Phalloplasty

A summary for primary care providers

This summary provides information to facilitate discussion of transition-related surgery between primary care providers and patients. It is not exhaustive and does not replace the informed consent process between surgeon and patient.

DESCRIPTION*

A masculinizing gender affirming surgery to create a penis, scrotal sac and testes. It involves:

- **Creation of a penis** (neophallus) using grafting of tissue, including arteries, veins and nerves
- **Urethroplasty**: creation of a urethra that travels through the neophallus (tissue from skin, vagina, oral mucosa can be used to create the urethra)
- **Vaginectomy**: removal of the vagina (colpectomy) or closure of vagina (colpocleisis)
- **Glansplasty**: creation of the glans penis – by sculpting head of neophallus
- **Scrotoplasty**: creation of a scrotum and insertion of testicular implants
- **Erectile device**: Insertion of an erectile device, if desired

INTENDED RESULTS

- ✓ **Reduces gender dysphoria by aligning anatomy with gender identity**
- ✓ **To allow penetrative sex**
- ✓ **To allow standing urination**

SIDE EFFECTS

- ○ **Irreversible**
- ○ **If vaginectomy and scrotoplasty are desired, hysterectomy + BSO are required, resulting in infertility**
- ○ **Scars (large scar on forearm results from forearm flap phalloplasty). Location of scars vary by surgical technique**

** Adapted from Transgender Health Information Program [Internet]. Transgender Health Information Program. [cited 2016Nov21]. Available from: http://transhealth.phsa.ca/*

SURGICAL TECHNIQUES AND OPTIONS*

Surgical techniques vary by surgeon. Montreal GRS clinic offers **free forearm flap phalloplasty** (also called radial forearm flap), this usually involves several components, which occur over 4-5 surgeries:

1. Skin, nerves, veins and arteries are removed from the forearm (large rectangular area including radial artery)
2. A small part of the forearm skin is used for urethroplasty
3. A large part of forearm tissue is folded "tube within a tube" to create the neophallus shaft and glans
4. The neophallus is attached to the genital area above the clitoris. Microsurgery is performed to attach the blood vessels and nerves from the neophallus to the genital blood vessels and nerves
5. The urethra is re-routed initially below the penis, and later through the penis
6. Skin from the thigh is grafted to the forearm, to help it heal
7. The labia are repositioned and sculpted to make a new scrotum (scrotoplasty)
8. The lining of the vagina is removed and vagina is closed (vaginectomy)
9. Testicular implants are inserted and an erectile device is inserted if desired
10. GRS requires hysterectomy + BSO be completed at least 6 months prior to phalloplasty

Other phalloplasty techniques use other donor sites to create the neophallus:

- Anterolateral thigh (ALT)-free flap or pedicled flap
- Musculocutaneous latissimus dorsi (MCL) from the back – free flap
- Abdominal/groin flap

ALTERNATIVE TREATMENT OPTIONS

- Clitoral release
- Metoidioplasty
- Use of testosterone to develop clitoromegaly (enlargement of the clitoris)
- "Packing" (use of padding or phallic object in pants/underwear)
- Devices that aid voiding while standing

SURGICAL RISKS AND COMPLICATIONS OF PHALLOPLASTY

Urinary/Urethral complications:

- **Urinary complications are very common:** fistula, stricture, stenosis, urinary tract infections
- **Urethral fistulas :** uro-cutaneous - abnormal leak between urethra and skin
- **Urethral stenosis:** narrowing of the urethra causing difficulty urinating
- **Urethral strictures:** completely blocked urethra, inability to urinate, may require a catheter to be inserted (until surgically corrected)
- **Hair growth in urethra:** may cause UTI, stenosis, stricture, intra-urethral stones
- **Urethral complications may require surgical revision**

Other complications:

