from a donor site, most commonly, a person’s forearm or upper thigh.
Associated Surgeries

- Urethral Lengthening
- Scrotoplasty (creation of scrotal sac)
- Testicular Implants
- Penile Implants
- Removal of uterus, ovaries, and/or vaginal canal (hysterectomy, oophorectomy, vaginectomy)
  - Fertility preservation considerations – Ob/Gyn referral available, if interested
Urethral Lengthening

- The urethra is the tube that carries urine from the bladder to the outside of the body.

- Genital surgeries can include urethral lengthening.

- Urethral lengthening means the lengthening and routing of the urethra through the phallus.

- The goal of this procedure is to allow urination while standing.
Associated Surgeries

Vaginectomy

- An umbrella term referring to surgery procedures that remove all or part of the vagina.

- Required procedure with any surgery that includes urethral lengthening (either meta or phallo)
Associated Surgeries

**Definitions**
- Hysterectomy = removal of the uterus
- Salpingo-Oophorectomy = removal of fallopian tubes and ovaries

**Fertility and Hormone Considerations**
- If you are considering fertility preservation, you will need to complete banking before removal of both ovaries.
- If both ovaries are removed, patient will need to continue to take hormones for life to protect bone density and heart health.
- It is possible to keep one or both ovaries to protect bone and heart health and/or to preserve fertility options.
Linked Surgeries

- Hysterectomy can be combined with certain stages of phalloplasty
- Vaginectomy is **required** with surgery involving urethral lengthening
- Hysterectomy (but not oophorectomy) is **required** with vaginectomy
Scrotoplasty and Implants (Surgical Option with Meta or Phallo)

**Scrotoplasty**
- Creation of a scrotum or testicular sac, typically using tissue from the labia majora

**Testicular Implants**
- Implants usually placed in final stage of surgery when all surgical healing is complete
- Implants are typically saline filled
Penile Implant (Phalloplasty Only)

There are two penile implant options:

- Semi Rigid Rod
- Inflatable Implant
Penile Implant

Semi Rigid Rod

Considerations

- Longest lasting implant
- Rod remains rigid regardless of its position, therefore it may be more difficult to conceal in clothing
- Does not require dexterity to use

Inflatable Implant

Considerations

- More moving mechanical parts that need replacing over time requiring additional future surgeries
- Most easily concealed under clothing, allows phallus to feel soft or flaccid
- Requires some dexterity to inflate
Implant Considerations

- Implants are usually placed in final stage of surgery when all healing is complete.

- Since each person’s body is different, it’s a good idea to have a conversation with your surgeon about how penile implants will work with your individual anatomy.

- Penile and scrotal implants may be detected by body scanner and TSA at airports – may increase pat downs at airport.
Metoidioplasty Overview
Metoidioplasty Defined

Goal
- Create a phallus (4-5 centimeters long)
- Keep sexual sensation and erectile function

Technique
- Ligaments holding the phallus in place under the pubic bone and surrounding tissue are released allowing the clitoris to be freed up and brought forward
- Phallus is reshaped to make it more prominent
Metoidioplasty Options: Meta without Urethral Lengthening

What is meta without urethral lengthening?
- Current phallus is released and shaped into a shaft
- No routing of the urethra through phallus
- Can include scrotoplasty, vaginectomy, and hysterectomy
  - Testicular implants placed in 2\textsuperscript{nd} outpatient surgery scheduled at least 3 months after initial surgery

Considerations:
- Least time in the operating room of genital surgery options
- Shortest recovery time of genital surgery options
- Sensory nerves are not cut; sensation left intact
- Standing to urinate not possible (unless possible before meta)
- Limited penetrative possibility during intercourse
Metoidioplasty Options: Meta with Urethral Lengthening

What is meta with urethral lengthening?
- Current phallus is released and shaped into a shaft, and urethra routed through phallus
- Can include scrotoplasty, vaginectomy, and hysterectomy
  - Testicular implants placed in 2nd outpatient surgery scheduled 3 months after initial surgery

Considerations:
- Less time in operating room than phalloplasty
- Urethral surgery increases chances of urinary complications
- Standing to urinate may or may not be possible depending on body type and course of healing
- Sensory nerves are not cut; sensation left intact
- Limited penetrative possibility during intercourse
Metoidioplasty: Testosterone and phallus Length

- Glans (phallus) growth is a possible effect of testosterone use

- Maximum growth is usually achieved within 1-2 year after starting testosterone

- Maximum growth from testosterone is usually 1-3 centimeters, but this is variable
What if I have metoidioplasty and later want to have phallopasty?

- It is possible to have phallopasty after metoidioplasty.

- First stage phallopasty (see RFF phallopasty “Stage 1”) is very similar to metoidioplasty with urethral lengthening.

