Gender Affirming Surgery

Breast Augmentation

A summary for health care providers

rainbow health ontario
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SHERBOURNE HEALTH

Gender Affirming Surgery
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This summary provides information to facilitate the discussion of gender affirming surgery between Ontario health care providers and patients. It is not exhaustive and does not replace the informed consent process between surgeon and patient.

DESCRIPTION

Breast Augmentation
Implants inserted beneath existing tissue on the chest to create or enlarge one's breasts.

SURGICAL TECHNIQUES AND OPTIONS

- Implants are placed under the pectoralis chest muscles (submuscular) or just under existing breast tissue (subglandular/subfascial)
- Silicone implants are the most common type of implant. Size, shape, smooth texture and filling (silicone vs. saline) of the implant will be discussed and decided upon with the surgeon
- Inframammary (under breasts) is the most common incision site for implant insertion but periareolar (around areola) and transaxillary (in armpit area) are sometimes possible
- Very rarely, a surgery for tissue expansion may be needed before implant surgery can be completed
- The nipple and areola may be reconstructed
- For patients preferring to use their own tissue, fat grafting (relocating fat from another area of the body to the chest) may be possible. This is not an OHIP insured service.

INTENDED RESULTS

- Align anatomy with gender identity
- Reduction in gender dysphoria and/or gender incongruence
- Improve mental health and well being
- Decreased need for padded bra, removable inserts/breast prosthesis
- Larger breasts

ALTERNATIVE TREATMENT OPTIONS

- External padding, padded or push up bra, removable inserts/breast prosthesis
- Hormone therapy to stimulate breast growth

SURGICAL RISKS AND COMPLICATIONS OF BREAST AUGMENTATION

- I**rreversible:** any of the breast, tissue and skin changes that occur as a result of implant surgery will be permanent and cannot be undone. If implants are removed, the skin may be permanently wrinkled or stretched
- **Breast implants are not lifetime devices**. The need for repeat surgery in the future is likely (to replace implant, or to change size, shape, location of implant, or to remove scarring). The average lifespan of breast implants is thought to be approximately 10-15 years. Some will fail earlier (within 5 years), and some will fail later (10-30 years). It is hard to predict when an individual's implants will fail and need removal or replacement. Over the long-term, the need for removal or replacement is likely. Some of these surgeries may not be covered by OHIP funding; and may cost in the range of $10,000-15,000 CAD.
- **Scarring:** located to be as inconspicuous as possible, but can sometimes be visible
- **Changes in nipple and breast sensation**; numbness and loss of sensation possible
- **Capsular contracture** (scar tissue formation around implant becomes misshaped/firm/painful). Surgical removal of the capsular scar tissue and implant removal or replacement is commonly required.
- I**mplant failure** (i.e. breakage, leaks, deflation; less likely with 5th generation silicone gel implants)
- **Symmastia** (breasts are too close medially), implant malposition or migration
- **Asymmetry:** the breasts, nipples or areolas could be asymmetrical in size, shape or position. Some asymmetry is common.
- **Contour irregularities** (i.e. skin wrinkling/rippling)
- **Wound infection**. Small infections can be treated with antibiotics. Infection of the breast implant pocket requires implant removal and replacement at another time.
- **Hematoma/Seroma:** when blood and fluid collect in the surgical site causing swelling, pain and redness. These may resolve on their own, or if large or persistent, may need to be aspirated (sucked out) once or more.
- **Skin necrosis** (skin dies) or implant extrusion (skin breaks down and implant appears through the skin)
- **Dissatisfaction** with appearance, size, asymmetry, contour irregularity
- **Calcifications in the breast** can develop which can be misinterpreted as suspicious lesions for breast cancer on mammography
- **Anaplastic Large Cell Lymphom**a ALCL (a rare non-Hodgkin lymphoma, not a type of breast cancer). There is a very low but increased risk for this type of cancer in the tissue next to the textured implant. This type of cancer has only been associated with textured implants which are no longer used.
- **Mondor disease** (<1%), a benign and self-limiting complication of superficial thrombophlebitis (inflammation of vessels) in epigastric veins below inframammary scars

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

General Surgical Risks

- Bleeding, if excessive may require blood transfusion
- Deep Vein Thrombosis, Pulmonary Embolism (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-OPERATIVE CARE

PRE-SURGICAL CONSIDERATIONS

- To qualify for funding, the Ontario Ministry of Health (MOHLTC) requires there to be no breast enlargement after 12 months of estrogen therapy (unless contraindicated)
- A minimum of one year of hormone therapy is recommended to allow for maximum growth of tissue and allow skin expansion

IMPORTANT STEPS TO AMELIORATE OUTCOMES

- Consider referral to the Sherbourne Health's Acute Respite Care (ARC) Program for post-operative support if socially isolated, under-housed or homeless
- **Smoking cessation** is strongly recommended at least one month both pre-op and post-op to optimize wound healing and decrease risk of complications
- Follow surgeon's advice on time periods to avoid smoking, alcohol and other substances
- History of keloid scars can increase risk of this type of scarring occurring after surgery
- Contraindications: untreated breast cancer, premalignant breast disease

ANESTHESIA WILL DISCUSS:

- Which medications to stop and when
- Anesthetic approach and risks
- Pain control measures

IMMEDIATE PRE-OPERATIVE CARE

- Surgeons may make surgical skin markings with patients standing, sitting or lying down
- IV antibiotics may be given pre-operatively to reduce the risk of infection

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

POST-OPERATIVE CARE

IMMEDIATE POST-OPERATIVE CARE

- Upper body stiffness and soreness is expected in the first week after surgery
- Breasts will feel tight and sensitive to touch
- Feelings of numbness and/or sharp shooting or burning pain can occur
- Ice application may reduce swelling and help with pain
- Pain management involves pain medication, ice and rest for the first few weeks
- The skin around the incisions (the surrounding 1-2cm) may be red or hyperpigmented
- There may be a stich at the end of the incision that is typically removed 2 weeks later by the surgical team
- Bruising and swelling is common and should mostly resolve in the first 4 weeks
- Follow surgeon's post-op instructions for drains, dressings, sutures and steri-strips
- Antibiotics for the first week
- Light activity is encouraged, such as walking
- Most surgeons recommend wearing a comfortable cotton sports bra for one month after surgery. Follow the specific surgeon's instructions regarding type of bra/supportive clothing.

INTERMEDIATE POST-OPERATIVE CARE

- Follow surgeon's recommendations on restrictions to activity restrictions
- Follow surgeon's instructions for breast massage initiation, frequency, and technique
- **Some general guidelines include:**
  - Avoid large sweeping movements with your arms for several weeks
  - Avoid driving for two weeks or longer, until safely able to move arms to drive
  - Time off work – three weeks or longer (depending on type of work)
  - Avoid straining, lifting heavy objects (max 10 lbs), and exercise for four weeks
  - No soaking in hot tub, pool or bath until incisions have completely healed, usually around week four
  - No strenuous activity for six weeks; light activity encouraged
  - **Do not lie or sleep on stomach/breasts for three months**
  - **No underwire bra for six weeks**

LONG-TERM MEDICAL CARE

- Standard mammography screening is still required with implants as per local breast cancer screening guidelines
- Inform providers/mammogram techs about breast implants to obtain the appropriate mammographic views and to decrease risk of rupture
- With silicone implants: follow surgeon's instructions regarding need for periodic imaging to monitor for silent rupture
- In Ontario, funding for revisions can be applied for through the Ministry of Health by completing the Prior Approval for Funding of Sex Reassignment Surgery form. Implant removal or exchange are not covered for aesthetic revisions and typically costs $10-15,000 dollars CAD.

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DISCLAIMER

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ACKNOWLEDGEMENT

This document was created by clinicians at Sherbourne Health and Women's College Hospital, using up to date literature as well as 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

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Top Surgery

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Top Surgery

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This summary provides information to facilitate the discussion of gender affirming surgery between Ontario health care providers and patients. It is not exhaustive and does not replace the informed consent process between surgeon and patient.

DESCRIPTION

Bilateral mastectomy and chest contouring, often referred to as “top surgery”, removes breast tissue and liposuctions the remaining tissue into a shape typically considered more masculine (flat and smooth contour)

TERMINOLOGY

Nipple refers to the central raised portion of pigmented tissue
Areola refers to the circular shaped pigmented tissue immediately surrounding the nipple
Nipple-areola complex (NAC) is the entire tissue complex including both nipple and areola

INTENDED RESULTS

- Align anatomy with gender identity
- Reduction in gender dysphoria and/or gender incongruence
- Improve mental health and well being
- Flatter chest profile
- Eliminate need for binding

ALTERNATIVE TREATMENT OPTIONS

- Binding chest
- Wearing clothes that hide chest tissue
- Breast reduction if meets eligibility requirements in Ontario

Surgical Techniques and Options

There are multiple possible techniques. The type recommended by the surgeon depends on cup size, skin elasticity, NAC size/position and the patient's goals. Although anatomy will have the largest impact on options available, having clear goals can help guide discussions about techniques and outcomes.

