Using Your Own Tissue to Rebuild Your Breast

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Breast Reconstruction is equal parts ART and SCIENCE

• Surgery is a SCIENCE - critical thinking, an analytical mind & perfectionist attention to detail
• Plastic Surgery is also an ART!
• Breast reconstruction with beautiful results has additional prerequisites:
  – Artistic talent and vision of the surgeon
  – Body image & self-esteem considerations
  – Consideration of the “4th dimension” (time, gravity, aging, radiation effects)
Why educate other about advanced breast reconstruction techniques?

• Women are not aware of options available to them
  – Single-stage procedures
  – Muscle-sparing procedures
  – Nipple preservation
  – Microsurgery

• ALL women deserve the very best results for their reconstruction!
WHAT IS “NEW” IN BREAST RECONSTRUCTION?

1. Nipple-sparing mastectomy (NSM)
2. Single-stage implant reconstruction
3. Microsurgery (sparing major muscles)
   - DIEP, SIEA flaps
   - TUG (inner thigh) flap
4. Breast reconstruction by reduction or lift
5. “Nipple sharing” reconstruction techniques
6. Minimizing the total number of procedures
7. Striving for the best possible aesthetics
WHY DO WE RECONSTRUCT THE BREAST?

• By restoring the breast form and recreating symmetry, we can help reestablish:
  – Body image
  – Self-esteem
  – Sense of femininity and completeness
  – Ability to throw away the external prosthesis forever
WHAT ARE THE GOALS OF BREAST RECONSTRUCTION?

• To recreate the breast form following removal, considering:
  1. Aesthetics (my #1 goal!)
  2. Symmetry of breasts
  3. Longevity of reconstruction
  4. Minimal “morbidity”
    • Without giving up function = major muscles of the body
WHAT I ASK NEW PATIENTS

• If we could wave a magic wand how would you WISH your breasts to be?
  – Larger?
  – Smaller?
  – Fuller?
  – Lifted?

• Breast reconstruction should be viewed as an opportunity!
  – “Let’s make lemonade out of lemons!”
Monalisa after one week in USA

Before

After
BALANCING PROCEDURES FOR THE OTHER BREAST

• Balancing of the other breast offered and is covered by insurance
  – Lift
  – Reduction
  – Augmentation

• Usually performed at the same time as mastectomy and reconstruction if not bilateral
FROM A WOMAN SURGEON’S PERSPECTIVE...

• Finding the best fit of reconstruction procedure for the individual patient:
  – Body shape
  – Lifestyle
  – Details of cancer
  – Adjunctive therapy (chemo, radiation)
TIMING OF BREAST RECONSTRUCTION

**DELAYED**
- Performed after mastectomy or other treatments
- Possible at any time (>6 months post-RT)
- Must expand or replace contracted skin

**IMMEDIATE**
- Same time as mastectomy
- Spares breast skin +/- nipple
- Preserves natural breast shape
METHODS OF BREAST RECONSTRUCTION

IMPLANT

FLAP
(the body’s own tissue)
IMPLANT RECONSTRUCTION

• ADVANTAGES
  – Shorter operation (1-2 hours per side)
  – Slightly shorter recovery (4 weeks)
  – Single scar on/under the breast

• DISADVANTAGES
  – Capsular contracture (hardening), infection, rupture, deflation, need for additional surgeries
  – Less natural shape and feel
  – Usually need to augment other breast for symmetry
  – Radiation increases complication risks
AUTOGENOUS TISSUE = FLAPS

• ADVANTAGES OF FLAPS
  – PERMANENT!, warm, soft, living tissue reconstruction
  – Moves, grows and ages with you
  – Does not droop like a natural breast (NO bra needed!)
  – Last forever (vs implants)
  – Indicated after radiation or implant complications

• DISADVANTAGES
  – Creation of a “donor site” (where the tissue comes from)
  – Additional scars, another surgical site
  – Longer surgery (4-6 hours)
  – Slightly longer recovery (6 weeks)
FLAP RECONSTRUCTION