- If metoidioplasty is completed without urethral lengthening and a vaginectomy is also completed it may not be possible to have a phallopasty with urethral lengthening.
Phalloplasty Overview
Phalloplasty Staging

Phalloplasty is a series of multiple surgeries performed in stages

- The number of surgeries depends on surgical goals and donor site, with the possibility of more surgeries if complications arise.

- Total surgery timeline depends on recovery process; can be up to 1-3 years before all surgeries are complete.

- Important to consider time off work required, multiple hospital stays, financial needs, multiple co-pays.
Sample Surgical Staging Pathway

Radial Forearm Flap (Double Tube) with Urethral Lengthening

Stage 1
1) Vaginectomy / hysterectomy / salpingo-oophorectomy
2) Scrotoplasty
3) Local Urethral Lengthening
4) Suprapubic Catheter

(Wait at least 3 months for healing)

Stage 2
1) Flap / Phallus construction
2) Flap Urethral Lengthening
3) Glansplasty
4) Suprapubic Catheter

(Wait at least 9-12 months for healing)

Stage 3 (Urologist)
1) Penile Implants
2) Scrotal Implants
3) +/- Glansplasty

(Approximately 6 weeks after Stage 1 + 2)

Post-Op Check (Urologist)
1) VCUG (urinary xray)
2) Removal of Suprapubic Catheter

(May be repeated 2-4 times)
Sample Surgical Staging Pathway

**Stage 1**
1) Vaginectomy / hysterectomy / salpingo-oophorectomy
2) Scrotoplasty
3) Local Urethral Lengthening (Suprapubic Catheter)

**Stage 2**
1) Flap / Phallus construction

**Stage 3-4**
1) Tubularization of Flap

**Stage 5**
1) Urinary hook up through phallus with Suprapubic Catheter

**Stage 6-7 (Urologist)**
1) Penile Implants
2) Scrotal Implants
3) Glansplasty

Anterior Lateral Thigh Flap (Single Tube) with Urethral Lengthening

(Approximately 6 weeks after Stage 1 + 5)

Post-Op Check (Urologist)
1) VCUG (urinary xray)
2) Removal of Suprapubic Catheter

(May need to be repeated 2-4 times)

(Wait at least 3 months for healing in between each stage 1-5)

(Wait at least 9-12 months for healing)
Phalloplasty without Urethral Lengthening

- Possible to have phalloplasty with no urethral reconstruction

- Urinate through opening under scrotum; standing to urinate not possible

- Less risk of complications associated with urethral reconstruction (striction, fistula, infection)
**Sample Surgical Staging Pathway**

Radial Forearm Flap or Anterior Lateral Thigh Flap WITHOUT Urethral Lengthening

Stage 1
1) Flap / Phallus constructed
2) Glansplasty
3) Scrotoplasty
4) +/- Vaginectomy / hysterectomy / salpingo-oophorectomy

(Wait at least 9-12 months for healing)

Stage 2 (Urologist)
1) Penile Implants
2) Scrotal Implants
3) Glansplasty
Sensation After Phalloplasty

Two kinds of sensation: **protective (tactile)** and **erogenous (sexual)**

- Sensation depends on:
  1. Success of surgical nerve hookups
  2. Regeneration of nerves between pelvis, glans, and donor flap

- Sensation returns slowly after surgery. Even after healing is complete, there may be areas of permanent or partial numbness along the phallus.

- Numbness may inhibit ability to experience pain and pressure. Important to use visual cues instead of sensation cues – pay attention to where phallus is to prevent harm or injury

- Orgasm after surgery is a surgical goal; individual outcomes vary and sensation will be different
Anatomy Information

- Placement of glans / clitoris
  - Positioned inside phallus or exposed between phallus and scrotum
  - Typically one sensory nerve from glans is maintained and one is connected to sensory nerve from flap for sensation to the phallus
Nerve Regeneration

- Nerves have been severed and reconnected and will take time to regrow.
- It is normal to have areas of numbness and lack of sensation; this should improve with time.
- There may be permanent patches of numbness where nerve endings do not spread.
- Phallus will have limited tactile sensation.
  - More susceptible to burns and injury.
- Expected regrowth:
  - No growth for first 3-4 weeks after surgery.
  - 1 mm/day.
  - 6-9 months of regrowth.
  - Speed and amount of nerve growth varies based on age.
Radial Forearm (RFA) Phalloplasty
Thickness of Penis (Diameter) = ~4 x flap thickness (forearm vs. thigh)
Forearm Phalloplasty: Donor Site Care and Rehabilitation
Forearm Phalloplasty: Donor Site Care and Rehabilitation

- **Minimizing Edema (swelling)**

  - **Why does it happen:**
    - Postoperative edema occurs as a result of the surgical flap and reduction in drainage of the hand

