**Level 1 Oncoplastic Breast Surgery Techniques**

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**Breast Cancer Therapy Then**

**NSABP B - 06**
**TEN YEAR REANALYSIS**

<table>
<thead>
<tr>
<th></th>
<th>Lumpectomy + Axillary Dissection</th>
<th>Lumpectomy + Axillary Dissection &amp; RT</th>
<th>Mastectomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>719</td>
<td>731</td>
<td>713</td>
</tr>
<tr>
<td>IBTR</td>
<td>40.9%</td>
<td>12.4%</td>
<td>NA</td>
</tr>
<tr>
<td>Survival</td>
<td>65%</td>
<td>71%</td>
<td>68%</td>
</tr>
</tbody>
</table>

**Early Cosmetic Approach**
Do not appose breast tissue

**Level 1 Oncoplastic Surgery**

- Extensive undermining of skin
- Undermining of fascial interface
- Rearrange breast tissue

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Inclisions

Separate Breast tissue from skin widely

Excise cancer down to and including fascia

Separate breast tissue from fascia

Reapproximate breast tissue

Oncoplastic results

Breast shape: Usually good
Size: Often decreased
### 3-D Marker

- Bioabsorbable framework
  - Titanium markers
- Indication
  - Assists radiation targeting
- Bonus
  - Replaces volume

![FDA cleared in 2012](image)

### Size by Specimen/Not the Defect

![Size by Specimen/Not the Defect](image)

### Excise cancer

**Often down to and including fascia**

![Excise cancer](image)

### Sizer

![Sizer](image)

### Apoximate Breast to Cover Marker

![Apoximate Breast to Cover Marker](image)

### Tack Medial-Lateral-Cephalad-Caudad

*with 4-0 PDS Sutures*

![Tack Medial-Lateral-Cephalad-Caudad](image)
Release skin with extension of flaps

1 week out

Minimal decrease in size
Minimal change in shape

2 years out (Different patient)

Use of Marker Associated with Increased Volume and Maintenance of Breast Contour

Better marking of cavity helps radiation oncologist

Variability in planning treatment volumes
Better Targeting

Marker Registry

- 724 Patients
- ≥1 years follow-up
- 95% of Radiation Oncologists rated BZ easily seen for radiation planning; 95% noted improved accuracy
- Oncoplastic procedures were used in >90% of patients
- Physicians & patients rate cosmesis as Good/Excellent in >80% of patients
- 58% of patients received hypofractionated radiation regimens

Marker clearly identifies tumor bed

53 Year old female

10/16 Pain right breast 10 O’CLOCK

1/17 BILATERAL MAMMOGRAM: Negative, ULTRASOUND RIGHT 10 O’CLOCK: Negative

3/17 Pt noted indentation of right breast at 8 o’clock

6/17 RIGHT BREAST MAMMOGRAM/ULTRASOUND. #: 8 o’clock

Mass with spiculated margins 25 x 23 x 14 millimeters

FNA: positive for malignant cells

BRCA 1,2 neg

53 Year old female

6/23/17
R breast lumpectomy: 3.2 cm
Grade 2-3
ER+
PR+
HER2 —
R axilla 0/1

7/28/17 - 9/29/17 TC

12/19/17: Start of letrozole
April, 2019, ~2 Years

![Image of tissue growing into the marker, replacing cavity](image)

Tissue grows into the marker, replacing cavity

35 YO Female, No family history, prior augmentation

- Stated she felt a lump but not palpable to me

![Image of breast core biopsy and ultrasound](image)

BREAST CORE BIOPSY, LEFT 2:00 3CM FN:
- Invasive ductal carcinoma, grade 2, LVI
- Ductal carcinoma in-situ, grade 2.