KEYHOLE MASTECTOMIES

(Recommended for people with an A cup-size and good skin elasticity)

- A small half-moon incision is made along the lower aspect of the areola
- The NAC is left attached to the body so sensation is possible and NAC grafting is not necessary
- Breast tissue is removed by liposuction and direct excision through the half-moon incision
- The incision is closed. The NAC is not resized or repositioned.
- Drains (long thin tubing) are typically placed in the chest for this technique to allow blood/fluid to escape

PERIAREOLAR MASTECTOMIES

(Recommended for people with a B or less cup size and good - moderate skin elasticity)

- An incision is made all around the outside of the areola, skin excised circumferentially
- The NAC is left attached to the body so sensation is possible
- Breast tissue is removed by liposuction and direct excision
- The areola may be trimmed to reduce its size
- The skin is pulled tight around the areola like pulling a drawstring closed
- The NAC may be repositioned slightly, depending on chest size and available skin
- Drains (long thin tubing), are typically placed in the chest for this technique to allow blood/fluid to escape

DOUBLE INCISION MASTECTOMIES

Recommended for people with a C-cup size or larger and/or excess skin

- Large incisions are made horizontally across the chest
- The breast tissue is removed with the excess skin
- Some fatty tissue may be liposuctioned
- Incisions are closed, leaving two scars below the pectoral muscle lines
- Can be done with or without nipple grafting
- In "Free nipple graft" technique, NAC is removed completely, the areola and nipple are trimmed to a smaller size and the NAC is grafted onto the chest
- Drains may be used in this technique

INVERTED T MASTECTOMIES

- A surgical technique similar to the double incision but with an extra vertical excision
- NAC left attached to the body
- The breast is removed with the excess skin
- Some fatty tissue may be liposuctioned
- Similar to double incision it is suited to those with C-cup or larger and/or excess skin who wish to preserve the native NAC
- It cannot achieve the same flatness as with double incision
- Not all surgeons offer this technique

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

General Surgical Risks

- Bleeding, if excessive may require blood transfusion
- Deep Vein Thrombosis, Pulmonary Embolism (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

SURGICAL RISKS AND COMPLICATIONS OF TOP SURGERY

- **Irreversible**: The procedure involves a significant degree of irreversibility
- **Change in sensation** to the chest and NAC
- **Numbness** of nipples/areola/chest - higher risk of NAC numbness with double incision mastectomies because they are grafted
- **Hypersensitivity** is also possible, typically to the NAC, and can lead to chronic pain conditions
- **Wound separation** at the incision sites. This can also contribute to more significant scarring and increase risk of infection.
- **Permanent scarring**. Scarring present is aligned with surgical technique (i.e small scars around areola in keyhole and periareolar; large linear scars in double incision mastectomies)
- **Partial or full nipple graft failure**, i.e. nipple necrosis (tissue dies and falls off).In the case of graft loss, NAC may be replaced or reconstructed with surgery, or tattooed.
- **Changes in colour** of NAC
- **Asymmetry**. Body symmetry before and after surgery is imperfect. Asymmetry is common and may affect skin, chest contour, the size and position of the NAC and scarring.
- **Skin contour irregularities**, i.e. skin excess, bulges, puckering
- **Hematoma/Seroma:** when blood and fluid collect in the surgical site causing swelling, pain and redness. These may resolve on their own, or if large or persistent, may require aspiration with a needle and syringe once or more times.
- **Abscess/Infection** of the surgical area. Treatment may include drainage and/or antibiotics. Inability to lactate/chest feed
- **May decrease ability to screen for breast cancer**, as breast cancer screening tests may be less effective or difficult to access

PRE-OPERATIVE CARE

PRE-SURGICAL CONSIDERATIONS

- Consider referral to the Sherbourne Health's Acute Respite Care (ARC) Program for post-operative support if socially isolated, under-housed or homeless
- Ensure you have **explored the patient goals** for surgery which could include:
  - Masculine chest
  - Flat chest
  - Stop binding
  - Nipple preservation
  - Increase possibility of retaining sensation
  - Minimize complications
  - Resultant and desired scarring pattern
- **Smoking cessation** is strongly recommended both pre-op and post-op to optimize wound healing and decrease risk of nipple necrosis (usually at least 4 weeks before and after including smoking cannabis and vaping)
- Follow surgeon's advice on time periods to avoid smoking, alcohol and other substances
- History of keloid scars can increase risk of this type of scarring occurring after surgery
- **Breast cancer risk** assessments should be conducted prior to surgery. **High risk patients should be clearly identified**
- 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
- Patients should ask their surgeon if there are any additional fees that are not OHIP covered

IMMEDIATE PRE-OPERATIVE CARE

- Patients should follow the hair removal instructions recommended by their surgeon
- Surgeons may make surgical skin markings with patients standing, sitting or lying down
- IV antibiotics may be given pre-operatively to reduce the risk of infection

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

POST-OPERATIVE CARE

IMMEDIATE POST-OPERATIVE CARE

- Follow surgeon's post-op instructions for drains, dressings, sutures and steri-strips
- Surgical drains (Jackson Pratt drain) may or may not be necessary. Drains are removed once there is only a small amount of drainage, typically one week after surgery, but can take longer
- Most surgeons use dissolvable sutures, and these will dissolve on their own by 4-6 weeks
- Dressings and steri-strips are usually left on for the first week and then removed
- Once the dressings are removed one can shower
- Follow surgeon's recommendations about wearing a compression band (sometimes recommended for 1-month post-op)

INTERMEDIATE POST-OPERATIVE CARE

- Follow surgeon's recommendations on restrictions to activities
- Some general guidelines include:
  - Have a support person during the post-op period to assist with IADLs (cleaning, cooking, laundry, groceries)
  - Avoid driving for one week or longer, until safely able to move arms to drive
  - Avoid straining, lifting heavy objects (max 10 lbs), and exercise for four weeks
  - Reduce activities and **take time off work for one week or longer** (depending on type of work)
  - Gradual return to daily activities over four to six weeks

LONG-TERM MEDICAL CARE

- Swelling is normal for 4-6 months and will resolve over time, total healing is approximately 12-18 months
- Avoid exposing scars to sunlight for at least one year after surgery to minimize increased pigment changes in the scar
- If there is notable scarring, it may be possible to cover with chest hair, building pectoral muscles or tattoos
- Ask your surgeon if they remove all breast tissue, if some is intentionally left behind, and what their recommendation is for long term breast cancer screening
- It is possible that some breast tissue remains, so a plan for ongoing monitoring of the tissue left behind should be established with your provider
- In Ontario, funding for revisions can be applied for through the Ministry of Health by completing the Prior Approval for Funding of Sex Reassignment Surgery form

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Vaginoplasty

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Vaginoplasty

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This summary provides information to facilitate the discussion of gender affirming surgery between Ontario health care providers and patients. It is not exhaustive and does not replace the informed consent process between surgeon and patient.

DESCRIPTION

A surgery to create a vulva and vaginal canal involving the removal of the testes and erectile tissue and the inversion of penile and scrotal skin.

INTENDED RESULTS

- Align anatomy with gender identity
- Reduction in gender dysphoria and/or gender incongruence
- Improve mental health and well being
- Genitals with sexual sensation and to maintain the ability to have an orgasm
- Ability to have receptive vaginal sex (if vaginal canal created)
- Shorter urethra and ability to urinate seated without assistance or maneuvering
- No longer have to 'tuck' genitals

If no previous orchiectomy:

- Eliminates main source of endogenous testosterone production and its effects
- Stop taking androgen-blockers
- Some patients may be able to decrease estrogen dose

ALTERNATIVE TREATMENT OPTIONS

- "Tucking" genitals
- Orchiectomy +/- scrotectomy
- Vulvaplasty (vaginoplasty without creating vaginal canal)

SIDE EFFECTS

- **Irreversible**
- **Permanent infertility** (no longer producing sperm)
- Side effects of low testosterone may include **negative impacts on libido, energy, and mood**

SURGICAL TECHNIQUES AND OPTIONS

Vaginoplasty includes:

- Removal of testes if not previously done in a stand-alone orchiectomy procedure
- Deconstruction of the penis (separated into its parts: glans penis, blood vessels and nerves, urethra, skin, erectile tissue)
- Vulvar structures including a mons, labia, clitoris, clitoral hood and urethral opening are created using scrotal, penile and urethral tissue
- The clitoris is made from a small portion of the glans which remains connected to the penile dorsal nerves and blood vessels.
- The vestibule, the space between the urethral opening and the clitoris, is created with urethral mucosa tissue.
- Space for the vaginal canal is made between the genitourinary tract (bladder, prostate, urethra) and the rectum. The prostate is untouched and remains in place.
- The inner walls of the vagina are lined with skin from various tissues (depending on the type of vaginoplasty),

COMMON TECHNIQUES

PENILE INVERSION VAGINOPLASTY (PIV)

Penile inversion vaginoplasty (PIV) is the most common surgical technique, and is the procedure offered in Ontario and Quebec. Space for the vagina is dissected from outside the body between the genitourinary tract and the rectum. The skin from the shaft of the penis, typically augmented with a graft of scrotal skin, is inverted and used to line the newly created vagina. The average canal depth is between 8-11cm. The dimensions of the vaginal canal (length and width) are anatomy dependent and there is variability from person to person.

VULVAPLASTY (VAGINOPLASTY WITHOUT CANAL)

If a vaginal vault is not a primary goal, or there are concerns about a patient's ability to maintain post-operative dilations, vulvaplasty should be considered. The appearance is generally identical to vaginoplasty with canal. A shallow vaginal dimple makes the appearance of a canal without one being present. This procedure has less complications and a faster recovery than PIV. It does not allow for receptive vaginal sex and would exclude future penile inversion vaginoplasty.

ALTERNATIVE TECHNIQUES

Occasionally, there may be insufficient tissue to line the vaginal canal and an alternative vaginal lining must be sought. These techniques may also be used for revision surgery in the case of major complications such as vaginal stenosis.

PIV WITH SKIN GRAFT

This procedure is identical to penile inversion with the use of additional skin from the thigh or lower abdomen to additionally line the canal and augment canal dimensions. The area where the skin is taken will have a scar. This is available in Canada.

PERITONEAL VAGINOPLASTY

The use of peritoneum (a tissue lining the abdomen) to line the vaginal canal. In this procedure the peritoneum is taken from the abdomen, generally with a robotic-assisted laparoscopic procedure. Usually, there is not enough peritoneum to line the total canal and alternative tissues (i.e. scrotal, penile, regional skin grafts) are often required. This is not currently available in Ontario.

BOWEL FLAP VAGINOPLASTY

The use of a segment of bowel to line the vaginal canal. The rectosigmoid or ileal segments of intestine are common. Harvesting a segment of bowel is an invasive procedure that is associated with increased risk for bowel complications. This is not currently available in Ontario.

