

Advances in Axillary Management for Breast Cancer

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Evolution of Axillary Management

Axillary Lymph
Node Dissection

NSABP B-04 trial,
axillary failure:
18% | 3.1% | 1.4%


Sentinel Node
Biopsy

NSABP B-32
FNR <10% | LR 5% Δ
OS 92.9% vs. 91.6%

No Axillary
Surgery

CALGB 9343 RCT
 ≥ 70 years of age
with cT1-2N0, HR+

Consensus Statement: Sentinel Node Biopsy

 THE AMERICAN SOCIETY OF
Breast Surgeons - Official Statement -

Consensus Statement on Axillary Management for Patients With In-Situ and Invasive Breast Cancer: A Concise Overview

Purpose

To outline axillary management of patients with in situ and invasive breast cancer.

Associated ASBrS Statements, Guidelines, or Quality Measures

1. Consensus Statement: Consensus Guideline on the Management of the Axilla in Patients With Invasive/In-Situ Breast Cancer – *Approved September 19, 2019*
2. Performance and Practice Guidelines for Sentinel Lymph Node Biopsy in Breast Cancer Patients – *Revised November 25, 2014*
3. Performance and Practice Guidelines for Axillary Lymph Node Dissection in Breast Cancer Patients – *Approved November 25, 2014*
4. Quality Measure: Sentinel Lymph Node Biopsy for Invasive Breast Cancer – *Approved November 4, 2010*

Methods

A literature review inclusive of recent randomized controlled trials evaluating the use of sentinel lymph node surgery and axillary lymph node dissection for invasive and in-situ breast cancer as well as the pathologic review of sentinel lymph nodes and indications for axillary radiation was performed. This is not a complete systematic review but rather, a comprehensive review of recent relevant literature. A focused review of non-randomized controlled trials was then performed to develop consensus guidance on management of the axilla in scenarios where randomized controlled trials data are lacking. The ASBrS ALND Work Group developed a consensus document, which was reviewed and approved by the ASBrS Board of Directors.

1-2 positive nodes

Abnormal axillary imaging

DCISM

Breast recurrence cN0

Consensus Statement: Axillary Dissection



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cN0 with >2+ sentinel nodes

Axillary recurrence

cN3 Palpable

cN1-2 palpable without NACT

Residual disease following NACT

Extra Capsular Extension

Pathology Findings on ALND	No ECE	<2mm	>2mm
No additional positive nodes	78.2%	57.0%	33.9%
1-3 additional positive nodes	19.3%	34.3%	33.0%
4 or more positive nodes	2.5%	8.6%	33.1%

Gooch J et al., MSKCC, Ann Surg Oncol 2014

p<0.0001

Patients Undergoing Mastectomy?

NCDB

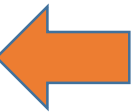
n=16,295
Mastectomy with
single SLN+

5,722 ALND
(35%)

5,424 ALND+RT
(33%)

1,976 PMRT
(12.1%)

3,173 NFT
(19.5%)



No difference in all-cause mortality

De-escalation Strategies: NACT

Table 2. ACOSOG 1071 (Alliance) and SENTINA Variation in FNR by No. of SLNs Removed and by Mapping Agent

Variable	FNR (SLN negative, axilla positive; %)	
	ACOSOG 1071 (cN1 disease; n = 663)	SENTINA cN1-2 (NAC followed by SLNB/ALND; n = 360)
No. of SLNs examined		
1	31.4	24.3
2	21.1	18.5
≥ 3	9.1	4.9
Mapping agent		
Single	20.3	16.0
Dual	10.8	8.6

Abbreviations: ACOSOG, American College of Surgeons Oncology Group; ALND, axillary lymph node dissection; FNR, false-negative rate; NAC, neoadjuvant chemotherapy; SENTINA, Sentinel Neoadjuvant; SLN, sentinel lymph node; SLNB, sentinel lymph node biopsy.

Journal of Clinical Oncology 33, no. 30, Oct 2015, 3375-3378

Technical considerations

- >2 SLN
- Dual tracer
- Clipped node

Assessment of Axillary Management Following Neoadjuvant Chemotherapy in Clinically Node-Positive Breast Cancer

NCDB Review

Assess trends in de-escalation of axillary surgery with neoadjuvant chemotherapy (NCT).



