

Surgical Gender Affirmation

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Continuing Medical Education Disclosure

- **Program Faculty: Tim Cavanaugh, MD**
- **Current Position:** Medical Director, Transgender Health Program, Fenway Health
- **Disclosure:** No relevant financial relationships. All hormone therapy for transgender people is off-label.
- **Program Faculty: Ruben Hopwood, PhD**
- **Current Position:** Coordinator, Transgender Health Program, Fenway Health, and Psychology Fellow, Boston University, The Danielsen Institute
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Learning Objectives

1. Participants will be able to identify and broadly define surgical options available both to trans men and trans women.
2. Participants will be able to identify potential surgical complications for major gender affirming surgeries
3. Participants will be able to discuss consequences of or alternatives when surgery is not available or desired

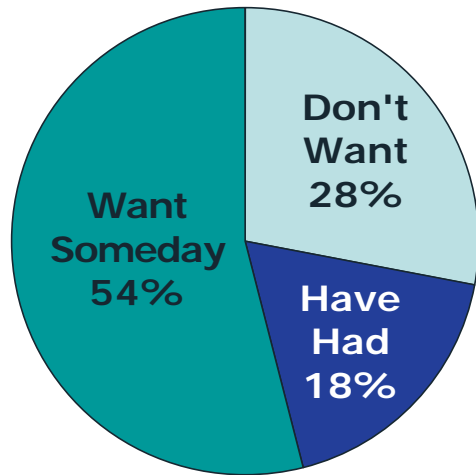
Surgery: Gender Affirmation (GAS); Sex Reassignment (SRS); Genital Reconstruction (GRS)

- Surgery has proven to be an effective intervention for the patient with gender dysphoria.
- Patient satisfaction following surgery is high,
- And reduction of gender dysphoria following surgery has psychological and social benefits.
- As with any surgery, the quality of care provided before, during, and after surgery has a significant impact on patient outcomes.
- Not for everyone!
- Is someone ready?
- Insurance coverage historically has been difficult to obtain.

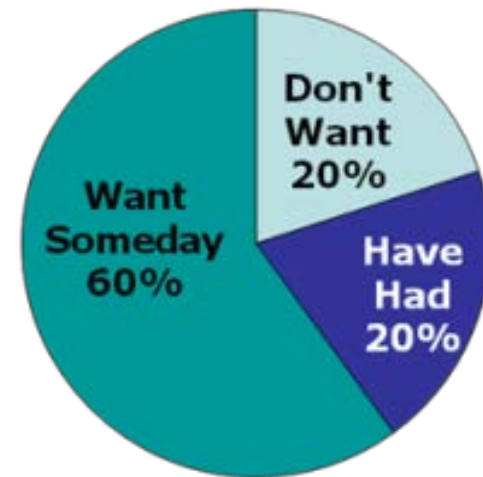
Lawrence, A. A. (2003). Factors Associated With Satisfaction or Regret Following Male-to-Female Sex Reassignment Surgery. *Archives of Sexual Behavior*, 32(4), 299–315.

Utilization of Surgery

MtF Chest Surgery



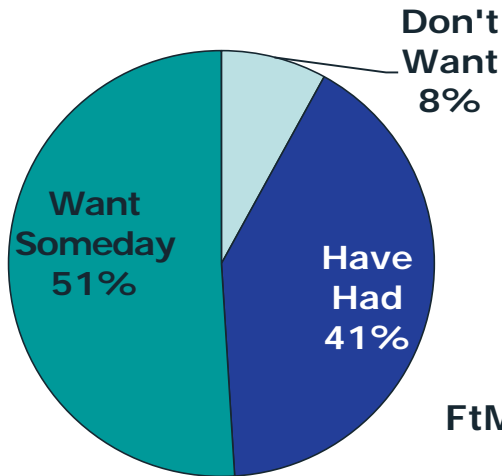
MtF Vaginoplasty



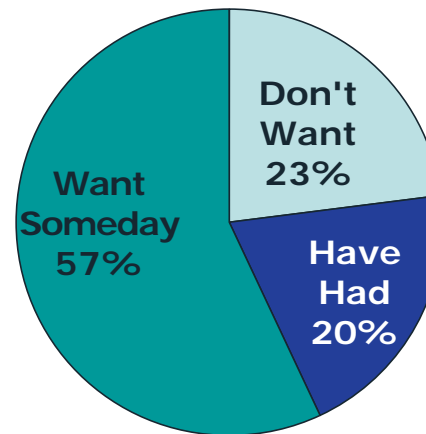
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Utilization of Surgery