Using the body’s own tissue to rebuild the breast form
FLAP DEFINITION

• FLAP – Tissue from the body that has its own blood supply
  – Living tissue
  – Permanent reconstruction
  – Soft, warm
  – Lasts forever!
  – Can counteract radiation damage
FLAP DEFINITIONS

• DONOR SITE = the area where the tissue is taken from:
  – Abdomen (DIEP, SIEA, TRAM)
  – Inner thighs (TUG)
  – Buttocks
  – Back
  – Outer thighs
THE FIRST FLAPS USED FOR RECONSTRUCTION USED A MUSCLE TO CARRY THE BLOOD SUPPLY

- “PEDICLED FLAPS” – muscle holds the blood supply that is moved to the chest while still attached to the body
  - TRAM flap
  - Latissimus dorsi (LD) flap
PEDICLED TRAM FLAP

• Lower abdominal skin and fat transferred to chest using the core rectus abdominis muscle as a carrier of the blood supply
POTENTIAL CONSEQUENCES OF RECTUS MUSCLE SACRIFICE

1. WEAKNESS
   Inability to do sit-ups or to easily transfer from a lying down to upright position

2. BULGE
   Loss of resting tone of the abdominal wall

3. HERNIA
   Bowel protruding through defect
MICROSURGERY PREVENTS MAJOR MUSCLE SACRIFICE

- MICROSURGERY involves magnification to reconnect blood vessels or nerves under the microscope to reestablish blood flow
  - Requires special training & proficiency in Microsurgery
  - Specialized equipment
  - Postoperative monitoring of circulation
MICROSURGERY FOR BREAST RECONSTRUCTION

- Specialized technique used to surgically transplant skin and fat to reconstruct the breast
- Not offered at all hospitals
- Time-consuming for the operating room
- Becoming more popular
ADVANTAGES OF MICROVASCULAR FREE FLAPS

• ‘FREE FLAPS” provide permanent, warm, soft, living tissue

• Reconstruction feels natural, lasts forever and helps to counteract past injury such as radiation, infection or scar tissue
THE BEST OPTION USING ABDOMINAL TISSUE: DIEP FLAP

- **Deep Inferior Epigastric Artery Perforator Flap**
- Same skin and subcutaneous fat as the TRAM or tummy tuck
- Does not sacrifice any rectus muscle or strength
- Faster recovery than TRAM
- Less postoperative pain
DIEP FLAP BREAST RECONSTRUCTION

- Rapidly becoming the first choice for women educated about their options
- NO rectus abdominis muscle or fascia sacrificed
- Microsurgical transplantation of skin & fat

Illustration courtesy of Dr. Rudy Buntic
SIEA FLAP RECONSTRUCTION

• Superficial Inferior Epigastric Artery (SIEA) flap
• Lower abdominal skin & fat (same as tummy tuck)
• 30% of individuals have a visible SIEA vessel
• NO rectus abdominis muscle or fascia sacrificed
• Microsurgical transplantation

Illustration courtesy of Dr. Rudy Buntic
DIEP flap versus TRAM flap
MICROVASCULAR ANASTOMOSIS
SIEA vs. DIEP FLAP