National Cancer Database review of 26,917 patients with stage II-III, clinically-node positive, invasive breast cancer from 2012-2017.

Axillary Trends

33% of women who underwent ALND after NCT had a pathologic complete response.



- Increased age
- Lower socioeconomic status
- Lack of insurance/public insurance
- cN2/3, HER2+, ypT0

Quality Implications

Efforts to address barriers to best practices may improve outcomes for patients treated for breast cancer



Despite clinical trial results establishing axillary de-escalation, potential overtreatment was observed in more than 30% of patients.

Flores et al. *Ann Surg Oncol*.

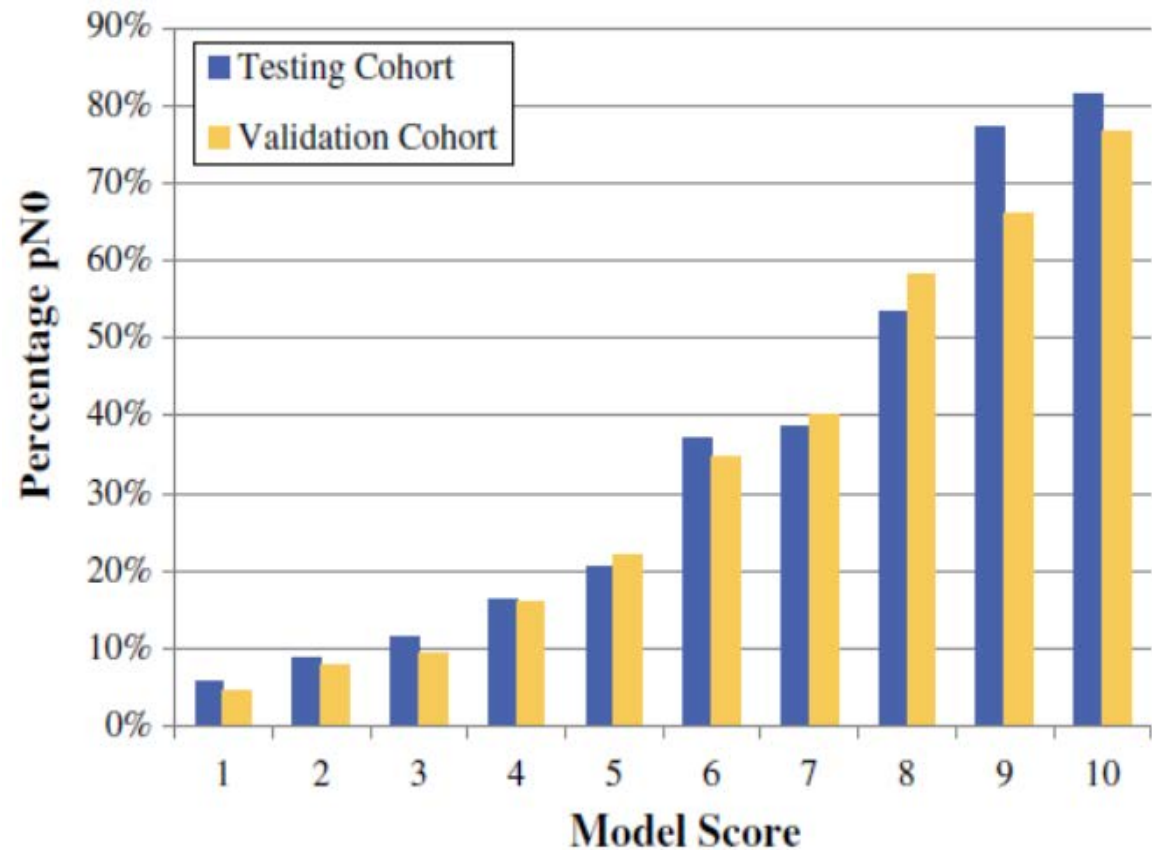
Visual Abstract by @ReneFloresCarde & @DrTedJames for @AnnSurgOncol