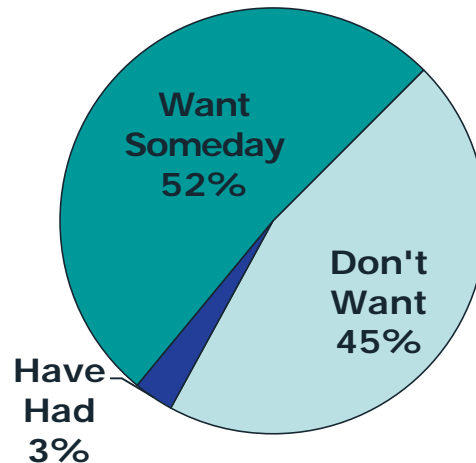
FtM Chest Surgery



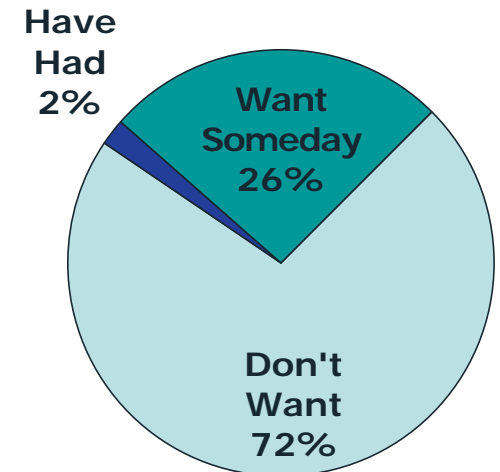
FtM Hysterectomy



FtM Metoidioplasty



FtM Phalloplasty



Language

- Non-judgmental
 - The majority of transgender people who have had surgical or medical alterations of their bodies are very satisfied with the results
- Devaluing
 - Sadly, health care providers often use disparaging language or tones of voice when talking to clients about the clients' surgical or medical body alterations or desires for body alterations

**Psychotherapy is not an
absolute requirement for
hormone therapy and surgery**

Criteria for Surgical Referrals

Mastectomy & creation of a male chest in FTMs (one referral)

1. Persistent, well-documented gender dysphoria
 2. Capacity to make a fully informed decision and give consent for treatment
 3. Age of majority
 4. If significant medical or mental health concerns are present, they must be reasonably well controlled
- Hormone therapy is not a prerequisite per WPATH but may be required by insurance plans

Criteria for Surgical Referrals

Breast augmentation in MTFs (one referral)

1. Persistent, well-documented gender dysphoria
 2. Capacity to make fully informed decision and to give consent for treatment
 3. Age of majority
 4. If significant medical or mental health concerns are present, they must be reasonably well controlled
- It is recommended that MTF patients take feminizing hormones for a minimum of 12 months, and preferably for 24 months, prior to augmentation for better results.

Criteria for Surgical Referrals

TAH-BSO or Orchiectomy (two referrals)

1. Persistent, well-documented gender dysphoria
 2. Capacity to make fully informed decision and to give consent for treatment
 3. Age of majority
 4. If significant medical or mental health concerns are present, they must be reasonably well controlled
 5. 12 months continuous hormone treatment (unless not clinically indicated for the patient)
- The aim of prior hormone treatment before gonadectomy is to have a reversible treatment before a permanent and irreversible one.

Criteria for Surgical Referrals

Genital Reconstruction (two referrals)

1. Persistent, well-documented gender dysphoria
2. Capacity to make fully informed decision and to give consent for treatment
3. Age of majority
4. If significant medical or mental health concerns are present, they must be reasonably well controlled
5. 12 continuous months hormone treatment (unless not clinically indicated for the patient)
6. 12 continuous months of living in a gender role that is congruent with the person's identity

Additional Recommendations (WPATH)

- It is recommended that GRS patients have regular visits with a mental health or other medical professional.
- GRS criteria of 12 continuous months of living in their gender role congruent with their identity is based on expert clinical consensus that this provides the patient opportunity to experience and socially adjust to their gender role before irreversible surgery.

