San Antonio Breast Cancer Symposium 2010:
Highlights from
a Surgical Perspective

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Association of Northern California Oncologists
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Disclosures

• Opinions on what is “best” reflect my biases alone and not my institution’s
• Financial Disclosures: <none relevant>
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  – Agendia, Inc.: Research Contract
• Grant Funding: <none relevant>
  – California Breast Cancer Research Program Funding
• Many figures taken directly from original presenter’s posters or slides
Objectives

- Summarize the abstracts with most immediate impact from a surgical perspective
- Analyze potentially how to use them

Agenda

- Surgical Decision Making
- Surgical Technique
- Post-operative Care
- Locoregional Control

Surgical Decision-Making
Serial [18F] FDG-PET after the 2nd cycle of preoperative chemotherapy is predictive for pathological complete response in stage II/III breast cancer


Serial PET-CTs for predicting pCR in neoadjuvant chemotherapy

• Methods:
  – Serial PET-CTs performed at 2 or 6 months during neoadjuvant chemotherapy trials of Paclitaxel/Gemcitabine/Trastuzamab or Paclitaxel/Gemcitabine/Lapatanib or Paclitaxel/Gemcitabine/Sunitinib
  – Peak SUV noted and % decrease calculated
  – Endpoint: pathologic Complete Response
Serial PET-CTs for predicting pCR in neoadjuvant chemotherapy

<table>
<thead>
<tr>
<th>Results</th>
<th>2\textsuperscript{nd} cycle N=37</th>
<th>6\textsuperscript{th} cycle N=20</th>
</tr>
</thead>
<tbody>
<tr>
<td>T stage 1/2</td>
<td>26</td>
<td>10</td>
</tr>
<tr>
<td>3/4</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>ER+ Her2 +</td>
<td>18</td>
<td>24</td>
</tr>
<tr>
<td>Total pCR</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>pCR – primary – axillary nodes</td>
<td>15</td>
<td>14</td>
</tr>
</tbody>
</table>

Serial PET-CTs for predicting pCR in neoadjuvant chemotherapy

### Pathology response (T)

<table>
<thead>
<tr>
<th>PET</th>
<th>pCR (n=15)</th>
<th>non-pCR (n=22)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretreatment SUVp of CT</td>
<td>8.80 ± 4.56</td>
<td>9.25 ± 5.48</td>
<td>0.80</td>
</tr>
<tr>
<td>Post-treatment SUVp of CT (post 2nd cycle)</td>
<td>1.54 ± 0.63</td>
<td>2.54 ± 1.06</td>
<td>0.002</td>
</tr>
<tr>
<td>difference of SUVp</td>
<td>7.26 ± 4.14</td>
<td>6.91 ± 3.44</td>
<td>0.59</td>
</tr>
<tr>
<td>Reduction rate of SUVp difference (%)</td>
<td>70.19 ± 11.88</td>
<td>68.85 ± 15.37</td>
<td>0.63</td>
</tr>
</tbody>
</table>

- Serial PET after 6\textsuperscript{th} cycle PSC

<table>
<thead>
<tr>
<th>PET</th>
<th>pCR (n=15)</th>
<th>non-pCR (n=5)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretreatment SUVp of CT</td>
<td>8.91 ± 3.84</td>
<td>5.64 ± 3.75</td>
<td>0.11</td>
</tr>
<tr>
<td>Post-treatment SUVp of CT (post 6th cycle)</td>
<td>1.69 ± 0.63</td>
<td>1.29 ± 0.36</td>
<td>0.42</td>
</tr>
<tr>
<td>difference of SUVp</td>
<td>7.22 ± 4.02</td>
<td>4.35 ± 3.59</td>
<td>0.11</td>
</tr>
<tr>
<td>Reduction rate of SUVp difference (%)</td>
<td>83.71 ± 13.00</td>
<td>67.47 ± 21.00</td>
<td>0.17</td>
</tr>
</tbody>
</table>
Serial PET-CTs for predicting pCR in neoadjuvant chemotherapy