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

General Surgical Risks

- Bleeding, if excessive may require blood transfusion
- Deep Vein Thrombosis, Pulmonary Embolism (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

SURGICAL RISKS AND COMPLICATIONS OF VAGINOPLASTY

Vaginal canal complications

- **Vaginal stricture or stenosis**. This means significant narrowing or closure of the vaginal canal.
  - Vaginal stenosis occurs at the level of the vaginal canal leading to loss of canal depth and function
  - Introital stenosis occurs at the level of the vaginal entrance (introitus). Without accompanying vaginal stenosis, this will leave a vaginal space in the pelvis beyond the area of narrowing/closure referred to as a ‘vaginal remnant’
- **Vaginal remnant secondary to introital stenosis:** fluid can accumulate in the vaginal space and without a way to drain can lead to abscess formation, pain, fistula formation or other complications
- **Partial or complete graft or flap necrosis**
- **Prolapse of the vagina** (vaginal canal falls out of its original position)
- **Hair growth inside the vagina** (if not permanently removed prior to surgery)
- **Vaginal symptoms** (i.e. discharge, malodour, itching)

SURGICAL RISKS AND COMPLICATIONS OF VAGINOPLASTY, CONT'D

Urological complications

- **Urethral meatal stricture/stenosis:** narrowing/blockage of the urethral meatus (urethral opening), causing difficulty voiding
- **Urethral stricture/stenosis:** narrowing/blockage of the urethra, causing difficulty voiding
- **Urinary incontinence**
- **Overactive bladder**
- **Fistula formation:** Urethro-vaginal (between the urethra and the vaginal canal) or urethro-cutaneous (between the urethra and the outside skin)

Rectal complications

- **Rectal injury:** may require a diverting stoma (bowel opening on abdomen)
- **Recto-vaginal fistula:** unwanted connection between rectum and vagina allowing gas, discharge or feces to exit through the vagina

Other Risks

- Hypergranulation (overgrowth of healing tissue) is a common complication frequently occurring in areas of wound healing, where urethral mucosa was used or inside the vaginal canal
- Functional concerns or dissatisfaction with size, shape or positioning anatomy (ie. vagina, clitoris, urethra, labia)
- Hypertrophic scarring
- Loss of sensation, loss of sexual function, inability to orgasm
- Compartment syndrome and nerve injury of the upper or lower extremities (associated with positioning during surgery)

Revision Surgery

Additional surgeries after vaginoplasty are relatively uncommon. However, some complications do require surgery and patients should be prepared in case this is needed.

- **Rectal-vaginal fistula**: This complication typically requires the creation of a diverting stoma (bowel is diverted to your abdomen and covered with a bag to collect stool) until closure of the fistula is verified. If the fistula is addressed during the initial surgery, a diverting stoma may be established concurrently until confirmation of fistula repair through imaging at a later stage. In cases where a rectal-vaginal fistula is identified after the primary surgery, scheduling a diverting stoma as a subsequent procedure is warranted. A third surgical intervention will involve tissue relocation from another site (i.e. muscle from the thigh) to facilitate fistula closure. Following successful confirmation of fistula repair, a subsequent surgery for stoma reversal will be performed. This can take 2 years or longer.

- **Vaginal Stenosis or vaginal graft loss**: If there is significant loss of depth and function of the vaginal canal, then revision surgery may be recommended. Tissue taken from elsewhere will be required to line the vaginal canal. This can include skin from the lower abdomen, thigh, back, peritoneum, or bowel.

PRE-OPERATIVE CARE

PRE-SURGICAL CONSIDERATIONS

- Consider working through pre-surgical workbooks as available on Provincial Health Service Authority Trans Care BC website: https://www.transcarebc.ca/surgery/vagina-vulva-construction
- Ensure a thorough discussion about surgical options, including surgical technique (vaginoplasty vs vulvaplasty) and location of surgery
- Pre-surgical decision making of **vulvaplasty vs. vaginoplasty** should include: option for receptive vaginal sex, ability and commitment to perform vaginal dilation (+/- douching), access to a safe environment and resources to perform vaginal dilations. If a canal is created, consistent and frequent dilations are necessary to keep it open and prevent complications (i.e. vaginal remnant), particularly during the first year. It is essential that the patient understand and commit to this requirement and that the conditions to accomplish this are in place.
- If very little genital skin is present (i.e. due to early puberty blockers) penile inversion vaginoplasty may not be possible. Consideration should be given to early referral to a surgical centre for genital skin assessment
- Consider referral to the Sherbourne Health's Acute Respite Care (ARC) Program for post-operative care if socially isolated, under-housed or homeless
- **Fertility counselling** +/- sperm banking
- Post-orchiectomy continuous exogenous sex hormone is recommended to address the increased risk of osteoporosis and additional morbidity as long as deemed medically safe and beneficial
- **Smoking cessation,** including cannabis, is necessary before and after surgery to optimize wound healing and minimize serious complications
- Follow surgeon's advice on time periods to avoid smoking, alcohol and other substances
- Weight can significantly impact surgical options and contribute to complications, regardless of whether it's on the higher or lower end. Weight stigma also remains a prevalent issue. It's essential to have comprehensive discussions about weight implications. While BMI is an imperfect measure of fat and tissue perfusion, it can correlate with surgical outcomes. Thorough physical examinations are vital before surgery to assess eligibility and discuss options and risks.
- If vulvaplasty:
  - Hair removal not generally recommended
  - Recovery time typically 6-8 weeks
- If vaginoplasty:
  - If hair-bearing skin is used to line the canal, **permanent hair removal with electrolysis or laser should be considered**
  - Post-operative dilation schedule can be physically demanding and require a significant time commitment. Dilation frequency can initially be up to 4 times daily. **Ensuring stability and the capacity to care for oneself after surgery is crucial for a good surgical outcome**

PRE-OPERATIVE CARE

PRE-SURGICAL CONSIDERATIONS, CONTINUED

- Regular sitz baths and douching may also be recommended by the surgical centre
- Due to the frequency of dilation of three times daily for the first three months, many patients require this time off from work. Some may require more time, depending on patient factors in healing and the type of work
- A serious complication such as rectal-vaginal fistula may prolong recovery considerably. It may take over a year until the patient is able to have surgery to close the fistula and reverse the stoma. Patients should consider complications when deciding between vaginoplasty and vulvaplasty or when deciding on timing for vaginoplasty

- Need to reduce activities and appreciate the importance of supportive person/community/team to assist with daily activities such as self-care, grooming, meal preparation, laundry, etc. in the post-operative period
- Need for regular follow up with care providers during post-operative period. Complications including hypergranulation and wound separation are common. Patients should consider the need for regular visits with a health care provider, especially in the first three months after surgery, when deciding on time for surgery. Being able to access post-operative care when needed is essential for an optimal outcome
- The vulva will approach its final appearance at approximately 6-12 months and total healing for this surgery is generally 12-18 months
- Each surgical centre has a routine pre-operative process, patients should ask their surgeon what to expect

IMMEDIATE PRE-OPERATIVE CARE

ANESTHESIA WILL DISCUSS:

- Which medications to stop and when
- Anesthetic approach and risks
- Pain control measures
- Patients should ask their surgeon if there are any additional fees that are not OHIP covered

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

POST-OPERATIVE CARE

IMMEDIATE POST-OPERATIVE CARE

- Vaginal packing/stent (to keep the vaginal cavity open) and urinary catheter are in place for the first week
- Once the packing/stent is removed, dilations begin in order to keep the canal open
- Without regular vaginal dilations, there is a significant risk for vaginal and introital stenosis leading to loss of depth, function and further complications
- Sitz baths and douching may be part of the post-operative routine depending on the surgical centre
- Follow surgeon's instructions on frequency and duration of dilations, douching, sitz baths, and dressing care
- Most surgical centers require **at least 3 dilations daily for the first three months, 15 - 25 minutes each time.**
- Each surgical centre's recommendations can be found on their websites
- In Canada, surgical dilators are obtained from 'Soul Source.' Patients are given a set of 3. If lost, these can be purchased from soulsource.com or urbasics.ca and they are called "GRS Vaginal Trainers."
- Attention should be paid to the dilator size and depth as indicated by the colour and the number of dots located on the dilator inserted into the canal
- Activity: short walks of 10 minutes or less to avoid pressure on the incisions until they are healed (4-8 weeks)
- Medications: a course of oral antibiotics is often prescribed to minimize chance of infection, stool softeners are often used to assist with constipation, and routine pain medications

IMMEDIATE POST-OPERATIVE SIDE-EFFECTS

- Pain: controlled with medications, rest and ice
- Bruising can occur from the abdomen to lower thigh and can take approximately 4-6 weeks to resolve
- Labial swelling, can take up to 6-12 weeks to resolve, occasionally taking longer
- A small amount of loss of depth (~1-2cm) may occur as the canal heals and the swelling is reduced
- Bleeding after surgery is expected. Common sites include the areas constructed with urethral mucosa (ie. vestibule), inside the vaginal canal and from areas of wound healing (commonly the posterior forchette)

POST-OPERATIVE CARE

IMMEDIATE POST-OPERATIVE SIDE-EFFECTS, CONT'D

- Spraying with urination is common and usually improves over time (typically within three-six months)
- Brown/yellow vaginal discharge can occur for the first six-eight weeks
- Mental health effects: Surgery can be a stressful event and may have an immediate negative impact on mental health. Ensuring good support and care are in place following surgery is an important aspect of planning

INTERMEDIATE POST-OPERATIVE CARE

- Financial costs. There are considerable costs associated with the aftercare of vaginoplasty such as: lube, dilators, hygiene supplies and the cost of travel to and from the surgical centre/health care providers.
- Sex:
  - Exploration of the clitoris and erogenous sensations should start 8-12 weeks after surgery with intentional arousal at 12 weeks if orgasm is a goal
  - Receptive sex can begin after 12 weeks in accordance with the patient's goals and when they are ready. Although water-based lube is recommended for dilation, alternatives such as silicone lube can be used for skin-to-skin activity

LONG-TERM MEDICAL CARE

- Dilations will need to continue daily for at least a year and then weekly on an ongoing basis. Regular dilation for the first year is crucial to maintain the vaginal dimensions and prevent complications.
- Receptive sex is not considered a substitute for dilation
- Scarring typically fades within the first year
- Numbness: sensation tends to gradually return, usually within the first year as the nerve endings heal.
- Given that orchiectomy would be performed before or in conjunction with this procedure, please also refer to all long-term care described on the orchiectomy sheet.