Trans Feminine Spectrum Surgeries

- Facial Feminization Surgery (\$2,600-\$40,000)
 - Mandible Contouring
 - Forehead Contouring
 - Tracheal Shave
 - Rhinoplasty

Before & After FFS



Before Surgery

9 Days After Surgery

6 Months After Surgery

After Hairline Revision



Before any treatment

1 yr hormones & 3 yrs electrolysis

2 months after surgery

Before & After FFS



Trans Feminine Spectrum Surgeries

- Liposuction & Fat Injection (\$2,000-\$10,000 per procedure/area)
- Gluteal & Hip Implants (\$9,000-\$10,000)
- Breast Augmentation (\$5,000-\$10,000)
- Orchidectomy (\$4,000-\$6,000)
- Vaginoplasty (\$15,000-\$30,000)
- Labiaplasty (\$3,000-\$4,000)



A



B



C



D



E



F



G



H



I



J

Step-by-Step SRS Male to Female Penile Skin Inversion Procedure



Results of Vaginoplasty & Labiaplasty



Vaginoplasty

Labiaplasty @ 10 mos



Before



After



5 months post op



6 months post op

Complications of Vaginoplasty

- Blood loss is generally minimal (avg 150 ml)
 - Bowers (2014) 0.6% needed transfusion
- Venous Thromboembolism
 - Stop or reduce estrogen prior to surgery
 - Early mobilization
- Bowel, bladder or urethral injury
- Surgical site infections
 - Reported rates vary widely 5 – 20%

Sources of Postoperative Vulvar Swelling in MTF Vaginoplasty

- Induration
 - Neolabial swelling unilateral or bilateral
 - Weeks to months in duration
 - Non-tender
 - Self-limiting
 - Drainage unlikely
 - Expectant management and/or pressure
- Hematoma
 - Neolabial swelling unilateral or bilateral
 - Weeks to months in duration
 - Moderately tender
 - Variable size to 20 cm or more
 - Can evolve to abscess or seroma if undrained
 - Spontaneous dark bloody drainage possible
 - Aspiration or incision and drainage or time and pressure for 5 cm or less
- Seroma
 - Neolabial swelling, tends to be unilateral
 - Weeks to months in duration
 - Non-tender unless large
 - Variable size corresponding to preexistent hematoma
 - Spontaneous clear amber fluid drainage possible
 - Aspiration or incision and drainage
- Abscess
 - Neolabial swelling, almost always unilateral
 - Weeks to months in duration
 - Extremely tender \
 - Usually small 2–5 cm
 - Spontaneous purulent drainage possible
 - Incision and drainage, packing and antibiotics, +/- culture

Complications of Vaginoplasty

- Tissue necrosis
 - Debridement, wet-to-dry dressings, time
- Clitoral necrosis
 - 1-3% in most series
 - Most often partial
 - Many patients may still achieve orgasm
- Labial wound dehiscence
 - Generally focal and localized
 - Local wound care and healing by secondary intention

Complications of vaginoplasty

- Rectovaginal fistulas
 - Usually related to surgical injury
 - Dilation related injuries have been reported
- Urethral complications are uncommon
 - Adhesions causing deviation of urethral stream
 - Urinary incontinence is not seen
- Granulation tissue
 - Results late in healing from tissue non-union or dehiscence
 - Apply silver nitrate or excise and cauterize base

Complications of vaginoplasty

- Vaginal stenosis
 - Introitus narrowed by fibrosis and scarring
 - Due to surgical omission or, most often, failure to dilate (often related to infection, dehiscence or excess pain)
 - Re-engage patient in dilation regimen
 - Surgical release of scar tissue
 - Topical estrogen cream may help
 - Surgical re-opening or revision
- Regrowth of erectile tissue
 - Can obstruct vaginal canal or urethra
 - Surgical Excision

Trans Masculine Spectrum Surgeries

- Bilateral Salpingo-Oophorectomy (\$4,000-\$10,000)
- Hysterectomy – Vaginal/Abdominal (\$11,000-15,000)
- Mastectomy & Chest Reconstruction (\$8,000-\$11,000)
 - Drawstring, Inverted-T, Pie Wedge
 - Keyhole – or – Peri-areolar subcutaneous
 - Lipo with revisions
 - Double-incision with nipple graft/relocation

