Risk Reducing Mastectomy: Where are We in 2014?

Donna-Marie Manasseh, MD, FACS
Chief, Division of Breast Surgery
Maimonides Medical Center
Brooklyn, NY
Agenda

- Historical uses for Mastectomy
- Techniques: How the Mastectomy has changed
- Nipple Sparing Mastectomy
- What does the Patient think?
- What do We think?
- Is there an advantage?
- What's the Bottom Line
Historically breasts have been removed for a variety of reasons including religious persecution. Breast removal was condoned by the Papal Bull of Innocent VIII during the Inquisition. (Northern/Germanic). This was revived by Cotton and Increase Mather during the Salem Witch hunts.
Hippocrates wrote of the legendary AMAZONs (Scythian race called Sauromatae) who removed the right breast because they felt it stole strength from the right arm. Breast was removed by their mothers with primitive cautery.

“...they do not lay aside their virginity until they have killed three men.”
20 year old member of a Russian religious sect called the Skoptsy. (Blessed are the barren and the wombs that never bare, and the paps which will never suck. Luke, 23-29)

The sect seems to have dissolved when the suggestion was made that men be castrated in like renunciation of the pleasures of the flesh.
Progress of Mastectomy

- Radical Mastectomy
- Modified Radical Mastectomy
- Nipple Sparing Mastectomy
- Skin Sparing Mastectomy

1890s — 2014

Nipple Sparing Mastectomy

Maimonides Medical Center
Nipple Sparing Mastectomy

- **Indications:**
  - Tumor at least 2cm from nipple
  - Small tumor size and not extensive
  - No skin or nipple involvement
  - Clinically negative nodes
  - Minimal ptosis of the breast
  - Small size of breast
  - BRCA+

- **Concerns:**
  - Necrosis
  - Higher Recurrence rate
Alice P Chung, Sacchini V, Nipple-sparing mastectomy: Where are we now?, Surgical Oncology (2008).
# Local and Nipple Areolar Complex Recurrence after Nipple-sparing Mastectomy.

<table>
<thead>
<tr>
<th>Author</th>
<th>Study design</th>
<th>Number of Pts</th>
<th>LR</th>
<th>NAC recurrence</th>
<th>Median Follow-up (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gerber</td>
<td>Prospective</td>
<td>112</td>
<td>5.4%</td>
<td>0.9%</td>
<td>59</td>
</tr>
<tr>
<td>Caruso</td>
<td>Prospective</td>
<td>50</td>
<td>2%</td>
<td>2%</td>
<td>66</td>
</tr>
<tr>
<td>Sacchini</td>
<td>Retrospective</td>
<td>192</td>
<td>3%</td>
<td>0</td>
<td>24.6</td>
</tr>
<tr>
<td>Regolo</td>
<td>Retrospective</td>
<td>102</td>
<td>0</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Crowe</td>
<td>Prospective</td>
<td>149</td>
<td>1.30%</td>
<td>0</td>
<td>41</td>
</tr>
<tr>
<td>Sookhan</td>
<td>Retrospective</td>
<td>18</td>
<td>0</td>
<td>0</td>
<td>10.8</td>
</tr>
<tr>
<td>Voltura</td>
<td>Retrospective</td>
<td>51</td>
<td>5.9</td>
<td>0</td>
<td>18</td>
</tr>
<tr>
<td>Garwood e</td>
<td>Prospective</td>
<td>102</td>
<td>0.6%</td>
<td>0</td>
<td>13</td>
</tr>
<tr>
<td>Garcia-Etienne</td>
<td>Retrospective</td>
<td>42</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Paepke</td>
<td>Retrospective</td>
<td>96</td>
<td>2%</td>
<td>0</td>
<td>34</td>
</tr>
<tr>
<td>De Alcantara Filho</td>
<td>Prospective</td>
<td>353</td>
<td>0</td>
<td>0</td>
<td>10.4</td>
</tr>
</tbody>
</table>

Modified from Tokin C. et Al, International Journal of Surgical Oncology, 2012
2 years s/p Bilateral Nipple Sparing Mastectomy with Implants
2 years s/p Nipple Sparing Mastectomy with Bilateral LD Flaps
Risk Reducing Mastectomies: What do Patients think?
Response to Creation of National Prophylactic Mastectomy Registry:

• “You appear to be promoting the removal of healthy, non-cancer containing breasts.
• The money grubbing surgeons who practice this should get a course in medical ethics followed by prophylactic brain removal. Disgusting.”