- Conclusions: PET-CT may provide a useful predictive tool as early as the 2nd cycle for pCR
- Critiques:
  - low power
  - Variable chemo regimens
  - Variable patients in each group

Prospective Outcomes for Patients with Micro-metastases and Macrometastases in Sentinel Nodes: NSABP B-32 Sentinel Node Trial

- Julian TB, Anderson SJ, Golesorkhi N, Fourchotte, V, Mamounas EP, Wolmark N for NSABP
- Purpose: Analyze the outcomes of patients with micrometastases and macrometastases in Sentinel Nodes
Outcomes of Micro & Macrometastases

• Methods:
  – Reanalysis of patients with positive nodes enrolled in B-32 trial (randomized patients to SLN/ALND or SLN with ALND only for positive nodes)
  – 1390 eligible patients for reanalysis; 718 had complete data
  – Micrometastases= 0.2-2mm
  – Macrometastases = >2mm
  – Seen on H&E staining required

• Results
  – 312 with Micro v. 422 with Macro
  – Mean follow-up 94 months
  – Mean age 54.6 y.o; 91% White
  – 97% received adjuvant therapy
  – Tumor size 71% <2cm, 26% 2-4 cm, 3% >4cm
  – 81% received lumpectomy/ALND
Outcomes of Micro & Macrometastases

- Multivariate Models (HR)
  - DFS: Worse with higher grades (1.2, 2.4), age closer to 50 (quadratic), Larger tumors (2), Macromets (v. Micromets) (1.4), # of positive nodes (1.1), and lack of adjuvant Rx (3.8)
  - OS: Worse with high grade (0.8,2.3), higher age (1.04), larger tumor size (1.21), Macromets (2.4), higher # of positive nodes (1.1), lack of adjuvant therapy (4.5)
Conclusions/Critiques

- Micrometastases definitely not as bad as Macrometastases
- On univariate analysis, micromets may not matter at all
- Doesn’t resolve the question on multivariate analysis
- Doesn’t address the issue of IHC found cells
- Doesn’t address WHAT TO DO

Surgical Techniques
Trans-Axillary Retro-Mammary Approach of Video-Assisted Breast Surgery Uses Single Port in the Axilla and Treats any Tumors Even in the Medial or Lower Side of the Breast

• Yamashita K, Haga S, Shimizu K
• Department of Surgery, Nippon Medical School, Tokyo, Japan
• Purpose: Describe novel technique for breast lumpectomy

Video Assisted Trans Axillary Lumpectomy

• 120 patients – stage I and II
• Mean tumor size 2.2 cm
• Mean age 50 y.o.
• Authors have previously presented on other endoscopic techniques via peri-areolar incision for medial and lower lesions
Video Assisted Trans Axillary Lumpectomy

Dissection of Major Pectoral Muscle Fascia

Pierce the Gland from Skin by 2-0 Vicryl Sutures

Lifting up the gland

Thin Skin Flap Making over the Tumor

< Tunnel method >
Video Assisted Trans Axillary Lumpectomy

- Space was then filled with Absorbable Cotton
- Average time = 172 minutes

Video Assisted Trans Axillary Lumpectomy

- Shows technical feasibility
- Extensive time (may come down with experience)
- Leads to difficult defects (authors uses an absorbable implant which is not used in the US for this purpose)
Postoperative Issues

Risk Factors Associated with Surgical Site Infection after Breast Operations

• Scow JS, et al. – Mayo Clinic (Rochester)
• Methods
  – Retrospective review of 389 pts undergoing 678 procedures
  – SSI definitions based on CDC
    • 1 = purulent drainage
    • 2 = positive culture
    • 3 = wound opened for erythema
    • 4 = physician diagnosis of infection
• Median time to infection = 9 days
• 19% occurred >30 days after operation