Inverted-T

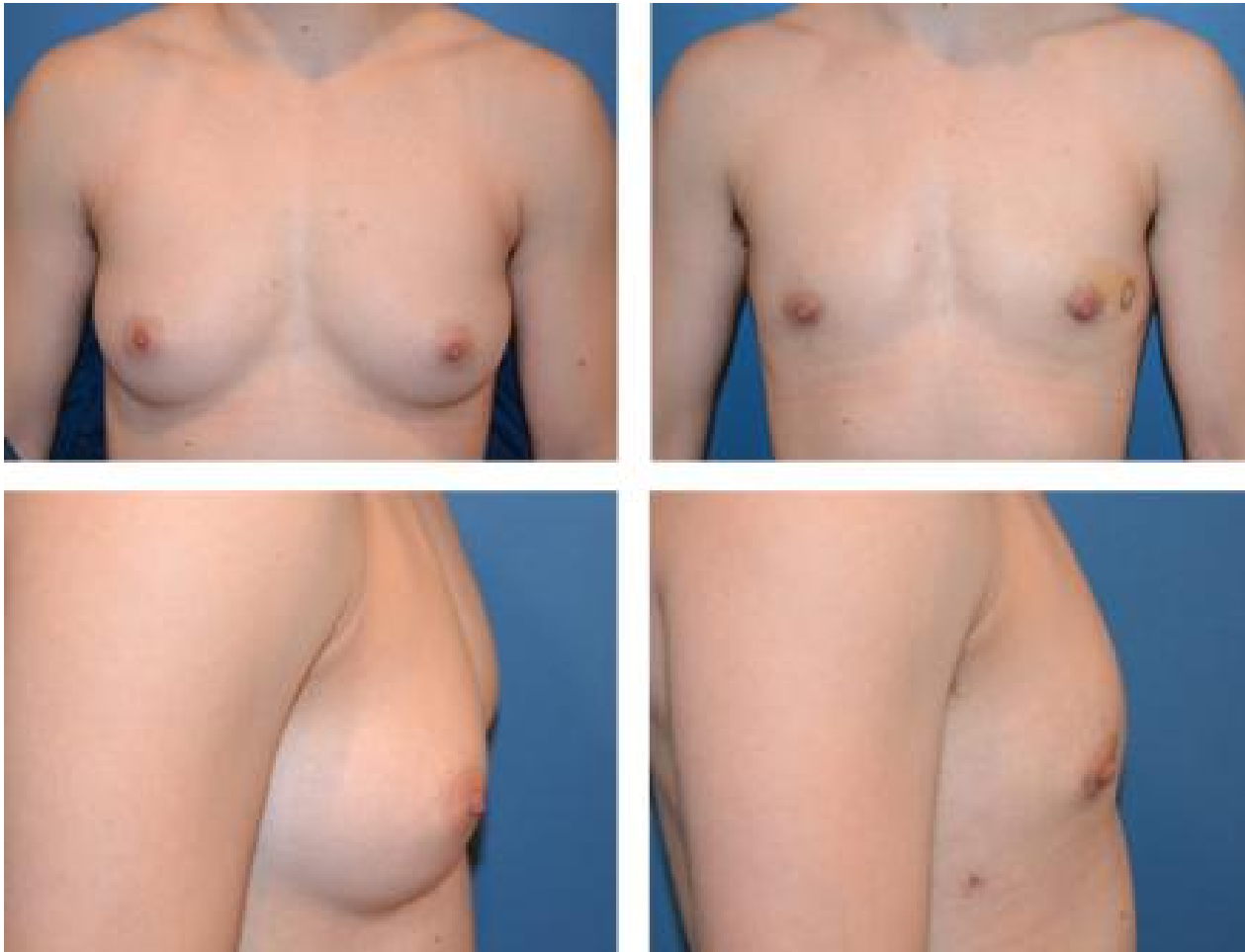


Before



After

Keyhole/Peri-Areolar



Double Incision Nipple Grafts

Pre-op



2 days post-op



10 days post-op/drain



6 mos post-op/dog ears



6 years post-op

Chest Reconstruction

- Complications may include hypertrophic scar formation or dog ears, nipple or areolar necrosis
- In one series from 2011, 23% of patients needed at least one further operation