ANNALS OF
**SURGICAL
ONCOLOGY**

Predictive Model for Axillary Node pCR

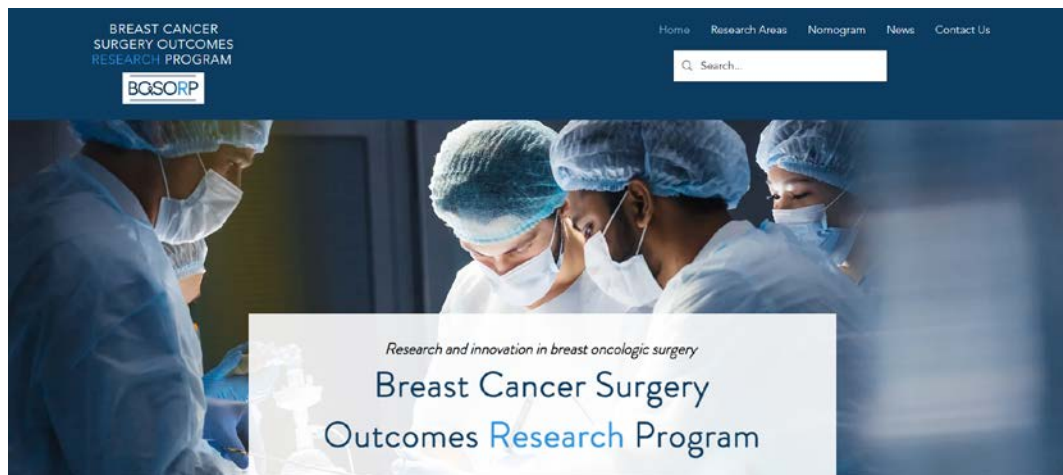
TABLE 3 Model development of risk score

Variable	Assigned point score ^a
Age (year)	
≥50	1
<50	1.5
Tumor subtype	
HR positive, Her2 Negative	1
HR negative, Her2 Negative	3
HR positive, Her2 positive	4
HR negative, Her2 positive	5
Tumor grade	
Grade 1/2	1
Grade 3	1.5
Tumor histology	
Lobular/mixed	1
Ductal	1.5
Clinical N stage	
cN2/cN3	1
cN1	1.5
Breast pCR (used as a modified surrogate for clinical response)	
No response	0
Partial tumor response	2
Complete tumor response	4
Total	5–15



Clinical Decision Support Tool

- Online calculator
- Predict the likelihood of ypN0
- Incorporates preoperative factors
- Influenced heavily by receptor type



BREAST CANCER SURGERY OUTCOMES
RESEARCH PROGRAM

BQSORP

Nomogram Likelihood of pN0 response in patients with N+ disease who undergo NACT

Age (years)

≥ 50

< 50

Tumor Subtype

HR positive, Her2 negative

HR negative, Her2 Negative

HR positive, Her2 positive

HR negative, Her2 positive

Tumor Grade

Grade 1/2

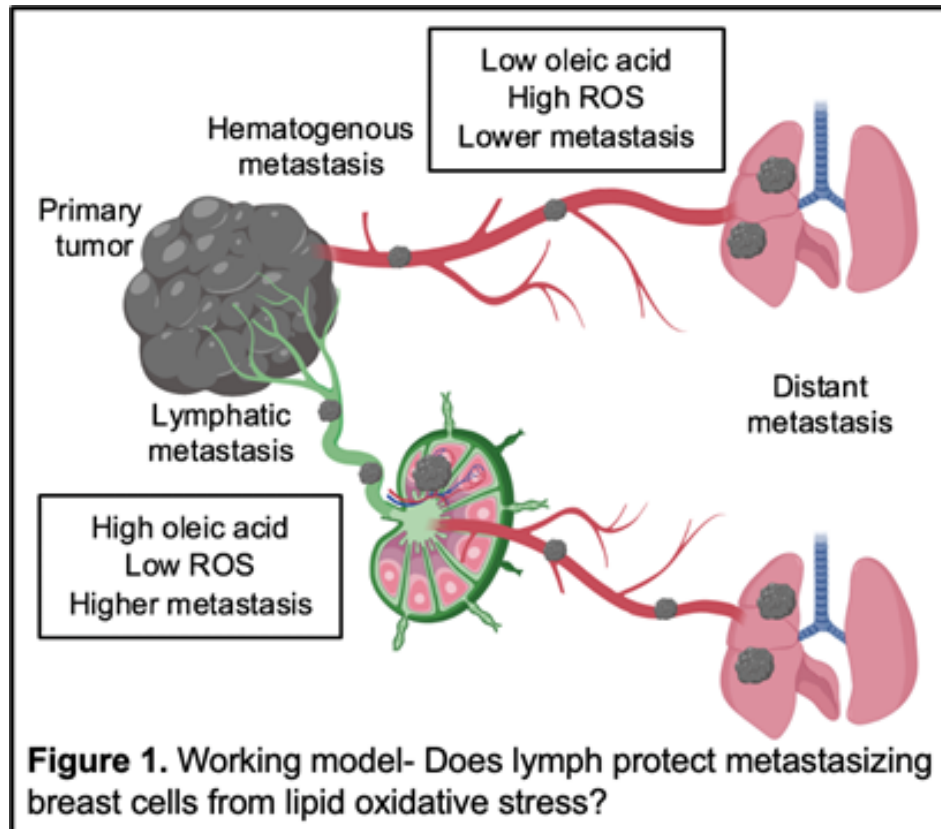
Genomic Predictor of Nodal Response?