ONGOING CARE INSTRUCTIONS FOR THE PROVIDER

- Gynecologic symptoms after vaginoplasty are anticipated. This can include - but is not limited to - bothersome malodour and discharge. Management of these symptoms may differ than the approach taken for the natal vagina. For example, bacterial vaginosis is not a pertinent diagnosis in this context, given the distinct nature of the neovaginal microbiome. No standardized treatment has yet been identified. Taking a broad view to consider the many factors impacting vaginal health (i.e. lube, sex, dilation, hormones, antibiotics, smoking) is important
- Douching may be proposed to address the bothersome symptom, considering douche bottle and solution
- New or ongoing concerns from the vaginal canal should be evaluated. Most surgeons consider it safe to examine the inside of the canal at 12 weeks after surgery
- Trauma-informed and patient-centred approach to the exam should be undertaken.
- Use of a finger before the insertion of an instrument can be informative. A clear disposable anoscope (“a clear dilator”), rather than a speculum, may facilitate patient comfort and ease of the exam
- Hair inside the vaginal canal can be removed with alligator forceps or equivalent instrument. Permanent hair removal strategies after surgery may not be available
- Hypergranulation may be treated with silver nitrate or topical corticosteroids
- Neovaginal STIs: see UCSF Guidelines for the Primary and Gender-Affirming Care of Transgender and Gender-Nonconforming People for more information
- UTIs should be treated as complicated and the presence of the prostate taken into account
- Prostate exams, when indicated, can be conducted vaginally
- The need for surgical revision should be discussed with the surgeon. Aesthetic revisions may not be publicly funded
- 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

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complication rates and recommendations. This is a dynamic document that is subject to change, as the knowledge of gender affirming surgeries changes.

ACKNOWLEDGEMENT

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SHERBOURNE HEALTH

Gender Affirming Surgery

Hysterectomy and Salpingo-Oophorectomy

A summary for health care providers

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SHERBOURNE HEALTH

Gender Affirming Surgery

Hysterectomy and Salpingo-Oophorectomy

A summary for health care providers

This summary provides information to facilitate the discussion of gender affirming surgery between Ontario health care providers and patients. It is not exhaustive and does not replace the informed consent process between surgeon and patient.

DESCRIPTION

Hysterectomy: removal of the uterus

- *Total Hysterectomy* is the removal of the entire uterus including the cervix
- *Subtotal Hysterectomy* is the removal of the body of the uterus, but not the cervix

Salpingo-Oophorectomy (either bilateral or unilateral)

- *Salpingectomy* is the removal of fallopian tubes
  - Bilateral salpingectomy (BS)
- *Oophorectomy* is the removal of ovaries
  - Bilateral salpingo-oophorectomy (BSO)
  - Unilateral salpingo-oophorectomy (USO)

ALTERNATIVE TREATMENT OPTIONS

- Hormone therapy (i.e. testosterone, progesterone) to stop menses
- Hormonal IUD to induce amenorrhea/infrequent menstrual bleeding (stop menses or lighten menses) and provide protection against pregnancy
- GnRH analogues to stop ovulation and stop menses

INTENDED RESULTS

- Align anatomy with gender identity
- Reduction in gender dysphoria and/or gender incongruence
- Improve mental health and well being
- Stops menses and/or breakthrough bleeding
- Remove risk of pregnancy
- Reduce risk of cancer (i.e. cervical, ovarian)
- Reducing need for cancer screening (i.e. Pap smears)
- Salpingectomy at the same time as hysterectomy is recommended to reduce ovarian cancer risk
- Oophorectomy removes the main source of estrogen
- Allows for vaginectomy which may be required in further lower surgeries (i.e. metoidioplasty/phalloplasty)

SIDE EFFECTS

- Irreversible

  Fertility effects:
  - Infertility if removal of ovaries as will no longer have eggs for fertility
  - Inability to carry embryo if removal of uterus
  - If ovaries retained, will require assisted reproduction for use of eggs for fertility
- Almost no estrogen production (puts patient at risk for osteoporosis, other morbidities, if an exogenous form of sex hormone is not used or contraindicated)

SURGICAL OPTIONS

- Total or Subtotal Hysterectomy with BSO/USO
- Total or Subtotal Hysterectomy with BS with ovary retention (bilateral or unilateral)

SURGICAL TECHNIQUES

- Minimally invasive (laparoscopic or vaginal) recommended without pelvic pathology. Laparoscopic approach most common. Laparotomy may be necessary in some cases
    - **Total laparoscopic hysterectomy**: Procedure done through 3-4 small abdominal incisions, each around 5mm-1 cm, uterus/tubes/ovaries are removed through vagina
    - **Subtotal laparoscopic hysterectomy**: procedure done through 3-4 small abdominal incisions. Uterus/tubes/ovaries removed through one enlarged incision to morcellate tissue (break down into smaller pieces) within a surgical bag
    - **Laparoscopically assisted vaginal hysterectomy (LAVH):** combination of laparoscopy and vaginal surgery, removal of uterus/fallopian tubes/ovaries through vagina
    - **Vaginal hysterectomy (VH)**: incision is through the vagina, uterus/tubes/ovaries removed through vagina
    - **Laparotomy (abdominal) Hysterectomy**: uterus/tubes/ovaries removed through one large incision through the abdomen

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

General Surgical Risks

- Bleeding, if excessive may require blood transfusion
- Deep Vein Thrombosis, Pulmonary Embolism (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

SURGICAL RISKS AND COMPLICATIONS OF HYSTERECTOMY AND SALPINGO-OOPHORECTOMY

- Accidental **damage to surrounding tissues** such as bowel perforation, injury to bladder, ureter, rectum, or other internal organs
- Accidental damage to blood vessels which may lead to need for blood transfusion and may be needed for future phalloplasty (inferior epigastric, circumflex iliac)
- Surgical site **infections** including urinary tract
- Pelvic organ prolapse (vaginal vault falls out of its original position)
- **Fistulas** (abnormal connection, which allows fluids/solids to pass between two structures that should not be connected)
  - Uro-vaginal (abnormal connection between bladder and vagina)
  - Recto-vaginal (abnormal connection between rectum and vagina)
  - Ano-vaginal (abnormal connection between anus and vagina)
- Changes in sexual sensation or decreased intensity of orgasm
- Decreased libido
- Ovarian remnant syndrome (pain and bleeding if some ovarian tissue is left behind)
- Vaginal cuff bleeding (bleeding from the top section of vagina which was closed)
- Hot flashes/night sweats and other symptoms of oophorectomy if no exogenous sex hormone is used
- Vaginal vault dehiscence: not having good healing at the vaginal vault
- Blood clots (Deep Vein Thrombosis, Pulmonary Embolism)

PRE-OPERATIVE CARE

PRE-SURGICAL CONSIDERATIONS

- Consider referral to the Sherbourne Health's Acute Respite Care (ARC) Program for post-operative support if socially isolated, under-housed or homeless
- **Reproductive options and fertility counselling** should be discussed prior to surgery
- Hysterectomy + BSO will lead to permanent loss of fertility
- Egg preservation or ovary preservation can leave some fertility options open
- Post-oophorectomy, continuous exogenous sex hormone is recommended to address increased risk of osteoporosis and other medical morbidity, as long as deemed medically safe and beneficial
- Pelvic pathology/previous surgery should be taken into consideration when discussing surgeries and technical approach
- Discuss goals related to future hormone use
- Bilateral salpingectomy at benign hysterectomy is most effective strategy for preventing majority of ovarian serous carcinoma
- No evidence for increased ovarian cancer risk in this population
- Genetic risk (i.e. BRCA1/2, PALB2) that increases ovarian cancer risk and should be taken into consideration with surgical options
- Previous cervical cytology abnormalities
- Consideration of ovary preservation (unilateral or bilateral) for retaining fertility, endogenous estrogen production and mitigation of possible medical risk (bone health, cardiovascular health, all-cause mortality, neurocognitive, sexual)
- If planning future metoidioplasty (more than just simple clitoral release) or phalloplasty, most surgeons require the hysterectomy with or without BSO be completed at least 6 months prior
- If considering future lower abdominal flap phalloplasty, avoid transverse hysterectomy scars ("Pfannenstiel incisions") in abdominal hysterectomies as the transverse incision disrupts flap vasculature. Vertical abdominal incisions are preferred
- **Smoking cessation** is strongly recommended both pre-op and post-op to optimize wound healing. Follow surgeon's advice on time periods to avoid smoking, alcohol and other substances
- Discuss aftercare plan and social supports. Typical recovery is two weeks rest, complete recovery from LAVH is four-six weeks, and complete recovery from laparotomy/abdominal hysterectomy is six to eight weeks.