- If SIEA vessels present, often dissect both SIEA and DIEP systems and select the best one for anastomosis
LEFT NIPPLE-SPARING MASTECTOMY & DIEP FLAP RECONSTRUCTION
BILATERAL NIPPLE-SPARING MASTECTOMY & IMMEDIATE DIEP FLAP RECONSTRUCTION
RIGHT SKIN-SPARING MASTECTOMY & DIEP FLAP RECONSTRUCTION, LEFT BALANCING REDUCTION
BILATERAL SKIN-SPARING MASTECTOMY & DIEP FLAP RECONSTRUCTION
LEFT DELAYED DIEP RECONSTRUCTION, RIGHT BALANCING AUGMENTATION
BILATERAL REMOVAL OF IMPLANTS & DELAYED DIEP FLAP RECONSTRUCTION
LEFT NON-SKIN SPARING MASTECTOMY & DELAYED DIEP RECONSTRUCTION
LEFT NON-SKIN SPARING MASTECTOMY & DELAYED DIEP RECONSTRUCTION
BILATERAL NON-SKIN SPARING MASTECTOMY & DELAYED DIEP RECONSTRUCTION
RIGHT NON-SKIN SPARING MASTECTOMY, BILATERAL DIEP RECONSTRUCTION
RIGHT FAILED IMPLANT RECONSTRUCTION, DELAYED DIEP RECONSTRUCTION
LEFT NON-SKIN SPARING MASTECTOMY, DELAYED
DIEP RECONSTRUCTION
RIGHT UNSATISFACTORY IMPLANT RECONSTRUCTION, DELAYED DIEP RECONSTRUCTION
BILATERAL UNSATISFACTORY IMPLANT RECONSTRUCTIONS, DELAYED DIEP RECONSTRUCTIONS
LEFT NON-SKIN SPARING MASTECTOMY, DELAYED DIEP RECONSTRUCTION
BILATERAL FAILED IMPLANTS & DELAYED DIEP FLAP RECONSTRUCTIONS
LEFT FAILED IMPLANT RECONSTRUCTION, DELAYED DIEP RECONSTRUCTION
RIGHT UNSATISFACTORY IMPLANT RECONSTRUCTION, DELAYED DIEP RECONSTRUCTION
WHEN ABDOMINAL TISSUE IS NOT AVAILABLE: TUG (INNER THIGH) FLAP

- Transverse Upper Gracilis (TUG) flap
- Upper inner thigh tissue
- Second-line choice if tummy tissue unavailable
- Microsurgical transplantation
- Immediate nipple-areola reconstruction possible

Illustration courtesy of Dr. Rudy Buntic
IDEAL CANDIDATES FOR TUG FLAP RECONSTRUCTION

• Women seeking breast reconstruction using their own tissue
• Not enough or unavailable tummy fat
• “Pear” rather than “apple” body habitus
• Do not want a major muscle of the body sacrificed
IDEAL TUG FLAP CANDIDATES
IDEAL TUG FLAP CANDIDATES
TUG FLAP SURGERY DETAILS

- Crescent of skin and fat taken from upper inner thigh ("thigh gap" area)
- Small amount of gracilis muscle taken with flap to ensure good blood supply (muscle is NOT missed!)

Artwork by Dr. Rudy Buntic
TUG FLAP SHAPING

• Following harvest of the TUG flap, crescent is “coned” to create a projecting breast mound
• TUG flaps can have better projection and shape than DIEP flaps
TUG FLAP SHAPING

• Additional sutures placed to accentuate the “standing cone” (dog ear) at area of maximal projection to create an immediate nipple reconstruction
TUG FLAP DONOR SITE

• Hidden in most clothing except swim suits or underwear
• Anterior scar lies slightly below natural groin crease
• Posterior scar hidden in natural buttock crease
UNILATERAL (SINGLE-SIDED) TUG FLAP DONOR SITE

- No functional loss reported
- No seromas
- No extremity lymphedema
- No permanent sensory disturbance
- Unilateral donor sites given option of liposuction contouring
BILATERAL NIPPLE-SPARING MASTECTOMY & TUG FLAP RECONSTRUCTION
BILATERAL NIPPLE-SPARING MASTECTOMY, IMMEDIATE TUG FLAP RECONSTRUCTION
BILATERAL SKIN-SPARING MASTECTOMY & TUG FLAP RECONSTRUCTION
BILATERAL SKIN-SPARING MASTECTOMY, IMMEDIATE TUG FLAP RECONSTRUCTION
BILATERAL DELAYED TUG FLAP RECONSTRUCTION
BILATERAL DELAYED TUG FLAP RECONSTRUCTION
BILATERAL DELAYED TUG FLAP RECONSTRUCTION
Postop radiation does not injure a healthy flap
Postop radiation does not injure a healthy flap

