My Mastectomy: Make it a Double Session 95

Jennifer S. Gass, MD FACS
Associate Professor of Surgery
Associate Professor of Obstetrics and Gynecology
Breast Fellowship Program Director
Co-director Breast Health Center
Chief of Surgery
Women and Infants’ Hospital
Brown University

Objectives

• Review the status of breast cancer surgery in the US
• Explore the impact of bilateral mastectomy on women’s perceived sexuality
• Consider for whom bilateral mastectomy may be perceived as a non-inferior choice

• I have no disclosures

Breast Conservation Therapy

• Improve patient satisfaction/quality of life while maintaining oncologic safety

• Wide Local Excision, Axillary Node Staging and Whole Breast Radiation
  – Multiple mature prospective trials demonstrating overall survival after BCT is equal to mastectomy with 20yr follow up results published 2002
  
  
  Fisher, NEJM 2002; Veronesi NEJM 2002
Contra Indications

- Inability to proceed with Radiation
  - Connective tissue disorders
  - Prior breast radiation
  - Pregnancy
- Inflammatory Breast Cancer
- Poor breast/tumor volume ratio
- LABC
- BRCA mutation
- Multi-centric cancer
  - Double dip? → Alliance Trial to answer

Mastectomy Trends:

- McGuire and Cox, An Surg Onc 2009

Increase BCT and CPM

- Tuttle and Haberman, JCO 2010
Proposed Causes

- Increase awareness of genetic breast cancer
- Improved mastectomy and reconstruction techniques
- Patients overestimate risk of CBC
- Breast MRI

WHY Contralateral Prophylactic?

- Patients characteristics
  - Younger age
  - Significant family history
  - Genetic testing
  - Positive BRCA gene mutation
  - Preoperative magnetic resonance imaging (MRI)
- Tumor characteristics
  - Axillary lymph node metastases
  - Triple-negative disease (ER-/PR-/HER2 normal)
- On multivariate regression comparing BCT with CPM
  - Younger age
  - Larger tumors
  - Multifocal disease
  - MRI
- Comparing UM with CPM
  - Younger age
  - Genetic testing
  - Significantly predicted CPM
Why Women Choose?

2013
Reduce risk CBC
Peace of Mind
Extend life
Prevent spread of cancer
Increased risk of CBC
Disturb of screening
Family History
Symmetry
BRCA mutation
MD recommendation
Appearance
Advice of family friends

Contralateral Events

- 10-year CBC
  - 3.9% in the anastrozole arm of the ATAC (Arimidex, Tamoxifen, Alone or in Combination) trial
  - 2.2% among the 14,250 women who received polychemotherapy in the 15-year analysis by the EBCTCG
- SEER data: 1992-2004
  - Women < 50yo with first cancer: 2nd breast cancers: annual rate of 0.1%
- Geneva Tumor Registry 1995-2007
  - overall rate of second breast cancer is 0.3% per year;
  - first tumor ER/PR positive: 0.25%
  - First ER/PR negative: 0.65%

Breast MRI

- Identifies mammographically occult disease
  - Ipsilateral: 10-16%; contralateral: 3-5%
  - 25% with additional biopsy directed by MRI finding have additional focus of malignancy
  - 8% planned BCT mastectomy
- Ipsilateral breast tumor recurrence rates
  - historically: 8-19%
  - contemporary: 2-7%
WHY BREAST CONSERVATION?

NSABP-06 at 20 years Surveillance

Overall Survival
• 46% BCT
• 47% Mastectomy

Local Recurrence
• 8.8% BCT
• 2.3% Mastectomy

NSABP B-06 1976-1984

1851pts

T<4cm (50%<2)
Age 60%>50
65% ER+
+ or - nodes
Chemo for N+ pts
(Melphalan + Flu)

Total mastectomy
+ALND

Lumpectomy
+ALND

Lumpectomy
+ALND +WBRT

NO DIFFERENCE IN OVERALL SURVIVAL

What is the breast?
**Congenital Amastia**

- Rare AD, unilateral more common than bilateral
- Poland’s Anomaly
  - Absence of pectoralis major/minor and malformations of ipsilateral limb, brachysyndactyly
  - Hypoplasia or absence of breast/nipple, costal cartilage and rib defects 2.3.4 or 3.4.5
  - Nearly always unilateral
  - Sporadic
  - Male>females; R2xL
  - Sir Alfred Poland, 1841