ER+
PR Weakly positive

HER-2 moderate (2+) to strong (3+) IHC

MRI showed cancer plus a second area

![Image of MRI showing cancer plus a second area](image)

Cancer plus a second area seen on MRI (On implant)
FINAL PATHOLOGIC DIAGNOSIS

A. BREAST EXCISION, LEFT:
- Invasive ductal carcinoma.
- Ductal carcinoma in-situ, solid and cribriform type.

B. SENTINEL LYMPH NODE EXCISION, LEFT AXILLA #314:
There is no evidence of malignancy in one lymph node (0/1)

C. SENTINEL LYMPH NODE EXCISION, LEFT AXILLA #28:
There is no evidence of malignancy in one lymph node (0/1)

D. UPPER, OUTER BREAST EXCISION, LEFT:
- Ductal carcinoma in-situ, solid and cribriform type, grade 2-3/3

=================================================================

Chemo Before Mastectomy

FINAL PATHOLOGIC DIAGNOSIS

A. BREAST MASTECTOMY, LEFT:
- Focal residual ductal carcinoma in-situ, grade 2. See note.

NOTE: The residual ductal carcinoma in-situ is located adjacent to the 12:00 biopsy site and is >0.2 cm from margins.

The tissue adherent to the fiducial device is a combination of scar tissue and breast parenchyma, the latter with focal atypical ductal hyperplasia

Biozorb encased

1 Year Post Implant

2 years out

Screening mammogram, 82 YO Female

CORE
Invasive Ductal grade 1 ER Positive, PR Positive, HER 2+ Negative

Final Pathologic Diagnosis

Level 1 Oncoplastic Breast Surgery Techniques
Kevin S. Hughes, MD, FACS
June 6, 2019 webinar

50 patient study with BioZorb
Helps with Oncoplastic Surgery
Improved Cosmesis
Facilitates shorter RT w/ decreased treatment volume

Follow-up Imaging Shows Minimal Scarring*

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June 6, 2019 webinar

Special cases

Re-Excision

Clinical Benefits
Surgeons, Radiation Oncologists, Radiologists

- Helps maintain breast contour and volume
  - Facilitates oncoplastic mammoplasty
  - Improves aesthetic results
- Clearly marks tumor bed
  - Reduction in tumor bed volume treated by boost
- Marks site of tumor bed, site of highest risk of local recurrence
  - Minimal fibrosis/scarring that could obscure changes of concern

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Wire localization

- INCREASED patient anxiety
- IMPRECISE
- SUBOPTIMAL surgical planning
- INEFFICIENT radiology workflow
- COSTLY operating room delays

RADIOACTIVE SEED LOCALIZATION (RSL)

- Described in 2001 by Gray and Cox
- >20 articles comparing RSL to WL

Benefits:
- Simplified scheduling
- Reduced OR delays
- Improved efficiency
- Reduced re-excision rate
- Improved patient satisfaction

Challenges:
- Radioactive sources
- Stringent regulations
- Increases hospital risk
- Fear of handling radioactive materials

MagSeed

- Large probe
- Plastic or titanium instruments
- Re-Balance often
- Side of probe also detects metal

Savi Scout

- Large probe
- Older OR lights can cause interference
- Bovie can deactivate seed

FDA cleared for long-term use
RFID technology
Unique tag number
Antimigratory outer sheath

<table>
<thead>
<tr>
<th>Probe</th>
<th>Part No</th>
<th>Probe Diameter</th>
<th>Wire Reading Depth</th>
<th>Positioner Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loop Probe (approximately)</td>
<td>M000</td>
<td>27 mm inner diameter</td>
<td>20 cm</td>
<td>±0.5 mm</td>
</tr>
<tr>
<td>Loop Probe (approximately)</td>
<td>M001</td>
<td>25 mm inner diameter</td>
<td>20 cm</td>
<td>±0.5 mm</td>
</tr>
</tbody>
</table>

- Center less detectable than ends
Most patients thought the procedure went smoothly/easier than expected
Radiologists/surgeons thought the Tag was as reliable as the wire
33 patients had surgery for cancer
  two underwent re-excision (6%)

Steps
- Check in advance of draping (I do not)
- Drape probe device and insert disposable probe
- ID highest counts on skin
- Incision and find lesion
- Find edges circumferentially
  – Triangulate from multiple angles on the surface
- Recheck with probe frequently
- Confirm tag is in specimen with probe
  Specimen x-ray
If I never see another wire loc in my life, it will be too soon