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

- Pre-surgical: CBC blood test, Beta-HCG
- Pelvic exam/ultrasound recommended if pelvic pathology present/suspected, ultrasound if unilateral oophorectomy
- 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-OPERATIVE CARE

- Foley catheter inserted during procedure, potential for reinsertion if unsuccessful trial void
- If vaginal route (LAVH/VH), potential for vaginal trauma, repair and bleeding
- Monitor for excessive vaginal bleeding
- Bleeding etiologies: hypergranulation, atrophy, vaginal separation, bleeding vessel
- **Light bleeding** is common for the first 1-2 weeks post-op, can last up to 4 weeks. Can taper off initially and then return a few weeks later.
- Monitor for signs of infection and perform incision care
- Pain management
- Follow surgeon's recommendations on restrictions to activities. Some general guidelines include:
  - No lifting for two weeks, avoid stretching or bending for two weeks
  - No heaving lifting (max 10 lbs.)/strenuous activity for six weeks
  - No vigorous exercise for three months

LONG-TERM MEDICAL CARE

- Oophorectomy performed before the age of 45-50 years is associated with increased all-cause mortality, cardiovascular death and dementia in cisgender women. This risk may not transfer onto trans population due to use of testosterone.
- **Testosterone dose post-oophorectomy:**
  - Dosing typically remains the same
  - Dose reduction may be considered as long as it is adequate to maintain bone density. Patients should be informed of possible reduced muscle mass, energy and libido at lower doses. Adequacy of dosing in those on low testosterone replacement post-oophorectomy may be assessed by following LH and FSH levels and titration of dosing to maintain these in the premenopausal range
- With total hysterectomy (and no history of gynecologic cancer including no abnormality of surgical pathology), individuals no longer require pap smears
- **Subtotal hysterectomy**
  - Cyclical bleeding can occur for up to two years post-op
  - Cervical cytology (pap testing) if sexually active
- **If ovaries retained:**
  - No additional surveillance is required
  - Annual examinations should include palpation of adnexa
  - Concerns for masses should be assessed with appropriate imaging (ie. Transabdominal or vaginal)
- **If uterus retained:**
  - Cervical cancer screening as per local guidelines
  - No additional endometrial surveillance required
- **Minimize risk for osteoporosis:**
  - Ensuring long-term exogenous sex hormone replacement (i.e. testosterone)
  - Monitor LH and FSH levels to assess if hormone dosage is adequate for bone health
  - Adequate dietary sources of Calcium and Vitamin D supplementation
  - Reduce smoking
  - Perform weight-bearing activities
  - Consider Bone Mineral Density test for anyone post-oophorectomy, who has not been on hormones for 5 years, regardless of age

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Gender Affirming Surgery

Phalloplasty

A summary for health care providers

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Phalloplasty

A summary for health care providers

This summary provides information to facilitate the discussion of gender affirming surgery between Ontario health care providers and patients. It is not exhaustive and does not replace the informed consent process between surgeon and patient.

DESCRIPTION

Phalloplasty refers to the creation of a phallus (aka penis) using tissue, such as skin, fat, nerves, veins and arteries, sourced from elsewhere on the body and attaching it to the pubic area.

In addition to the phallus formation, this surgery may comprise multiple procedures depending on one's goals and surgeon requirements including:

- **Total hysterectomy +/- bilateral salpingo-oophorectomy (BSO)**
- **Vaginectomy**: removal of the vagina (colpectomy) and closing of the vaginal opening (colpocleisis)
- **Urethral lengthening**: creation of a urethra that travels through the phallus that connects with the natal urethra
- **Burying the clitoris**: the clitoris is moved into the base of the phallus
- **Glansplasty**: creation of the glans penis by sculpting head of phallus
- **Monsplasty**: removal of prominent prepubic tissue
- **Scrotoplasty/perineal reconstruction**: creation of a scrotum
- **Implants**:
  - **Testicular implants**: inserted into the new scrotal tissue as testicular prosthesis
  - **Erectile device**: insertion of a device into the phallus for erectile function

INTENDED RESULTS

- Align anatomy with gender identity
- Reduction in gender dysphoria and/or gender incongruence
- Improve mental health and well being
- To have a penis and scrotum
- Maintain erogenous sensation and the ability to have an orgasm

Depending on the type of procedures:

- A phallus with sexual sensation
- Ability to have insertive sex
- To allow standing urination

ALTERNATIVE TREATMENT OPTIONS

- "Packing" (use of padding or phallic object in pants/ underwear)
- Devices that aid voiding while standing
- Devices that allow for insertive sex with a partner
- Use of testosterone to develop clitoromegaly (enlargement of the clitoris)
- Metoidioplasty and the various options of the different procedures involved

SIDE EFFECTS

- **Irreversible**
- **Impacts on fertility:** if hysterectomy is done, one will be unable to carry embryo; if BSO is done, one will no longer have eggs for fertility

SURGICAL TECHNIQUES AND OPTIONS

Surgical techniques vary by surgeon.

The two main factors that differentiate between the surgical techniques are where the tissue for the phallus is obtained and how the shaft of the phallus is created.

Construction of the shaft options

- Shaft only
  Only an outer tube is created, and the urethra remains in the original position. This option does not allow one to void standing up. Vaginectomy and scrotoplasty are possible.
- Shaft with urethra
  One piece of tissue forms two tubes, or a 'tube within a tube'. One has skin on the outside for the shaft of the phallus and one has skin on the inside for the urethra.

Donor site options

There are two common donor sites because of their reliable blood supply and increased chance for sensation:

- Radial Forearm Free (RFF) Flap:
  Skin, blood vessels and nerves from the forearm are used to make the phallus.
- Anterior Lateral Thigh (ALT) Flap:
  Skin, blood vessels and nerves from the side of the thigh are used to make the phallus. When possible, the blood supply is left attached (pedicled flap) and only the nerves are cut and reconnected.

Alternative donor sites

- Abdominal flap lower abdominal skin is used for a shaft-only phalloplasty. This technique doesn't involve nerve connections and sensation can be limited. It does not allow one to urinate while standing.
- Musculocutaneous latissimus dorsi (MCL) Free Flap: tissue including skin, fat, muscle, veins and arteries are taken from the side of the torso (under the armpit).

There are three general steps to phalloplasty:

1. **Preparation:** Hysterectomy and hair removal
2. **Phallus creation** +/- urethral lengthening
3. Erectile and testicular **implants**

It is important to note that this does not mean only three surgeries. There may be more surgeries involved depending on how the procedure is staged and if there are complications. This can take two to three years or more from start to completion.

The first step involves procedures that need completing prior to the second step. Most surgeons will ask that **a total hysterectomy** be performed prior to initial phalloplasty surgery. This is an important consideration if vaginectomy and/or urethral lengthening are desired. If creating a urethra from hair bearing skin, one requires **permanent hair removal** which can take up to a year.

The second step involves the primary construction of the phallus. In this step the phallus is created from the removal of a flap of tissue from elsewhere on the body, including skin, fat, nerve, vein and artery, and attaching it to the pubic area. A skin graft, or the use of artificial skin, will be used to cover the phallus donor site. Microsurgery is performed to attach the blood vessels and nerves from the neophallus to the genital blood vessels and nerves. If undergoing urethral lengthening, a urethra is created within the phallus in a 'tube within a tube' approach. Additionally, vaginectomy, glansplasty, scrotoplasty, perineum reconstruction and burying of the clitoris may take place. If undergoing phalloplasty with urethral lengthening (where urethra is extended to the end of the phallus), vaginectomy is usually required due to the increased risk for urethral vaginal fistula (requiring additional surgical procedures with uncertain results). If undergoing phalloplasty without urethral lengthening, vaginectomy is not a requirement.

This second step can occur in a single or two stage approach (one or two surgeries) and will depend on the construction of the urethra, if undergoing urethral lengthening. The lengthened urethra contains three discrete regions: the native urethra (the urethra that was already there and stays in place), the penile urethra that extends throughout the phallus, and then there is a region that connects these two regions called the 'fixed urethra.'

In a single stage approach, all of the urethra is constructed and connected so that at the end of the surgery one can stand to void.

A two-stage approach involves three common methods:

1. Everything that is done in a single stage is completed but the penile urethra and the fixed urethra are not connected. This will be done in a second surgery, usually several months later.
2. The first surgery will only be to create the phallus and penile urethra. A second surgery will include vaginectomy, glansplasty, scrotoplasty, perineum reconstruction, burying of the clitoris and the urethra is connected.
3. The first surgery is essentially a metoidioplasty (see metoidioplasty sheet) including vaginectomy, scrotoplasty, perineum reconstruction, and urethral lengthening. The second surgery will create the phallus with the penile urethra, connecting it to the previously elongated urethra of the metoidioplasty and burying the clitoris at the base of the phallus.

The third step includes the insertion of testicular implants in the scrotum and erectile implants in the phallus that will allow for insertive sex. There are different types of implants including ridged, malleable and inflatable.

SURGICAL RISKS AND COMPLICATIONS OF PHALLOPLASTY

URINARY/URETHRAL COMPLICATIONS

Urethral complications are very common if urethral lengthening to the end of phallus is undertaken. Surgical revision may be required, and one should prepare for this possibility.

- **Urethral fistulas**: these result in an unwanted leak between the urethra and the skin (urethra-cutaneous) or vagina (urethra-vaginal)
- **Urethral strictures**: a narrowing of the urethra at any site within the phallus making it difficult or impossible to urinate
- **Bladder spasms** may occur if a catheter is placed to empty the bladder to manage a complication (i.e. Stricture)
- **Urethral meatal stenosis**: narrowing of the end of the urethra (urethral opening)
- **Urethral diverticula**: a pocket or pouch that forms along the urethra and can cause urine to pool leading to incontinence
- **Lower urinary tract symptoms**: post-void dribble, urinary spray, UTIs, poor flow, incomplete emptying
- **Hair growth in urethra**: may cause UTI, stenosis, stricture, obstructive symptoms, intra-urethral stones
- Urine may need to be manually expressed after voiding to completely empty the urethra of urine. This is done by applying pressure along the phallus, or at the bottom of the scrotum and this can be permanent.