Trans Masculine Spectrum Surgeries

- Clitoral Free-Up/Release (\$3,000-\$8,000)
- Metoidioplasty (\$25,000-50,000)
 - Urethroplasty – Urethral Lengthening (usually done with other procedures – adds \$6,500-\$10,000)
 - Scrotoplasty – creating testicles with implants (apx \$4,000; incld. implants apx \$750/each)
 - Vaginectomy – ablating (destroying the lining) & closing the vagina (usually done with other procedures – adds apx \$3,000 to cost)
 - Hysterectomy during Meta – add apx \$5,000

Goals of FtM Genital Reconstruction

- Aesthetically pleasing phallus (and scrotum)
- Preservation or reconstruction of erogenous and tactile sensation
- Ability to micturate in a standing position
- Possibility of erectile function enabling penetrative sex

Clitoral Release/Free-Up



Metoidioplasty w/o Scrotoplasty or Testicular Implants



Metoidioplasty w/ Scrotoplasty, Implants & Urethral Lengthening



Stage-1, 5 days post-op



Stage-2
Scrotoplasty &
Expanders
2 mos post-op



Stage-2, 1 day post-op



Stage-3 implants
8 & 33 days post-op



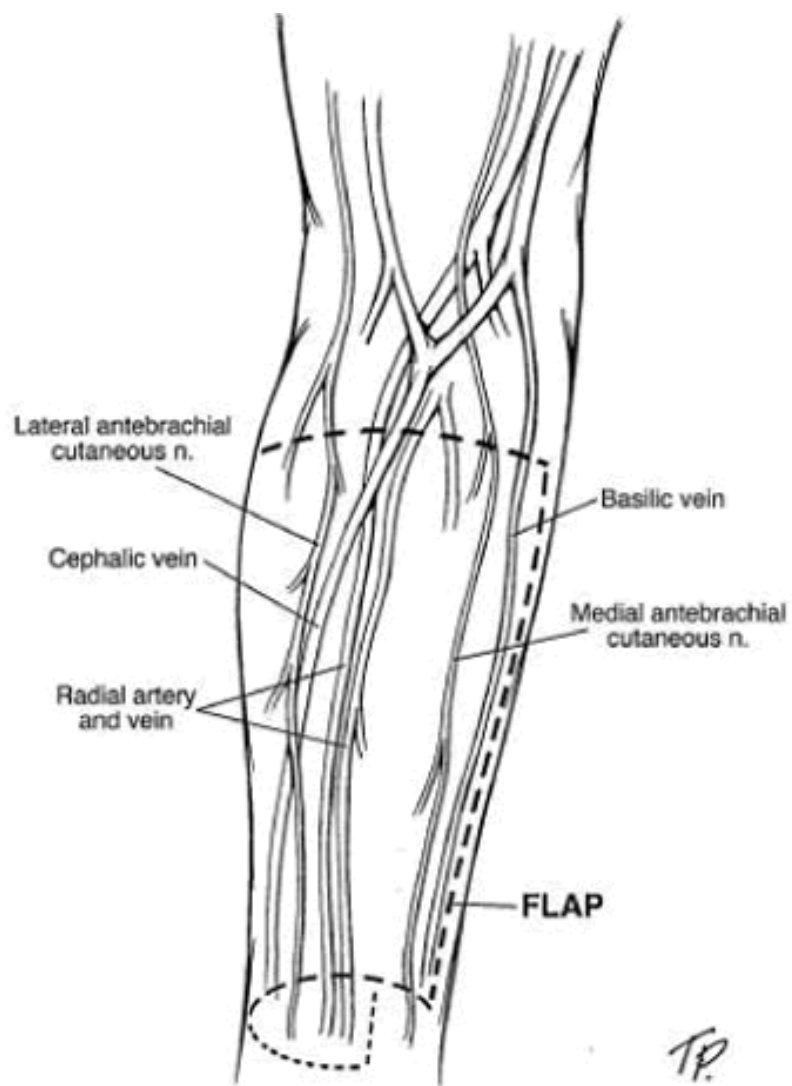
5 years post-op
Silicone Implants

Complications of Metoidioplasty

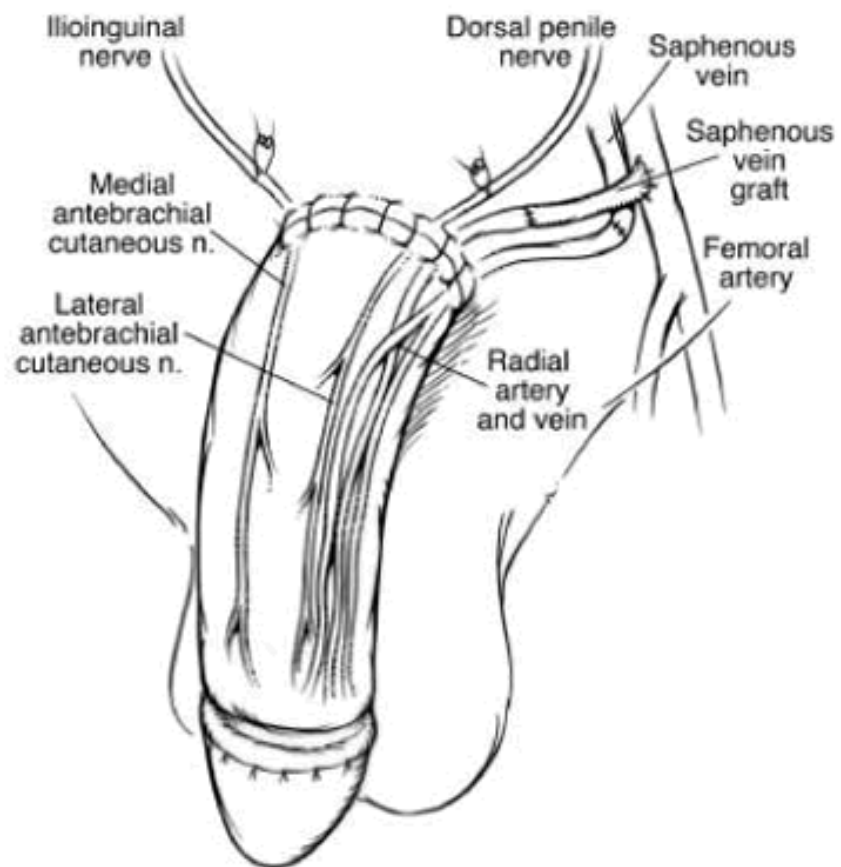
- Urethral fistulas in 37% (Hage, 2006)
- Urethral stenosis in 35%
- Loss or dislocation of testicular prosthesis in up to 80%
- 25% of 70 patient cohort later desired phallic reconstruction