- **Forearm donor site:** large permanent scar, numbness/stiffness/swelling/pain of wrist/elbow/arm
- **Graft failure:** the neophallus tissue dies (<1% full, 6% partial graft failure)
- **Nerve damage and loss of sensation of neophallus**
- **Decreased sexual satisfaction, inability to orgasm**
- **Dissatisfaction with appearance and/or function of genitals** (size, shape, function of penis, scrotum)
- **Injury to bladder or rectum** (recto-perineal fistulas: rectum to skin)
- **Wound breakdown** (common at base of phallus, perineal-scrotal junction)
- **Testicular implant complications:** infection, extrusion, poor/uncomfortable positioning
- **Erectile device complications:** infection, skin erosion, technical failure, poor positioning

POTENTIAL RISKS/COMPLICATIONS COMMON TO MOST SURGERIES

Risks are increased with smoking, immunosuppressant drugs, clotting disorders, conditions that impair healing, BMI <18.5 or >30

- Bleeding
- DVT, PE (blood clots in legs, lungs)
- Injury to surrounding anatomical structures (organs, nerves, blood vessels)
- Hematoma (collection of blood)/ seroma (collection of fluid
- Infection/abscess (collection of pus)
- Wound dehiscence (wound opening), delayed healing
- Nerve damage, loss of sensation, hypersensitivity, neuropathic (nerve) pain
- Chronic pain
- Scarring (can be prominent especially if history of keloid)
- Dissatisfaction with appearance/ function
- Need for revision(s)
- Post-operative regret

General Anesthetic Risks:

- Respiratory failure
- Cardiac failure/arrest
- Death
- Damaged teeth
- Aspiration pneumonia
- Nausea/vomiting

PRE- AND POST-OPERATIVE CARE

PRE-SURGICAL CARE

PRE-SURGICAL CONSIDERATIONS

- Hysterectomy and BSO is required at least 6 months prior to phalloplasty
- Consider referral to the Sherbourne Health Centre ARC (Acute Respite Care) if socially isolated, under-housed or homeless
- GRS requires meticulous permanent hair removal from forearm donor site (electrolysis/laser) to be completed at least 6 months prior to phalloplasty
- Perineal electrolysis may also be requested between stages, if perineal tissue is used in the urethral extension
- Smoking cessation is particularly important in phalloplasty (due to blood vessel grafts and risk of graft failure secondary to vasoconstriction caused by nicotine). Some surgeons recommend smoking cessation 6 months pre-op and 6 months post op
- Follow surgeon's advice on time periods to avoid smoking, alcohol and other substances

Phalloplasty takes multiple surgeries over a period of 1-2 years or longer, depending on the recovery time between surgeries*

**Adapted from Transgender Health Information Program [Internet]. Transgender Health Information Program. [cited 2016Nov21]. Available from: http://transhealth.phsa.ca/*

Expect 4-5 trips to Montreal and consider travel costs: GRS requires an in-person consultation prior to booking phalloplasty to ensure adequacy of donor site (healthy blood vessels in the forearm).

1. Pre-operative consultation (outpatient)
2. Phalloplasty and vaginectomy, urethra re-routed to perineum: 10 days in Montreal
3. Urethra re-routed through penis: 3 days in Montreal
4. Scrotoplasty: 3 days in Montreal
5. Erectile device: 3 days in Montreal (steps 4 & 5 may be combined in the near future)

IMMEDIATE PRE-OPERATIVE CARE

Each surgical centre has a routine pre-operative process, patients should ask their surgeon what to expect

Hospitals tend to have standard pre-operative processes which may include:

- Pre-admission visit to review health history and provide teaching (pre/post-op care)
- Anesthesia and/or medicine consult may be required, depending on health history
- Anesthesia will discuss:
  - which medications to stop and when
  - anesthetic approach and risks
  - pain control measures

POST-SURGICAL CARE

IMMEDIATE POST-OPERATIVE CARE

- Follow surgeon's instructions for positioning of the neophallus post-operatively
- Follow surgeon's Instructions for suture removal/ dressings
- Follow surgeon's instructions for urinary catheter or suprapubic catheter care and removal
- Smoking cessation and limiting caffeine are important to promote blood flow and support healing