OTHER COMPLICATIONS

- **Donor site**: large permanent scar, numbness, stiffness, swelling, weakness, decreased flexibility, pain and general morbidity to the donor site, possibly extending to other parts of the limb (i.e. hand)
- **Scarring**: to donor site, genital region. Location of scars vary by surgical technique (i.e. large scar on forearm from forearm flap phalloplasty). Scarring may be extensive, hypertrophic, hyper/hypopigmented or other non-desirable aesthetic
- **Skin graft loss**: when all or part of skin used to cover the flap donor site (forearm or thigh) dies
- **Flap loss/graft failure**: when all or part of the flap (phallus) dies, typically because of poor blood flow or infection.
- **Nerve damage** and loss of sensation of neophallus
- **Decreased sexual satisfaction**, erogenous sensation and 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**, delayed healing, hypergranulation and other complications of skin healing. Commonly affected areas include the base of phallus and perineal-scrotal junction.
- **Testicular implant complications:** infection, extrusion, poor positioning, pain, limitations in function that can be chronic without surgical removal
- **Erectile device complications**: infection, skin erosion, technical failure, leakage, poor positioning, pain
- **Perineal pit:** the area above the anus can form a small pit that can have hygiene implications
- **Vaginal remnant or mucocele**: vaginal tissue may be left behind after vaginectomy and a collection of fluid and cells in your pelvis may result. If it is connected to the urethra, it may cause substantial post-void dribbling/incontinence. This may require surgical revision to remove the tissue.
- **Negative mental health impacts of surgery**: Despite positive impacts to quality of life and mental health in the long term, it is not surprising that some patients may have challenges in the shorter term.

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

General Surgical Risks

- Bleeding, if excessive may require blood transfusion
- Deep Vein Thrombosis, Pulmonary Embolism (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

REVISION SURGERY

Phalloplasty is a complex, multi-staged, demanding set of surgeries and there is a high risk of complications. Additional surgeries, or 'revisions' are fairly common. This can include any aspect of the surgery including the phallus, scrotum, urethra, donor site or implants. Common complications for revision surgery include:

Strictures after urethral lengthening. Fixing a stricture may include:

- A suprapubic catheter, a catheter (tube) inserted from the lower abdomen into your bladder
- A urethral catheter, a catheter (tube) inserted from the urethra to the bladder
- Cutting out a short segment of the urethra and closing it directly
- Urethral dilations

If the stricture is long, a two-stage repair may be required:

- First stage: Donor tissue (i.e. tissue from inside your mouth) is used to create a new section of the urethra, which is left open, and you will urinate sitting down.
- Second stage: The area is then closed over a catheter. A suprapubic catheter will drain the bladder until the catheter is removed and urinating out of the phallus is once again possible.

Fistulas: if requiring surgical management, may involve a small outpatient procedure or a more involved procedure depending on the cause. Fistulas caused by strictures will need a stricture repair for the fistula not to reoccur. Generally, surgical repair involves removing the unwanted tract and applying new tissue over the area. A catheter, suprapubic or urethral, will likely be placed.

Implant infection usually requires implant removal and replacement at another time.

PRE-OPERATIVE CARE

PRE-SURGICAL CONSIDERATIONS

Ensure careful exploration of one's goals including the importance of the following:

- The appearance of the phallus
- Tactile or erogenous sensation
- Being able to stand to void
- The ability to have insertive sex
- Acceptability of donor site
- Removing the vaginal canal
- Fertility preservation
- Acceptability of risk and complications

- Consider working through pre-surgical journey pages available on Provincial Health Service Authority Trans Care BC website
- Consider referral to the Sherbourne Health's Acute Respite Care (ARC) Program for post-operative care if socially isolated, under-housed or homeless
- Phalloplasty can be a very demanding surgery with a long recovery and several possible complications.
- If undergoing vaginectomy, totally hysterectomy (with or without BSO) is required prior to phalloplasty
- Surgical sites that use hair-bearing skin for the urethra formation requires meticulous permanent hair removal (electrolysis or possibly laser) from the donor site to be completed at least 3 months prior to phalloplasty
- Perineal electrolysis may also be requested between stages, if perineal tissue is used in the urethral extension
- Preparing for surgery should include optimizing one's health. This includes all aspects of health including physical, mental, spiritual and social
- **Smoking cessation** is particularly important in phalloplasty (due to blood vessel grafts and risk of graft failure). Typical recommended time frame for smoking cessation (including cannabis) is six months pre-op and six months post-op
- Follow surgeon's advice on time periods to avoid smoking, alcohol & other substances
- Phalloplasty takes multiple surgeries over a period of one-two years or longer, depending on the recovery time between surgeries
- Weight, at the higher or lower ends of the spectrum, can significantly influence surgical options and contribute to both surgical and post-surgical complications. Concurrently, weight stigma is a prevalent issue. Discussions about the repercussions of weight are essential. While BMI is an imperfect index for measuring fat and tissue perfusion, it can be correlated with skin thickness, affect phallus size and overall surgical outcomes. Prior to surgery, a thorough physical examination is crucial for assessing the surgical options.
- Presurgical imaging such as ultrasound or CT of the donor site may be advised
- Allen testing may be required for radial forearm flap phalloplasty to evaluate blood perfusion

PRE-SURGICAL CONSIDERATIONS, CONTINUED

TRAVEL

Expect three to five trips to the surgical centre and consider travel costs (not covered by OHIP) and travel burden. Each surgical centre will have their own specific advice on hospital length of stay and returning home. Note: hysterectomy and hair removal can be completed in Ontario

1. **Pre-operative consultation (outpatient)**. Most surgical centers will require an in-person consultation prior to booking phalloplasty to ensure adequacy of donor site.
2. **The primary phalloplasty surgery**. This typically requires 5-7 days in hospital +/- 5 days in a recovery center. Surgical centres may ask you to stay close by for the first 3-6 weeks. If this step is a two staged procedure, there will be another surgery scheduled to complete the urethral surgery. This is typically one night in hospital and another week close by.
3. **Insertion of penile and testicular implants**. This step requires one night hospital stay. One can usually return home soon after.

ANESTHESIA WILL DISCUSS:

- Which medications to stop and when
- Anesthetic approach and risks
- Pain control measures

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

IMMEDIATE POST-OPERATIVE CARE

- A period of bedrest frequently accompanies immediate post-operative recovery
- A small amount of urine leakage from the end of the phallus urethra can occur at this stage
- If there is a catheter in place, symptoms associated with this can occur (i.e. bladder spasms and hematuria).
- Follow surgeon's instructions for
  - positioning of the neophallus
  - suture removal/ dressings
  - physiotherapy instructions for leg and arm exercises

<u>Some general guidelines and timeframes include:</u>

- Avoid driving for two weeks or longer, until safely able to move arms to drive
- Avoid any water submersion (i.e. bath, pools, hot tubs) until wounds are fully healed
- Caution should be used around application of ice as it can compromise blood flow. Follow the surgeon's advice.
- Avoid straining and heavy lifting for six weeks
- Avoid strenuous activity for 12 weeks
- Reduce activities and book time off work for 8-12 weeks (or longer depending on type of work)
- Timelines for recovery vary by surgical stage and procedure. Creation of the phallus, urethra and healing of donor site tend to require the longest recovery period. Testicular implants and erectile device insertion will have shorter recovery times

INTERMEDIATE POST-OPERATIVE CARE

- Follow surgeon's recommendations on restrictions to activities
- Some general guidelines include:
  - Have a support person during the post-op period to assist with ADLs, IADLs (cleaning, laundry, groceries)
  - Avoid driving for one week or longer, until safely able to move arms to drive
  - Avoid straining, lifting heavy objects (max 10 lbs), and exercise for four weeks
  - Reduce activities and take time off work for one week or longer (depending on type of work)
  - Gradual return to daily activities over 4-6 weeks

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 four to six months, and will slowly resolve over time
- Avoid exposing scars to sunlight for one year post-op, this will minimize colour changes in the scar
- No tattooing the donor arm for minimum one year post-operatively
- Smoking cessation and limiting caffeine are important to promote blood flow and support good long-term health of the anatomy

Ongoing Care Instructions For The Provider

- Complications following phalloplasty can occur at any time after surgery. For example, strictures typically present later in the post-operative course (6-36 months).
- Preparing for complications is an important part of pre-surgical planning. Integrate a local urology team into the patient's care early if possible.
- Obstructive voiding symptoms should trigger a high suspicion for urethral stricture. Symptoms can include: decreased force of stream, dribbling, urinary retention, dysuria, frequency and urgency. Initial evaluation should include a comprehensive history and a clinical examination
- Urinary tract infections (UTI) should be treated as complicated UTI and with culture specific antibiotics
- With recurrent UTIs, consider upper tract ultrasound, post-void residual and/or cystoscopy
- Post-void residuals (i.e. Bladder ultrasounds) should be ordered if there is concern about urinary retention
- Retrograde urethrography or voiding cystourethrography can provide important information on the characteristics of a stricture or fistula. These are accessible through referral to urology.
- Arranging investigations locally, with collaboration and communication with the surgical team, can be highly valuable and supportive.

In Ontario, funding for revisions can be applied for through the Ministry of Health by completing the Prior Approval for Funding of Sex Reassignment Surgery form.

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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 gender affirming surgeries changes.

ACKNOWLEDGEMENT

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This summary provides information to facilitate the discussion of gender affirming surgery between Ontario health care providers and patients. It is not exhaustive and does not replace the informed consent process between surgeon and patient.

DESCRIPTION

The primary goal of metoidioplasty is to create a small phallus with full sensation. There are many different surgical techniques within the metoidioplasty procedure that can be performed in addition to creating the small phallus. It is very important to discuss patient goals and desires, rather than rely on specific surgical terminology as there is a large variability in language, terms and meaning.

If phallus size and insertive sex are a priority, then phalloplasty should be considered. See the Phalloplasty Information Sheet.

INTENDED RESULTS

- Align anatomy with gender identity
- Reduction in gender dysphoria and/or gender incongruence
- Improve mental health and well being
- Creation of a small phallus (2-12 cm; mean 5-7 cm)
- Allow a visible erection
- Maintaining full erogenous sensation

CAN BE DONE WITH OR WITHOUT:

- Urethral lengthening: to extend urethra to end of phallus so one can urinate while standing
- Scrotoplasty: to create a scrotum behind the phallus

Important to note: metoidioplasty can be done as single stage surgery and there is no notable donor site scarring/risk of morbidity as in the case of phalloplasty.