- Djordjevic and Biziz (2013) reported lower complication rate with buccal mucosal graft with labia minora flaps

Trans Masculine Spectrum Surgeries

- Phalloplasty (\$50,000-\$300,000)
 - Radial Arm Phalloplasty – Free microvascular flap
 - Abdomen/leg pedicled flap
 - MLD (musculocutaneous latissimus dorsi) Flap



A



B

Phalloplasty

- 800+ cases of forearm flap procedure reported up to 2013
- Multi-stage procedure
- Surgical revision rates up to 60 to 70%
- In at least two series, 80% satisfaction with sexual intercourse (Doornaert, et al, 2011 and Sohn, 2013)

Radial Forearm Phalloplasty Various Donor Sites and Scarring



Forearm harvest Sites for graft & nerve



2 years post op
Healed arm harvest Sites



Inner thigh harvest
Site for skin graft



Ankle harvest
Site for artery



1 year post

Radial Forearm Phalloplasty – Various Results (not all same person)



14 days post-op



8 months post-op



1yr post-op

Abdominal Flap Phalloplasty Various Results (different people)



Post 2 years with internal pump



Pedicle Flap – with erectile implant – 1 yr post



Pre & Post – incorporated Meta



Pre & Post – Abdominal Flap

“Perovic Total Phalloplasty” (MLD flap)



This penile reconstruction has THREE stages.

Three to six months must be allowed between the first and second stages and again between the second and third stages to allow healing and get the best possible final surgical result.

