Nipple Sparing Mastectomy: Tips & Tricks

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Nipple Sparing Mastectomy (NSM)

- Introduction & Technique
- Safety
- Evidence
- Indications/Contraindications
- Dr. Elaine McKevitt/Dr. Connie Chiu/Dr. Esta Bovil
What is NSM?

- Combines skin sparing mastectomy with preservation of the nipple areolar complex (NAC)
- Removal of all visible breast tissue
- Subnipple ductal tissue is submitted separately for histologic evaluation
  - Frozen
  - Permanent
- By salvaging the nipple and areolar skin, we provide enhanced cosmesis to the patient and preservation of “normal” anatomy

Patients undergoing NSM…

- Perceive that NSM affords them better ability to cope with the trauma of having breast cancer

- Have significantly higher reported rates of psychosocial well being and sexual well being, compared with skin sparing mastectomy patients
  - No difference in scores for physical well-being, satisfaction with breast, or satisfaction with outcome
Safety Considerations

- Traditional teaching suggests the NAC should be removed:
  - to decrease the risk of local recurrence in the ductal tissue beneath it
  - Because it may promote lymphatic spread via centripetal drainage patterns extending from the subareolar plexus

- Multiple series have looked at NAC involvement in mastectomy specimens
  - Rates range from 0-58%
  - Significant variability in studies prevents an accurate number
## Safety Considerations

<table>
<thead>
<tr>
<th>Study</th>
<th>Study Type</th>
<th>N</th>
<th>Results</th>
</tr>
</thead>
</table>
| **Headon et al.** Arch Pl Surg 2016;43:328-38 | Systematic review           | 12,358 mastectomies | LRR: 2.38%  
Compl: 22%  
NN: 5.9%       |
| **De La Cruz et al.** Ann Surg Onc 2015;3222:3241-3249 | Systematic review & Meta-analysis | 4663 patients | No difference in LR, OS and DFS for NSM vs. SSM/ MRM |
| **Orzalesi et al.** Breast 2016:25;75-81 | Retrospective review (national NSM database) | 1006 mastectomies | LRR: 2.9%  
NAC removal: 11.5%  
Major comp: 4.4% |
## Safety Considerations

### TABLE 2  Oncologic outcomes of nipple-sparing mastectomy for cancer

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>N</th>
<th>Median follow-up (months)</th>
<th>Local recurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Flap not NAC (%)</td>
</tr>
<tr>
<td>Krajewski⁴</td>
<td>2015</td>
<td>236</td>
<td>24</td>
<td>1.7</td>
</tr>
<tr>
<td>Eisenberg⁵²</td>
<td>2014</td>
<td>208</td>
<td>33 (mean)</td>
<td>0.5</td>
</tr>
<tr>
<td>Sakurai³⁷</td>
<td>2013</td>
<td>788</td>
<td>78</td>
<td>8.2</td>
</tr>
<tr>
<td>Coopey²</td>
<td>2013</td>
<td>315</td>
<td>22</td>
<td>2.6</td>
</tr>
<tr>
<td>Peled³⁴</td>
<td>2012</td>
<td>412</td>
<td>28</td>
<td>2</td>
</tr>
<tr>
<td>Spear³³</td>
<td>2011</td>
<td>49</td>
<td>30 (mean)</td>
<td>0</td>
</tr>
<tr>
<td>Kim³⁸</td>
<td>2010</td>
<td>152</td>
<td>60</td>
<td>2</td>
</tr>
<tr>
<td>Sakamoto⁵³</td>
<td>2010</td>
<td>89</td>
<td>52</td>
<td>0</td>
</tr>
<tr>
<td>Gerber³⁶</td>
<td>2009</td>
<td>60</td>
<td>101 (mean)</td>
<td>11.7</td>
</tr>
<tr>
<td>Crowe⁵⁴</td>
<td>2008</td>
<td>58</td>
<td>41</td>
<td>1.7</td>
</tr>
<tr>
<td>Sacchini⁵⁵</td>
<td>2006</td>
<td>68</td>
<td>24</td>
<td>2.9</td>
</tr>
</tbody>
</table>

**NAC** nipple-areolar complex

ᵃ Number of breasts with cancer
Factors predicting involvement of the NAC

- Tumour distance from nipple
- Tumour size
- Nodal involvement

The evidence

- No RCTs exist, however the number of publications on nipple sparing mastectomy has risen substantially in the past 5 years
  - Prospective studies ongoing
  - Nipple Sparing Mastectomy Registry
    - American Society of Breast Surgeons
Indications for NSM