<table>
<thead>
<tr>
<th>Procedure</th>
<th>N (%)</th>
<th># SSI (%)</th>
<th>Hazard Ratio (95% CI)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLNB</td>
<td>172 (25.4)</td>
<td>2 (1.2)</td>
<td>1.0 (Reference)</td>
<td>NA</td>
</tr>
<tr>
<td>WLE</td>
<td>196 (29.4)</td>
<td>8 (4.0)</td>
<td>3.4 (0.7-16.3)</td>
<td>0.12</td>
</tr>
<tr>
<td>TM + SLNB</td>
<td>172 (25.4)</td>
<td>14 (8.1)</td>
<td>7.2 (1.6-31.2)</td>
<td>0.009</td>
</tr>
<tr>
<td>SM</td>
<td>63 (9.3)</td>
<td>5 (7.9)</td>
<td>6.7 (1.3-34.4)</td>
<td>0.02</td>
</tr>
<tr>
<td>ALND</td>
<td>39 (5.8)</td>
<td>3 (7.7)</td>
<td>6.8 (1.1-40.9)</td>
<td>0.04</td>
</tr>
<tr>
<td>TM + ALND</td>
<td>33 (4.9)</td>
<td>5 (15.2)</td>
<td>14.6 (2.9-74.4)</td>
<td>0.001</td>
</tr>
<tr>
<td>Total</td>
<td>678 (100)</td>
<td>37 (5.5)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Risk Factors Associated with Surgical Site Infection after Breast Operations

• Conclusion: Avoiding seroma may be key to avoiding preventable infection
Abstract analysis

Strengths
• Large Cohort
• Strong criteria for defining infection
• Good follow-up (2 yr median followup)

Weaknesses
• Retrospective
• Statistical proxies not well explored (e.g. is Mastectomy higher because it uses drains?)

Locoregional Control
Patterns of Locoregional Failure in Women with Invasive Breast Cancer Treated with Mastectomy and Tissue Expander/Implant Reconstruction

- Shukla ME, Brooks S, Reddy CA, Djohan R, Dietz J, Tendulkar R - Cleveland Clinic
- Purpose: Analysis of patients undergoing Tissue Expander/Implant reconstruction to identify patterns of recurrence

Patterns of Recurrence in TE/Implant Reconstruction Patients

- Methods
  - Retrospective Review of Cleveland Clinic experience 2001-2006 for all patients with TE/I reconstruction for non-metastatic disease
- Results
  - 326 patients identified
    - 38.3% stage I, 41.8% stage II, 16% stage III, 8.3% neoadjuvant therapy
    - 70% ER +, 20% Her2neu +
    - 21% received PMRT
    - Mean age 48.5 y.o (23-79)
Patterns of Recurrence in TE/Implant Reconstruction Patients

Locoregional Failure by Nodal Status

Locoregional Failure by Pathologic Stage

8% of all patients had a LR rate of 4.6% (9 of 199), those with 4-9 nodes positive had more nodes positive (93%)

Patterns of Recurrence in TE/Implant Reconstruction Patients

Percent Receiving PMRT by nodal status

21% of the total population (6,000) underwent PMRT to the chest wall and regional nodes. By nodal status, including those who received neoadjuvant systemic therapy, 7.0% of women with zero nodes positive underwent radiation, followed by 19% with 1-3 nodes positive, and 77% with 4 or more nodes positive.
Patterns of Recurrence in TE/Implant Reconstruction Patients

- Observations:
  - ~¼ of patients with >4 nodes and ~¾ patients with 1-3 nodes didn’t receive PMRT
  - Locoregional recurrence in patients undergoing TE/I in this series is similar to other cohorts observed

- Critiques
  - Lack of information on systemic adjuvant therapy

26 patients in our series had a locoregional failure (LRF). The most common sites of LRF were cutaneous chest wall (8/26) and axilla (8/26), followed by the supraclavicular/cervical nodes (5/26) and chest wall with muscle involvement (3/26). The remaining 2/26 failed at a combination of the above sites.
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• Questions?
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