Complications of Phalloplasty

- Partial or complete flap loss
 - Smokers and obese patients at higher risk
- Donor site scarring
 - Regrafting in up to 2.8%
 - 75% either satisfied or neutral (Van Caenegem, 2013)
- Local wound separation or endodermolysis
 - Topical antibiotics and local wound care
- Tissue congestion
 - Urgent surgical consultation
 - Topical nitroglycerine may help

Complications of Phalloplasty

- Urethral strictures and fistulas
 - Reported in 20-40%
 - Some will close spontaneously after prolonged catheterization but most will require surgery
 - 79% ultimately with post-micturition dribbling and prolonged micturition time
- Intraurethral stones due to residual hair growth
- Prosthetic complications
 - Malpositioning, erosions, extrusions
 - Use of tissue expanders in 2-stage process

Symptoms of Strictures/Fistulas

- Repeated UTIs
- Multiple streams
- Urine leakage proximal to tip
- Diminished stream or spraying
- Bladder fullness and over-flow incontinence
- Urethral urgency
- Post-void dribbling

Hair Treatment Costs

- Hair Transplants: \$5.50-\$9.50 per follicle (range is 600 to 3000 grafts for most people).
- Electrolysis: \$50-150/hr taking 100-400hrs or 1-4yrs time on average. The face may cost \$2,000-\$20,000.
- Laser Hair Removal: Avg cost per session is \$235 Range (\$75-\$2,000). Treatment avg in US and Canada is \$450-\$12,000 for 6 sessions.

Alternatives to Surgical Options

- Binding by transmen
- Stand-to-pee devices
- Tucking by transwomen
- Sex work or criminal activity to pay for surgery
- Injected silicone, “Pumping Parties”, with potential for severe medical sequelae

Complications of Silicone Use

- Acute complications can include pain, redness, induration, infection, abnormal pigmentation, migration of injected material, embolization
- Severe local tissue reactions with local necrosis and ulceration

Complications of Silicone Use

- Acute silicone syndrome occurring hours to days after injection
- Dyspnea, cough, chest pain, hypoxia, hemoptysis, alveolar hemorrhage, fever
- Occasional neurologic sx and alteration of consciousness, hepatic, GI and cardiac involvement

Complications of Silicone Use

- Late complications:
 - Inflammatory nodules
 - Cellulitis with sterile abscesses
 - Siliconomas
 - Delayed-onset inflammatory nodules
 - Secondary lymphedema
 - Persistent erythema and telangiectasias

Surgery by Unqualified Persons or Clinics

- In a 1984 survey of clients accessing services at a gender specialty clinic:
 - 9 % of transwomen had self-surgery on genitals
 - 2% of transmen had performed self-surgery on breasts
- In a 2013 survey of trans-identified persons in Ontario:
 - 1% had performed or attempted “procedures” on themselves

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- Sutcliffe, et al: Evaluation of surgical procedures for sex reassignment: a systematic review; Journal of Plastic, Reconstructive and Aesthetic Surgery ,62: 294 – 306 (March 2009)

Some Web Resources

- Website with T-male GRS photos:
<http://www.thetransitionalmale.com/galleryindex.html>
- Philadelphia surgeon – Sherman Leis:
<http://www.drshermanleis.com/transgender/femaletomale.htm>
- Loren Cameron “Man Tool” online book FTM GRS and stories: <http://www.lorencameron.com/>
- Web site with multiple photos of FTM surgeries of all types: <http://www.transster.com/>
- Web link site with multiple articles and papers: <http://www.transgenderzone.com/library/pr.htm>
- Laura’s Playground – an MTF website with links and info: <http://www.lauras-playground.com/mtf.htm>
- Gender Clinic in Australia – MTF info: http://www.gendercentre.org.au/vaginoplasty_techniques.htm
- Lynn Conway website on MTF SRS & more: <http://ai.eecs.umich.edu/people/conway/TS/SRS.html>
- The Transsexual roadmap – web site with MTF info: <http://www.tsroadmap.com/>
- Toby Meltzer, MD, PC’s website (GRS surgeon): <http://www.ttmeltzer.com>
- Marci Bowers, MD website (GYN & GRS surgeon): <http://www.marcibowers.com/>
- Monstrey Phalloplasty article online: <http://www.thetransitionalmale.com/monstrey>
- Men’s Ts Resources in Australia (& others): <http://www.ftmaustralia.org/>
- Hair Removal Journal: <http://www.hairremovaljournal.org/removalcosts.htm>
- Facial Feminization Links: <http://beginninglife.com/FFS.htm>
- MTF Surgery Center in Bangkok, Thailand: <http://www.mtfsurgery.com/>
- Jeffrey Spiegel, MD – FFS Surgeon @ BMC: http://www.drspiegel.com/facial_feminization.html
- Hair Facts: <http://www.hairfacts.com/medpubs.html>

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