ALTERNATIVE TREATMENT OPTIONS

- “Packing” (use of padding or phallic object in pants/underwear)
- Devices that aid voiding while standing
- Devices that allow for insertive sex with a partner
- Use of testosterone to develop clitoromegaly (enlargement of the clitoris)
- Phalloplasty

SURGICAL TECHNIQUES AND OPTIONS

CLITORAL RELEASE

METOIDIOPLASTY WITH SCROTOPLASTY

METOIDIOPLASTY WITH URETHRAL LENGTHENING, VAGINECTOMY +/-SCROTOPLASTY

- Surgical techniques vary by surgeon and patient goals
- Hysterectomy +/- BSO needed prior to vaginectomy
- **Vaginectomy**: removal of the vagina (colpectomy) and closure of vagina (colpocleisis). May be required if having urethral lengthening and scrotoplasty.
- A larger pre-surgical clitoris is favorable for phallus length
- **Clitoral enlargement** from
  - Systemic testosterone, topical dihydrotestosterone or vacuum devices
  - Surgical release of attachments (ligaments, possible chordae or crura) around the clitoris releasing it from the pubis
- Labial tissue may be used to add girth to the phallus
- **Monsplasty:** Reducing the fatty tissue over the pubic bone, improving prominence of phallus. Not recommended if considering future phalloplasty.
- **Urethral lengthening**: construction of a new urethra to extend native urethra and allow voiding through tip of phallus. Tissue used to lengthen the urethra may differ, but common tissues are vaginal mucosa, buccal mucosa (inner cheek), and labia minora
- **Scrotoplasty:** creation of a scrotum using outer labia
- **Testicular implants** can be inserted into new scrotum

SIDE EFFECTS

- **Infertility** if accompanied by hysterectomy +bilateral salpingo-oophorectomy (BSO) and vaginectomy (typically required for urethral lengthening)
- **Inability to have receptive vaginal sex** if vaginectomy is performed
- **Minimal visible 'bulge' with clothing**
- **Phallus is not usually large enough for insertive sex**

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

General Surgical Risks

- Bleeding, if excessive may require blood transfusion
- Deep Vein Thrombosis, Pulmonary Embolism (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

SURGICAL RISKS AND COMPLICATIONS OF METOIDIOPLASTY

- No current prosthesis for phallus
- Phalloplasty after metoidioplasty is possible but it may impact initial surgical approach
- Pre-surgical anatomy can impact surgical options and results. Phallus length, body fat distribution and labial tissue are taken into consideration.
- **Wound healing complication**s common to metoidioplasty include wound separation to incision sites and hypergranulation to areas of healing
- **Tissue loss** such as graft failure or tissue necrosis.
- Grafts are often used in urethral lengthening. If graft failure, it will either resolve fully on its own or may lead to **urethral fistula or stricture**.
- Tissue necrosis may lead to tissue loss and depending on location may result in secondary complications or require surgical revision.
- Dissatisfaction with appearance and or function of genitals (size, shape, function of penis, scrotum)
- **Vaginal remnant** or mucocele: vaginal tissue may be left behind after vaginectomy and a collection of fluid and cells in your pelvis may result. If it is connected to the urethra, it may cause substantial post-void dribbling/incontinence. This may require surgical revision to remove the tissue.
- **Changes in sensation of penis**: decreased sensation, tenderness or hypersensitivity
- **Testicular implant complication**s: infection, extrusion, poor/uncomfortable positioning
- Bladder or bowel injuries are a very rare but serious complication that can occur during hysterectomy, salpingo-oopherectomy, vaginectomy.
- Negative mental health impacts of surgery. Metoidioplasty, notably with urethral lengthening, carries significant risk for complications. Despite positive impacts to quality of life and mental health in the long term, it is not surprising that some patients may have challenges in the shorter term.

SURGICAL RISKS AND COMPLICATIONS OF METOIDIOPLASTY, CONT

Urinary/Urethral Complications
Urethral complications are common if urethral lengthening is undertaken. Surgical revision may be required, and one should prepare for this possibility.

- **Urethral fistulas**: these result in an unwanted opening in the urethra that leaks urine. This can occur anywhere along the new urethral tube but are more common at the site the new urethra is connected
- **Urethral strictures**: a narrowing of the urethra making it difficult or impossible to urinate
- **Bladder spasms** may occur if a catheter is placed to empty the bladder to manage a complication (i.e. Stricture)
- **Urethral meatal stenosis**: narrowing of the end of the urethra (urethral opening)
- **Lower urinary tract symptoms**: post-void dribble, urinary spray, urinary tract infections, poor flow, incomplete emptying. If not temporary, may require surgical revision.
- Even with urethral lengthening, voiding standing may not be possible due to a change in urine stream or limited phallus length

Revision surgery
Revision surgery can include any aspect of the surgery including the phallus, scrotum, urethra, or testicular implants. With urethral lengthening comes an increased risk for complications and the need for revision.

Strictures after urethral lengthening are not uncommon. Fixing a stricture may include:

- A suprapubic catheter, a catheter (tube) inserted from the lower abdomen into your bladder
- A urethral catheter, a catheter (tube) inserted from the urethra to the bladder
- Urethral dilation
- Urethroplasty using a tissue graft, usually from the mouth or a full thickness skin graft

Fistulas, if they require surgical management, may require a small outpatient procedure or a more involved procedure depending on the cause. Fistulas caused by strictures will need a stricture repair for the fistula not to reoccur. Generally, surgical repair involves removing the unwanted tract and applying new tissue over the area. A catheter, suprapubic or urethral, will likely be placed.

PRE-OPERATIVE CARE

PRE-SURGICAL CONSIDERATIONS

- Consider working through **pre-surgical workbooks** as available on Provincial Health Service Authority Trans Care BC website: https://www.transcarebc.ca/sites/default/files/2024-06/Penis_Construction_Surgeries_Workbook.pdf
- **Consider referral to the Sherbourne Health's Acute Respite Care (ARC) Program** for post-operative support if socially isolated, under-housed or homeless
- **Preparing for complications** is an important part of pre-surgical planning. If urethral lengthening, integrate a local urology team into the patient's care early if possible.
- **Testosterone** administration is needed to enlarge clitoris (most surgeons require at least 1-2 years)
- **Review goals** re: uterus, cervix, ovaries, vaginal cavity
- **Hysterectomy is required for vaginectomy** with or without BSO. This is generally done locally.
- Few surgical centres can perform metoidioplasty with urethral lengthening without requiring hysterectomy, and vaginectomy. This presents a technically more complicated procedure with an increased probability for urethral complications.
- **Scrotoplasty is possible with or without vaginectomy**, however technique and results may differ
- Each surgical centre has a routine pre-operative process, patients should ask their surgeon what to expect

ANESTHESIA WILL DISCUSS:

- Which medications to stop and when
- Anesthetic approach and risks
- Pain control measures

IMMEDIATE PRE-OPERATIVE CARE

- Patients should follow the hair removal instructions recommended by their surgeon
- Surgeons may make surgical skin markings with patients standing, sitting or lying down
- IV antibiotics may be given pre-operatively to reduce the risk of infection

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

PRE-OPERATIVE CARE

PRE-SURGICAL CONSIDERATIONS, CONTINUED

- **Smoking cessation** is strongly recommended both before and after surgery to optimize wound healing.
- Typical time frames are ~12 weeks for nicotine, ~4 weeks for cannabis. Follow surgeon's advice on time periods to avoid smoking, alcohol and other substances
- Off work for 4-8 weeks or more (depending on the type of work)
- Limit physical activity for six weeks
- The most intensive recovery occurs in the first three months, however full recovery may be 12-18 months
- Consider the need for a support person in post-op period to assist with activities of daily living (i.e. walking, dressing, bathing) and instrumental activities of daily living (i.e. cleaning, laundry, groceries)

POST-OPERATIVE CARE

IMMEDIATE POST-OPERATIVE CARE

- Urinary catheter, through the urethra, is usually kept in place post-operatively for several weeks
- Suprapubic catheter, a tube through the lower abdomen, is often required for a few weeks if urethral lengthening
- Continue to avoid smoking and alcohol according to the surgeon's instructions to optimize healing
- Icing around the phallus (not directly on) periodically for up to 10 min can be helpful for swelling/pain control

Activity

- Avoid driving if taking opioids or if urinary catheter in place, usually for the first two weeks
- Light activity such as walking is encouraged, but limit to less than 1.5 km/day
- Avoid wide leg movements, such as swinging your legs open to get out of a car/bed
- No lifting >10lbs for first four weeks, avoid vigorous physical activity for six weeks

POST-OPERATIVE CARE

INTERMEDIATE POST-OPERATIVE CARE

- Follow surgeon's recommendations on restrictions to activities
- Some general guidelines include:
  - Off work for 4-8 weeks (or longer depending on the type of work)
  - Showering regularly, up to twice a day may be recommended
  - **For the first three months:**
    - No anal, oral or vaginal sex
    - No immersion in a tub or pool
    - No straddling activities (i.e. bicycling)
- The most intensive recovery occurs in the first three months, however full recovery may be 12-18 months

LONG-TERM MEDICAL CARE

If no hysterectomy and/or vaginectomy, surveillance should continue as appropriate

ONGOING CARE INSTRUCTIONS FOR THE PROVIDER

- Obstructive voiding symptoms should trigger a high suspicion for urethral stricture. Symptoms can include: decreased force of stream, dribbling, urinary retention, dysuria, frequency and urgency. Initial evaluation should include a comprehensive history and a clinical examination.
- Urinary tract infections (UTIs) should be treated as complicated UTI's and with culture specific antibiotics
- With recurrent UTI's, consider upper tract ultrasound, post-void residual and/or cystoscopy
- Post void residuals (i.e. Bladder ultrasounds) should be ordered if there is concern about urinary retention
- Retrograde urethrography or voiding cystourethrography can provide important information on the characteristics of a stricture or fistula. These are accessible through referral to urology.
- Arranging investigations locally, with collaboration and communication with the surgical team, can be highly valuable and supportive
- Urethral strictures may be temporarily addressed with urethral balloons, regular dilation using sounds or catheters. Urethral surgery is often needed for definitive treatment.
- Urethral fistula can be managed using non-surgical options and/or urinary diversion with a catheter. If the fistula persists, adjacent tissue transfers with closure of fistula is performed. If the fistula is secondary to stricture, this may need to be surgically addressed.
- In Ontario, funding for revisions can be applied for through the Ministry of Health by completing the Prior Approval for Funding of Sex Reassignment Surgery form

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Metoidioplasty *Summary for health care providers*

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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 gender affirming surgeries changes.