Radiation of Flap | 6 Months Post-RT
BEFORE AND AFTER
Secondary Radiation of DIEP Flap
BREAST RECONSTRUCTION AFTER LUMPECTOMY & RADIATION

“Local tissue rearrangement”
BREAST RECONSTRUCTION BY REDUCTION OR LIFT TECHNIQUE

• Performed either before or after lumpectomy and radiation
• Remaining breast tissue rearranged to create a breast reduction or lift
• Balancing reduction or lift achieves symmetry
LEFT BREAST RECONSTRUCTION BY LIFT AFTER LUMPECTOMY & RADIATION, RIGHT BALANCING REDUCTION
BREAST RECONSTRUCTION BY REDUCTION AFTER LUMPECTOMY & RADIATION
BREAST RECONSTRUCTION BY REDUCTION AFTER LUMPECTOMY & RADIATION
BREAST RECONSTRUCTION BY REDUCTION AFTER LUMPECTOMY & RADIATION
BREAST RECONSTRUCTION BY LIFT AFTER LUMPECTOMY & RADIATION
BREAST RECONSTRUCTION BY REDUCTION AFTER LUMPECTOMY & RADIATION
BREAST RECONSTRUCTION BY LIFT AFTER LUMPECTOMY & RADIATION
BREAST RECONSTRUCTION BY REDUCTION/LIFT AFTER LUMPECTOMY & RADIATION
BREAST RECONSTRUCTION BY REDUCTION/LIFT AFTER LUMPECTOMY & RADIATION
DELAYED NIPPLE-AREOLA RECONSTRUCTION

Local flap reconstruction of nipple
Medical tattoo for areola
TRADITIONAL NIPPLE-AREOLA RECONSTRUCTION

• Outpatient procedure 3-6 months after breast reconstruction
• Local flaps from breast skin rearranged to make nipple prominence
• Medical tattoo for areola
• AVOID USING GROIN SKIN or labia minora!
TRADITIONAL NIPPLE-AREOLA RECONSTRUCTION
“NIPPLE-SHARING” TECHNIQUE

• Portion of healthy nipple from other breast transplanted as free graft
• Medical tattoo for areola
• Creates the most natural-looking nipple
SECOND-STAGE PROCEDURES AFTER RECONSTRUCTION

- Second-stage procedures can help achieve a woman’s specific individual aesthetic goals
  1. Implants placed under a flap
  2. “Lipofilling” (free fat grafting)
  3. Scar revisions
  4. Flap donor site contouring using liposuction
BEFORE AND AFTER
Augmentation of DIEP Flaps

Preoperative
After DIEP flaps
Secondary augmentation + NAC reconstruction
BEFORE AND AFTER
DIEP Flap with Bilateral Augmentation
SECONDARY TUG FLAP AUGMENTATION
SECONDARY TUG FLAP AUGMENTATION
PLAN FOR ABDOMINAL SCAR TO BE HIDDEN IN UNDERWEAR
DONOR SITE LIPOSUCTION AT SECOND STAGE
AESTHETICS IN BREAST RECONSTRUCTION

• Breast reconstruction should be a positive experience, preserving body image & facilitating emotional recovery
• Maintain the same aesthetic goals for breast cancer reconstruction as cosmetic procedures
AESTHETICS IN BREAST RECONSTRUCTION

• I strive to achieve the BEST aesthetic outcome in a single surgery whenever possible

• Breast reconstruction can & should be a REWARDING experience, preserving body image & facilitating emotional recovery after facing breast cancer
"Our mission is to help make the breast reconstruction journey a positive and empowering experience for women. During reconstruction we always consider symmetry and aesthetics first, without sacrificing major muscles of the body."
THANK YOU!

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