- **Prophylactic mastectomies**
  - Carriers of BRCA genes or other genetic conditions predisposing patients to breast cancer
  - Contralateral side during a bilateral mastectomy

- **Therapeutic mastectomies**
  - Node negative
  - No evidence of nipple involvement on clinical exam/imaging
  - Nonsmoker
  - Tumour size (≤ 3 cm)
  - Tumour distance from nipple ≥ 2 cm
Contraindications

<table>
<thead>
<tr>
<th>RELATIVE</th>
<th>ABSOLUTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tumours ≤ 2 cm of the nipple</td>
<td>T4 cancers</td>
</tr>
<tr>
<td>Extensive DCIS</td>
<td>Inflammatory breast cancer</td>
</tr>
<tr>
<td>Multicentric tumours</td>
<td>Paget’s disease</td>
</tr>
<tr>
<td>Node positive</td>
<td>Tumours with clinical or</td>
</tr>
<tr>
<td></td>
<td>radiologic evidence of</td>
</tr>
<tr>
<td></td>
<td>nipple involvement, or</td>
</tr>
<tr>
<td></td>
<td>pathologic nipple discharge.</td>
</tr>
<tr>
<td>Would consider performing NSM if</td>
<td></td>
</tr>
<tr>
<td>good response to neoadjuvant</td>
<td></td>
</tr>
<tr>
<td>treatment</td>
<td></td>
</tr>
<tr>
<td>Breasts with significant ptosis</td>
<td></td>
</tr>
<tr>
<td>or large breasts</td>
<td></td>
</tr>
<tr>
<td>Active smokers</td>
<td></td>
</tr>
<tr>
<td>Obesity</td>
<td></td>
</tr>
<tr>
<td>Prior breast surgery</td>
<td></td>
</tr>
<tr>
<td>History of breast irradiation</td>
<td></td>
</tr>
</tbody>
</table>
Future guidelines may recommend based on:

- HER2Neu status
- ER/PR status
- Tumour size
- Lymphovascular invasion
- Nottingham grade
Ideal Candidate

- Small to moderate breast size
- Healthy nonsmoker
- Minimal ptosis
- Small, node negative tumor
- No evidence of nipple involvement
Advantages of NSM

- Single stage procedure
  - Requires fewer resources
  - Easier for patients

- Aesthetically improved over nipple reconstruction/tattoo
  - Natural colour
  - More natural projection
  - More natural shape
Disadvantages of NSM

- Some incisions (e.g. IMF) make it difficult to resect upper pole
- Nipple necrosis/delayed healing
  - Compromised aesthetic result
- Need for nipple resection/second procedure if subnipple tissue specimen positive
- Learning curve
  - ? Increased operative time vs. SSM
Setup

- Pre & postop photos
- Preop markings agreed upon by both general and plastic surgery
- Headlamp or lighted retractor
- Clip applier, long instruments
- Local anesthetic/Tumescent technique
- Low temperature cautery
- Nitroglycerine paste
- Postop care taken to avoid undue tension on skin
Dr. Elaine McKevitt
Dr. Connie Chiu
Dr. Esta Bovil
How we do it……

- Decision about NSM made at initial consultation or between first and second office visits
  - Tumour size and ability to obtain a clear margin
  - Definite NO: smokers, nipple involvement, nipple <2 cm from NAC, previous XRT

- Extended inframammary incision

- Local anesthetic with epinephrine

- Lighted retractor & multiclip applier

- Sharp dissection under the nipple areolar complex; monopolar cautery for the remainder
  - Subareolar tissue sent as permanent section, not frozen

- Preserve ~1-2 cm of fat deep to the dermis
How we do it.....

- In most cases, single stage immediate reconstruction with implant and Alloderm
  - I do not suture the NAC down to the deeper tissue, the way I used to for LB incisions
  - Avoid over-expanding/avoid creating +++ skin tension

- Nitropaste/opsite over the breast skin and NAC for 24h

- Breast binder
Results

- Single stage immediate implant reconstruction with Alloderm
- IMF incision
Results

- Immediate implant and Alloderm reconstruction
- IMF incision
Results

- Immediate implant with AlloDerm
- Lateral and supra-areolar incision (postop views only)
QUESTIONS?