  - **What are the consequences:**
    - Hand edema limits hand function

  - **How do you treat it:**
    - Compression
    - Soft Tissue Mobilization
Forearm Phalloplasty: Donor Site Care and Rehabilitation

- **Functional Rehabilitation**

Goals:
- To restore pre-operative level of dexterity and strength
- Return to all prior activities without physical limitation
Forearm Phalloplasty: Donor Site Care and Rehabilitation

- **Cosmetic Appearance**
  
  1st Priority is to achieve a healed donor site

  Addition Priority: Maximize cosmetic result

  **Taking away:**
  - Full thickness skin, subcutaneous tissue

  **Replacing with:**
  - Split thickness skin graft

  **Net Result:**
  - Thin skin
  - Contour difference
Forearm Phalloplasty: Donor Site Care and Rehabilitation

- **Cosmetic Appearance**

  **Improving the Cosmetic Appearance of Donor Site:**
  - Compression Garments
  - Sun Avoidance
  - Scar Revision
  - Future Advances
Forearm Phalloplasty: Donor Site Care and Rehabilitation
Thigh Phalloplasty

PEDICLED ANTEROLATERAL THIGH FLAP
Thigh Phalloplasty: Pedicled Anterolateral thigh flap
Thigh Phalloplasty: Flap Specifics
Identifying and Treating Complications (Meta/Phallo Both)
Common Surgical Complications with Urethral Lengthening

- **Bladder spasms and pain**
  - This frequently occurs when there is a catheter in place.
  - The symptoms often mimic those of a urinary tract infection: lower pelvic pain and spasms, frequency and urgency.
  - If you are having these symptoms, please call the surgical team at 415-833-8767 so they can appropriately diagnose you and relieve your symptoms. If appropriate, your doctor may order an anti-spasm medication for you.
Common Surgical Complications with Urethral Lengthening

**Stricture**
- A urethral stricture is a scar that develops in the urethra (the tube that runs from the bladder to the end of the phallus, through which urine passes).

- The stricture narrows the urethra and can lead to problems with urination, including a complete inability to urinate.

- Inability to urinate requires immediate medical attention

- Often requires additional surgery to repair
Common Surgical Complications with Urethral Lengthening

**Fistula**

- Hole or opening that develops somewhere along the new urethra and results in urine exiting through that hole instead of or in addition to urethral opening at the tip of the phallus.

- Commonly, the fistula occurs at the where the existing urethra meets the new urethra at the base of the phallus

- May heal by itself or may require additional surgeries to close the opening
Complications

**Infection**
Increasing redness, pain, warmth, swelling, or drainage with pus at the surgical site or catheter site. Fevers and chills could be signs of infection.

**Abnormal Swelling / Bleeding**
Some swelling and light bleeding are normal after surgery
Sudden swelling or bleeding require urgent medical attention
Surgical Complications (Phalloplasty Only)

**Graft Healing**

- Portions, or rarely all, of the graft at the donor site can appear to “slough” from the wound.

- In this case, the graft is no longer attached to the wound bed, and it loses its blood supply, resulting in the loss of that portion of the graft.

- Small portions of graft loss are not uncommon and usually heal well with the appropriate wound care.

- Infrequently, there is significant graft failure that requires additional surgeries to correct
  - Additional grafts may be necessary
Surgical Complications (Phalloplasty Only)

**Phallus Tissue Loss (partial / complete)**

- Tissue loss on parts of the phallus is possible if there is lack of adequate blood flow.
- When tissue dies, this is called necrotic tissue and it appears black.
- Surgeon can perform a procedure called *debridement* which is the removal and cutting away of dead tissue.
- Reconstruction surgery, sometimes fat grafting, may be possible to restore length or girth.
Surgical Complications with Implants

- **Scrotal/Penile extrusion**
  - Implant pushes out of scrotal sac or through tip of phallus

- **Infection**
  - If implant becomes infected it usually requires immediate surgery to remove it

- **Pain**
  - Implant can sometimes be positioned in such a way that causes pelvic pain (by poking or jabbing into the pelvis during sex) or it can sometimes sit on a nerve causing pain.

- **Insufficient firmness / insufficient softness**

- **Degradation**
  - Device can malfunction or wear out over time requiring replacement after 5-10yrs

- **Displacement of implant**
  - Testicular implants sometimes ride too high in the new-scrotal pouch.
Optimizing recovery after surgery

- Stop nicotine products prior to surgery
- Healthy nutrition and body movement/exercise before surgery
- Follow all discharge instructions
- Attend all follow up appointments
- Be in touch with surgeon if you have any concerns about healing
- Keep the surgical area clean and dry
- Listen to your body and check in with surgeon before resuming activities