---

**Acquired Amastia: Asymmetry**

---

**Breast Conservation**
Form:
Modified sweat gland

- 6-8 ductal lobular units with ductal orifices converging at the nipple surface
- Final phase of lobular differentiation occurs during pregnancy
- Terminal ductal lobular unit: TDLU

Function

- Lactation
- Sexuality
- Appearance

Perpetuation of species

- Appearance
  - attract a desirable partner
- Sexuality
  - Optimize environment for fertilization
- Lactation
  - Nourish offspring
Breast Conservation Therapy

<table>
<thead>
<tr>
<th>Lumpectomy Radiation</th>
<th>Nipple Sparing Mastectomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Appearance</td>
<td>• Appearance</td>
</tr>
<tr>
<td>— ?</td>
<td>— ?</td>
</tr>
<tr>
<td>• Sexuality</td>
<td>• Sexuality</td>
</tr>
<tr>
<td>— ??</td>
<td>— ⬜</td>
</tr>
<tr>
<td>• Lactation</td>
<td>• Lactation</td>
</tr>
<tr>
<td>— ⬜</td>
<td>— ⬜</td>
</tr>
<tr>
<td>• Sensitivity</td>
<td>• Sensitivity</td>
</tr>
<tr>
<td>— ⬜</td>
<td>— ?</td>
</tr>
<tr>
<td>• Risk of second primary ongoing mammography</td>
<td>• Risk of 2nd primary</td>
</tr>
<tr>
<td>— ⬜</td>
<td>ongoing mammography</td>
</tr>
<tr>
<td>• 2-3 / 5</td>
<td>• 2 / 5</td>
</tr>
</tbody>
</table>

Psychological and Social Outcomes of Prophylactic Mastectomy

Question

How does the breast treated with lumpectomy and radiation function in sexuality and intimacy?
How satisfied are you with the appearance of your chest?

Lumpectomy  Mastectomy  Mastectomy with Reconstruction

Very satisfied
Moderately satisfied
About equally satisfied and dissatisfied
Moderately dissatisfied
Very dissatisfied

P=0.70

How important of a role did your chest play in intimacy and sex for you before your surgery?

Lumpectomy  Mastectomy  Mastectomy with Reconstruction

Very important
Somewhat important
Not very important
No role at all

p= 0.70

How important of a role does your chest play in intimacy and sex for you (now)?

Lumpectomy  Mastectomy  Mastectomy with Reconstruction

Very important
Somewhat important
Not very important
No role at all

p= 0.04
How much is your treated breast a part of intimacy for you?

<table>
<thead>
<tr>
<th>Lumpectomy</th>
<th>Mastectomy with Reconstruction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>- Very much a part</td>
<td>- Very little a part</td>
</tr>
<tr>
<td>- Somewhat a part</td>
<td>- Not much of a part</td>
</tr>
</tbody>
</table>

P = 0.0002

Mastectomy and Reconstruction have changed

Lumpectomy and Radiation

Bilateral Mastectomy

Mastectomy
Hurdles NSM

• Larger more ptotic breasts, tubular breasts
  – Reducing skin envelope prior to mastectomy
  – Grafting NAC
  – Mastopexy at time of mastectomy
• For therapeutic mastectomy
  – Predicting nipple involvement:
    • distance from nipple/NAC < 2 cm, T < 3 cm, unincenric
    • No skin involvement, nipple retraction, Paget’s disease, or inflammatory changes, risk PMRT low (negative nodes)
  – Preop MRI or preop core biopsy retro areolar region.
  – Intra op frozen vs post op pathology

Techniques: Flap Thickness

• Prior: crepe paper thin, sharp dissection, pectoralis fascia excised, drum tight closure
• Oncoplastic: Flap thickness tailored to patient, closure technique tailored to diagnosis
  – Prophylactic
  – Therapeutic
  – Extensive DCIS
  – Unifocal T1 IDC
• Blood vessels and nerves travel in the subcutaneous adipose plane
Personalized Flap Thickness

Sensory Innervation : 4th LCB

- The NAC is consistently supplied by the lateral branches of the 4th IC n., with additional innervation by the cutaneous branches of the 3rd & 5th IC.
- Laterally: 80% lateral cutaneous branches of the 2nd-7th IC n. May arrive by posterior approach in majority (93%).
- Medially: 60% anterior cutaneous branches of the 1st-6th IC n. esp 3&4.
- Nerves are best protected if incisions at the mediolateral areolar border avoided.