INTERMEDIATE POST-OPERATIVE CARE

- Consider the need for a support person in post-op period to assist with ADLs, IADLs (cleaning, laundry, groceries)
- Follow surgeon's instructions for showering, dressings and underwear.
- Follow surgeon's instructions for range of motion exercises for arm and leg, generally started 1 week post-operatively
- Follow surgeons' recommendations on restrictions to activities

Some general guidelines include:

- Avoid driving for 2 weeks or longer, until safely able to move arms to drive
- Avoid straining and heavy lifting for 6 weeks
- Reduce activities and time off work for 8-12 weeks (or longer depending on type of work)
- Avoid strenuous activity for 12 weeks
- Timelines for recovery vary by surgical stage and procedure. Creation of the neophallus, urethroplasty, and healing of donor site tend to require the longest recovery period. Testicular implants and erectile device insertion will have shorter recovery times

LONG-TERM MEDICAL CARE

- Once forearm wound is completely healed, a compression sleeve can be worn to reduce scarring
- Swelling is normal for at least 4-6 months, and will slowly resolve over time
- Avoid exposing scars to sunlight for 1 yr post-op, this will minimize colour changes in the scar
- In Ontario, funding for revisions can be applied for through the Ministry of Health via completion of the Prior Approval for Funding of Sex Reassignment Surgery form

REFERENCES

1. Adams N, Grenier F. Is it Worth It? What Trans Healthcare Providers Should Know about Phalloplasty [Internet]. Noah J Adams. Dalhousie University; 2012 [cited 2016Nov21]. Available from: http://www.noahjadams.com/phallostudy poster.pdf

2. Center of Excellence for Transgender Health, Department of Family and Community Medicine, University of California San Francisco. Guidelines for the Primary and Gender-Affirming Care of Transgender and Gender-Nonconforming People; 2nd edition. Deutsch MB, ed. June 2016. Available at http://transhealth.ucsf.edu/guidelines

3. Gender Surgery in San Francisco - Male to Female & Female to Male Surgery [Internet]. Brownstein Crane. [cited 2016 Nov 21]. Available from: http://brownsteincrane.com/gender-surgery/

4. Hopwood R. Surgical Gender Affirmation. Proceedings of the 1st Advancing Excellence in Transgender Health Conference [Internet]. LGBT Health Education. The Fenway Institute; 2015. Available from: http://www.lgbthealtheducation.org/wp-content/uploads/Surgical-Gender-Affirmation1.pdf

5. Phalloplasty [Internet]. GRS Montréal. [cited 2016Nov21]. Available from: http://www.grsmontreal.com/en/surgeries/woman-to-man/6-phalloplasty.html

6. Phalloplasty [Internet]. RFF Phalloplasty: Radial Forearm Flap Phalloplasty Surgery. 2016 [cited 2016 Nov 21]. Available from: http://www.phallo.net/procedures/radial-forearm-flap-phalloplasty.htm

7. Simpson A, Mira Goldberg J. Gender Transition. Surgery: A Guide for FTMs [Internet]. 1st ed. Vancouver: Vancouver Coastal Health, Transcend Transgender Support & Education Society and Canadian Rainbow Health Coalition; 2006 [cited 21 November 2016]. Available from: http://www.rainbowhealthontario.ca/wp-content/uploads/woocommerce_uploads/2014/08/Surgery-FTM.pdf

8. Transgender Health Information Program [Internet]. Transgender Health Information Program. [cited 2016 Nov 21]. Available from: http://transhealth.phsa.ca/

DISCLAIMER

The information provided here is generalized and is not medical advice. It is recommended that all patients have a pre-operative consultation with their surgeon to receive individualized information including the specific surgeon's technique, complication rates and recommendations. This is a dynamic document that is subject to change, as the knowledge of transition-related surgeries changes.

ACKNOWLEDGEMENT

This document was created with information adapted from the Transgender Health Information Program of British Columbia, the GRS Montreal Clinic, and the Gender Identity Clinic at the Centre for Addiction and Mental Health.