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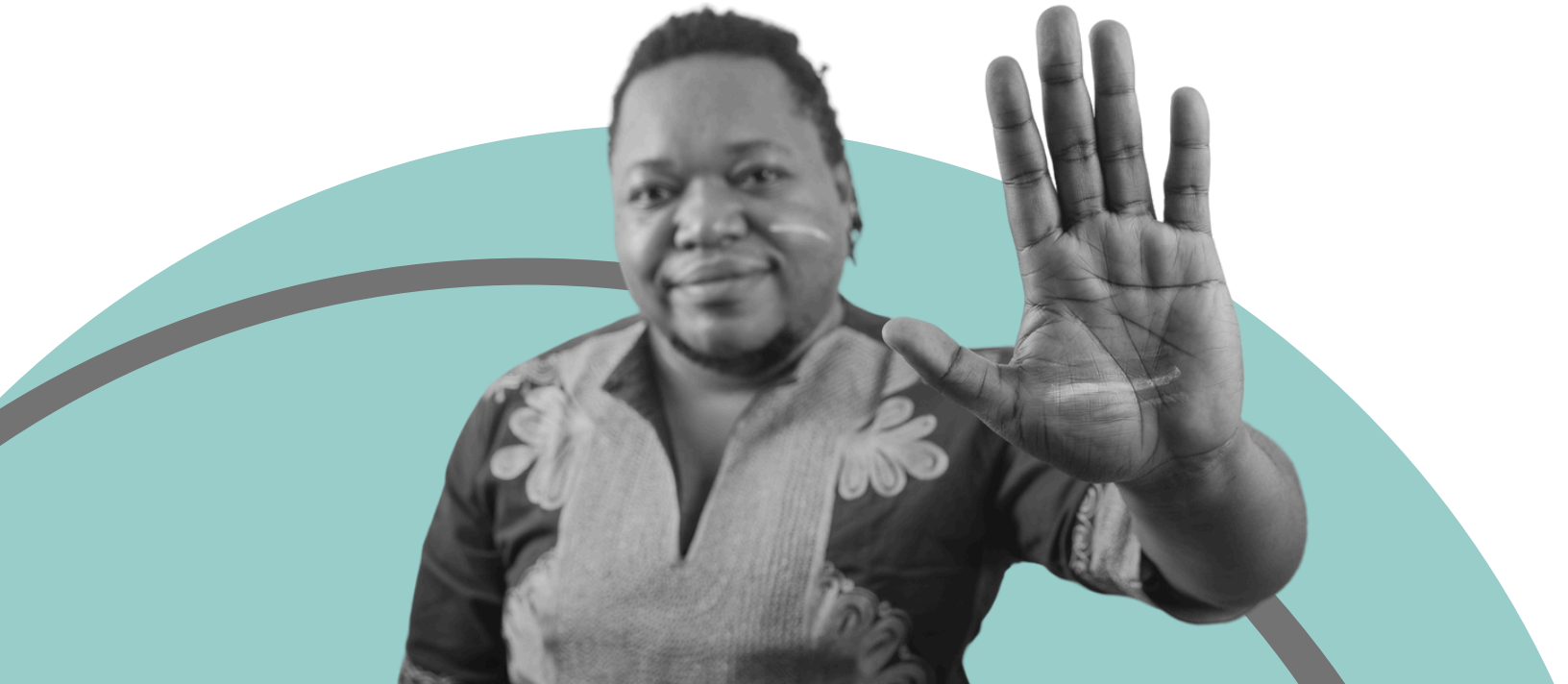

Gender Affirming Surgery

Orchiectomy

A summary for health care providers

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Gender Affirming Surgery

Orchiectomy

A summary for health care providers

This summary provides information to facilitate the discussion of gender affirming surgery between Ontario health care providers and patients. It is not exhaustive and does not replace the informed consent process between surgeon and patient.

DESCRIPTION

Bilateral simple orchiectomy is the removal of the testicles and spermatic cord.

INTENDED RESULTS

- Align anatomy with gender identity
- Reduction in gender dysphoria and/or gender incongruence
- Improve mental health and well being
- Eliminates main source of endogenous testosterone production and its effects
- Patients can stop androgen-blockers, decreasing the side effects, risk and medical-financial cost of hormone therapy
- May decrease dosing requirements of hormone therapy including estrogen and progesterone
- If tucking, may alleviate tucking related discomfort

SIDE EFFECTS

- Irreversible
- Permanent infertility (no longer producing sperm)
- Almost no testosterone production - puts patient at risk for osteoporosis if a sex hormone is not used
- Side effects of low testosterone may include erectile dysfunction, decreased libido, and decreased energy
- Prostate may decrease in size
- Possible atrophy (shrinking) of the scrotal tissue
- Only a small amount of the volume of ejaculate fluid is derived from the testicles. After orchiectomy, not much change should be expected.

ALTERNATIVE TREATMENT OPTIONS

- “Tucking” genitals
- Medications: Androgen Blockers, GnRH analogues, Estrogens
- Vaginoplasty (surgical construction of a vulva with/without a vaginal canal, which includes simultaneous orchiectomy)

SURGICAL TECHNIQUES AND OPTIONS

- Procedure typically done through a 2-4 cm midline scrotal incision
- If any suspected testicular pathology, alternate techniques may be considered (inguinal incision)
- Can be done with or without scrotectomy (removal of scrotal skin)
- Scrotectomy will lead to a long >7cm, midline incision/scar extending up the genitals
- General or spinal anesthesia
- Day surgery (no overnight stay)

Implications on Future Surgery

- If scrotectomy (removal of scrotal tissue) is performed, this will remove tissue that is typically used to create the vaginal canal during vaginoplasty. After scrotectomy there remains an anatomic bulge in this area, but the skin quality will be consistent with the surrounding perineal skin (i.e. smooth). Scrotectomy may exclude the option for future vaginoplasty so should not be done if ANY future bottom surgery is being considered

- Scrotal atrophy may affect the amount of skin available for future genital surgery (i.e. Vaginoplasty), however, the amount of atrophy is not typically a significant barrier. If there is very little tissue available prior to orchiectomy, a presurgical exam with a surgeon who performs vaginoplasty can assess for future impact.

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

General Surgical Risks

- Bleeding, if excessive may require blood transfusion
- Deep Vein Thrombosis, Pulmonary Embolism (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

SURGICAL RISKS AND COMPLICATIONS OF ORCHIECTOMY

- **Hematoma**, bleeding into the scrotum, is the most common complication. This may lead to a palpable lump and feel similar to pre-surgery anatomy. This may take up to 6 weeks or longer to resolve.
- **Numbness/loss of sensation in certain areas** around the surgical site, including the upper thigh and scrotum may occur. This is usually temporary but may be permanent.
- **Stumps of spermatic cords** may be palpable.
- **Wound separation along incision.** Increased risk if scrotectomy is performed.

PRE-OPERATIVE CARE

PRE-SURGICAL CONSIDERATIONS

- **Fertility counselling** +/- sperm banking
- Post-orchiectomy continuous exogenous sex hormone is recommended to address the increased risk of osteoporosis, as long as it is deemed medically safe and beneficial
- **Smoking cessation** is strongly recommended both pre-op and post-op to minimize complications and optimize wound healing
- Follow surgeon's advice on time periods to avoid smoking, alcohol and other substances
- Consider pros/cons of scrotectomy, as it will affect the option of future vaginoplasty
- Orchiectomy can be done at the same time as vaginoplasty rather than as a separate procedure

IMMEDIATE PRE-OPERATIVE CARE

ANESTHESIA WILL DISCUSS:

- Which medications to stop and when
- Anesthetic approach and risks
- Pain control measures
- Patients should ask their surgeon if there are any additional fees that are not OHIP covered

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

POST-OPERATIVE CARE

IMMEDIATE POST-OPERATIVE CARE

- Androgen blocker can be stopped immediately post-operatively
- Incision site should be kept clean
- Surgical dressing typically removed at home, usually on post operative day 2
- Bruising, swelling, numbness and/or shooting/ burning pain can occur
- Over the counter pain medication is typically sufficient to manage pain
- Activity levels – light activity encouraged (such as walking)

INTERMEDIATE POST-OPERATIVE CARE

- No heavy lifting, strenuous activity, bathing or swimming for 2-3 weeks or until incision has healed
- Anticipate needing 1-4 weeks off work, depending on nature of work, for recovery

LONG-TERM MEDICAL CARE

- Estrogen dose post-orchiectomy:
  - Depending on estrogen dosage, dose reduction may be considered as long as it is adequate to maintain bone density. Adequacy of dosing in those on low estrogen replacement post-orchiectomy may be assessed by following LH and FSH levels
- Minimize risk for osteoporosis:
  - Ensuring long-term exogenous sex hormone replacement (estrogen)
  - Monitor LH and FSH levels to assess if hormone (estrogen) dosage is adequate for bone health
  - Ensure adequate calcium and vitamin D intake
  - Reduce smoking
  - Perform weight-bearing activity
  - Consider bone densitometry for anyone post- orchiectomy, who has not taken exogenous hormones for 5 years or more, regardless of age

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