(Name and address withheld)
Risk Reducing Mastectomies: What do Patients think?

“Embracing Mastectomy.com”.. Vicious cycle of vigilant monitoring, living with uncertainty and choosing peace of mind, Risk reducing mastectomy was a liberating choice.

“Greater than the Sum of My Parts.com”..Who starts lopping off body parts because they are afraid that there might be something wrong with them?..I do..I call it easy. Rational. Proactive. LIFE...

NBC Show debate: Dr. Susan Love vs. Dr. Patrick Borgen

• Three patients who HAD BILATERAL RISK REDUCING MASTECTOMY were in the studio in NEW YORK
• Dr. Love: How can anyone let a surgeon talk them into this draconian operation? It is profiteering and fear mongering on the part of the surgeons. The price for this is far too high.....
• ....at which point all three patients erupted and demanded to know why Dr. Love was willing to put a value on THEIR breasts. They were furious at her.
What do We think?
Breast Surgeons' Perceptions and Attitudes towards Contralateral Prophylactic Mastectomy.

- 220 surgeons from New Zealand surveyed
- Virtually all felt that contralateral mastectomy was increasing – independent of a change in their practice style.
- Surgeons were aware of the objective risk factors that made performing a CPM advisable, they also report taking into account subjective factors, including patient fear and anxiety and a desire for breast symmetry when recommending a CPM.

(Musiello T, Bornhammar E, Saunders C. School of Surgery, The University of Western Australia, Perth, Western Australia, Australia.)
What do We think?

SSO Guidelines

• Potential Indications in patients with a current or previous diagnosis of breast cancer
  • Risk reduction
  • Difficult surveillance
  • Reconstructive issues (symmetry/balance)

• Potential Indications in High Risk Patients
  • BRCA mutation
  • Strong family history with no demonstrable mutation
  • Histologic risk factors
What do We think?

SSO Guidelines

- Rarely, may be warranted in patients without a family history or high risk histology with:
  - Extremely dense breasts difficult to screen
  - Several prior breast biopsies for imaging/clinical abnormalities
  - Strong concern about breast cancer risk
Is There an Advantage?

High Risk (BRCA carriers with Breast Cancer)

CPM in BRCA Mutation Carriers Impacts Survival

- Lifetime risk of contra-lateral cancer 40% to 60% in mutation carriers.
- Retained contra-lateral breast: 0.4% rate of death in first 5 years but death rate increases with time at 20 years of 6.8%. If you accept 60% contra-lateral cancer rate the death rate increased to 10.2%
- Cure rate is 95% (of 40%)
- Deaths here prevented by CPM, with greatest benefit with more time

(S. Narod, Toronto 2010)
Is There an Advantage?

Population Based Study of Contra-lateral Breast Cancer

- SEER database analysis of 107,106 women who underwent treatment mastectomy between 1998 and 2003
- Subset of 8902 also underwent CPM
- CPM Group: 88.5% - 5 years survival;
- OBS Group: 83.7% - 5 year survival for a difference of 4.8% (HR of death=0.68, 95% CI =0.53 to 0.88; p=0.004)
- Rate of CBC lower in ER+ (0.46 vs. 0.9)
- CPM was associated with a small but real improvement in survival, mainly in young women with ER NEGATIVE breast cancers (higher baseline risk of contralateral cancers) (Bedrossian et al, JNCI March 2010 102 (6))
Is There an Advantage?

Boughey et al: Contralateral Breast Cancer Risk

- 770 women Stage I and II plus family history. CPM + TM or TM + Observation alone
- CPM group: 2 (0.5%) contralateral breast cancers
- OBS group: 31 (8.1%) cancers at 17 years of follow-up
- 95% reduction in contralateral breast cancer HR 0.05 95% CI 0.01-0.22, P<0.0001
- 10yr overall survival 83% vs. 74% (HR 0.68, 95% CI 0.54-0.86, P=0.001) advantage in patients undergoing CPM
- Difference persisted in multivariate analysis
How did we go from Religious persecution to “Get Rid of Em”?