Outcomes: NSM

The nipple has been described as the signature of the breast.

### Cosmetic Outcome

<table>
<thead>
<tr>
<th></th>
<th>Evaluation by Surgeons</th>
<th>Evaluation by Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Follow-up (mean 59 months)</td>
<td>Follow-up (mean 101 months)</td>
</tr>
<tr>
<td></td>
<td>n=51/48</td>
<td>n=61/60</td>
</tr>
<tr>
<td><strong>Skin sparing Mastectomy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>40 (78.4%)</td>
<td>32 (66.7%)</td>
</tr>
<tr>
<td>Good</td>
<td>10 (19.6%)</td>
<td>11 (21.2%)</td>
</tr>
<tr>
<td>Fair/Poor</td>
<td>1 (2.0%)</td>
<td>1 (2.0%)</td>
</tr>
<tr>
<td><strong>Nipple sparing Mastectomy</strong></td>
<td>45 (73.8%)</td>
<td>31 (51.7%)</td>
</tr>
<tr>
<td>Excellent</td>
<td>50 (82.0%)</td>
<td>43 (71.7%)</td>
</tr>
<tr>
<td>Good</td>
<td>11 (18.0%)</td>
<td>16 (26.7%)</td>
</tr>
<tr>
<td>Fair/Poor</td>
<td>-</td>
<td>1 (1.7%)</td>
</tr>
</tbody>
</table>

### Complications

- **600 patients:** 391 (65%) UM vs 209 (35%) CPM
- **More complications:** CPM vs UM 41.6% vs. 28.6% 
  \[p = 0.001\]
- **Major complications:** CPM vs UM 13.9% vs. 4.1% 
  \[p < 0.001\]
- **CPM patients**
  - 1.5 X more likely complication \[p = 0.029\]
  - 2.7 X more likely major complication \[p = 0.004\]

### Complications Cont

- **4,219 patients:** wound complication rate
  - 3,722 (88.2%) had UnM: 2.9% 
  - 497 (11.8%) had Bil M: 5.8% \[P < 0.01\]
- **30-day complication rate:**
  - UnM: 4.2% 
  - Bil M: 7.6% 
  - OR 1.9, 95% CI 1.3-2.7 \[P < 0.01\]
- Independent predictors of overall postoperative complications: BMI (OR 1.1, \[P < 0.01\]) and smoking (OR 2.2, \[P < 0.01\])
Cons: Bilateral Mastectomy

Survey ~10 years after surgery:

- 33%: negative impact on their appearance
- 23%: a negative effect on sexual relations.

Other negative outcomes were experienced by smaller but still significant numbers of women

Breast Reconstruction surgical morbidity & rates of additional surgery:
- range from 16% to 37%
- not declined in analyses of more recent surgical procedures

In a recent report from Sweden:
- the majority of women note decrease in sexual pleasure
- 11% agreeing with: “the decision did me a lot of harm,”
- 7% neutral to this statement.

Post mastectomy pain syndrome

- post reconstruction study
  - 69% reported pain at 2 years
    - affected sleep in 36%
    - daily activities in 22%. This
- large population-based study in Denmark
  - 47% of women: continuing post mastectomy pain
    - 2 to 3 years after breast cancer therapy
  - 10% to 15% of women experiencing severe, long-lasting pain

Make it a Double:

- Deleterious BRCA mutation: therapeutic or prophylactic
  - Younger aged, BRCA 1
- Strong Family History without mutation
- Native breast dissatisfaction
- Appearance/symmetry are high priority
- Breasts are not central to sexuality
- More complex surgery is not excessive risk
  - Co-morbidity: tobacco use, obesity, DM, COPD, inadequately controlled cardiac disease
As my patient put it:

By choosing Bilateral Mastectomy

Angelina, Giuliana, and Christina