- Push for Breast Conservation
  - NSABP/EORTC/Milan trials
  - 50% minimum (Accreditation)
- Better Reconstruction options
  - Implants; tissue flaps
- Nipple Sparing option
- MORE Information – Genetics
- “Taking control” – Survival benefit to Mental benefits
Best Approach?
Team Approach - Everyone has a Role

**Patient**
- Initiate conversation
- Take TIME..... Early reaction to a diagnosis of a breast cancer is frequently bilateral mastectomy
- Patient may have been waiting her entire adult life for this diagnosis. Response is visceral, emotional and real
- Multiple consultations to understand *perceived* level of risk

**Physician**
- Educate on true risks
- Recognize Reasons for CPM
  - Anxiety/stress reduction
  - Decreased reliance on screening / imaging; decreased biopsy chance;
  - Desire to avoid breast cancer treatment twice.

**Ultimate decision is the PATIENT’s rather than the Surgeon’s.**
When is Breast Conservation Treatment for Early Breast Cancer Not the Best Option?

Donna-Marie Manasseh, MD,FACS
Chief, Division of Breast Surgery
Maimonides Medical Center
Brooklyn, NY
Introduction

• Although Breast Conservation is the preferred approach in most situations, there are those where mastectomy and reconstruction create a better cosmetic result.
Considerations

• Tumor size to breast size still paramount in selection for breast conservation with good cosmesis.
• Determining actual breast volume requires imaging studies.
• Actual volume of glandular breast tissue (that one would desire to radiate) is often low.
What percent of tumor volume is safe to remove?

- Good Cosmesis Depends on: %Volume that is Excised
  
  **Volume of wide local excision**
  
  Estimated breast Volume

  = less than 15-20% volume loss

- Estimate Volume(sphere) = \(\frac{4}{3}\pi r^3\)

- Including additional margin

- Can increase the resection volume by 3-4x
Case

42yo Asian woman with routine imaging demonstrated a 2cm area of calcifications in the right breast for which needle biopsy demonstrated DCIS/invasive ductal carcinoma. She desires breast conservation. What are her options?
Address Intentions and Expectations

- Often Patient:
  - Has an attachment to breasts (sexuality)
  - Wants to preserve “breast” cosmesis
  - Fearful of unknown results
  - Sometimes its about the NAC
Preserves Breast but Lose Cosmesis
Better Cosmetic Result
Better Cosmetic Result
Augmented Breasts

- Implants tend to facilitate ability to PALPATE tumors.
- Augmentation leads to higher rate of cosmetic failures but not treatment failures.
  - Capsular contracture rates high: 20% to 60% in most series
  - Submuscular implant location preferable to subglandular location
Breast Conservation After Augmentation Mammaplasty: Is it Appropriate?

- In our experience, augmented breast cancer patients treated with breast conservation therapy have less satisfactory cosmetic results than non-augmented women. In addition, mammographic follow-up may be impaired by the implant.

- On the basis of these considerations, BCT may be less than optimal in augmented cancer patients unless explantation is performed before treatment.

Handel N, Lewinsky B, Jensen JA, Silverstein MJ
Removal of glandular breast tissue, including total skin/nipple sparing mastectomy may be preferable to lumpectomy and radiation therapy.
Technical Considerations

- Excise overlying skin to avoid positive anterior margin
- Thin flaps
- Major lactiferous ducts taken as separate specimen
- Raise flaps quickly and efficiently – avoid prolonged venous congestion.
Technical Considerations

• Dilute epinephrine lidocaine/bipuvicain solution facilitates procedure considerably and aids post-op comfort

• Fiberoptic retraction
Breast Cancer in the Augmented Patient: BCT vs. Mastectomy

- **BCT**
  - Smaller surgical procedure
  - Maintenance of sensation
  - Capsule formation post-radiation
  - Vigilance/screening
  - Worsening cosmesis with time

- **Mastectomy**
  - Larger surgical procedure
  - Loss of sensation
  - Elimination of radiation related co-morbidities
  - Vigilance/screening
  - Possible better overall cosmetic outcome
Conclusions

• The issues surrounding breast cancer treatment in the augmented breast are cosmetic rather than oncologic.

• In patients with small glandular breast tissue volume it may make more sense to remove the parenchyma (total skin / nipple sparing mastectomy) and avoid radiation therapy.
Conclusions

• The skin of the nipple is not a site of end organ carcinogenesis in the breast, consider nipple sparing.

• Sending the major lactiferous ducts as a separate specimen is valuable and good practice.

• Improvements in implant technology has facilitated this approach.

• Important to train the next generation of breast surgeons...
Thank you