Pardo, Fan, Mele, Serres, Valero, Emhoff, Alapati, James - ASO 2021

- NCDB: n=158 | ER/PR+, HER2 neg.
- Clinical N1/N2 positive
- High RS: Axillary pCR achieved in 27.5%
- RS is an independent predictor of axillary pCR

Biology of Lymph Node Metastasis



- Factors for LN metastasis
- Discordant response to chemotherapy
- Role of tissue micro-environment
- DFHCC study

Jessalyn Ubellacker:

3-D co-culture system, mimics LN extracellular matrix environment

Breast Cancer Related Lymphedema

- Chronic, debilitating arm swelling
- Risk: ALND (others: BMI, XRT, infection)
- Impacts: QOL, psychosocial, financial
- Leading fear among cancer survivors.

Johnson et al., Ann Plast Surg 2019



Garza et al. BMC Cancer 2017

Living with Lymphedema

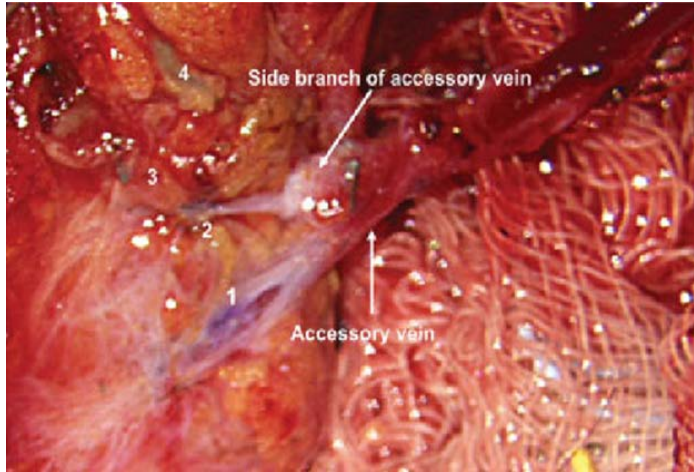
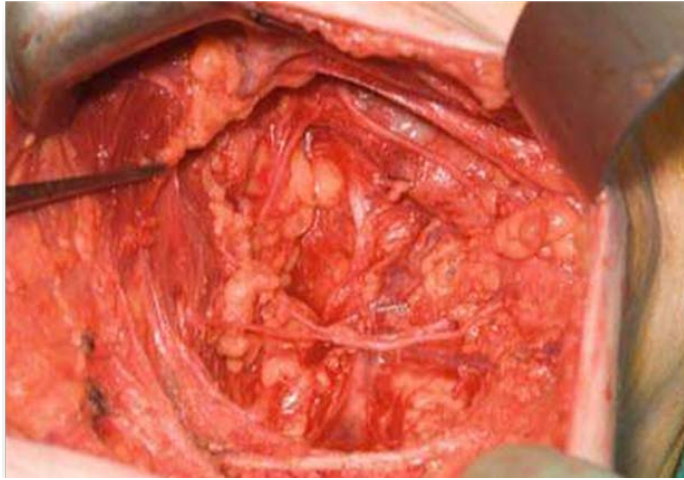


“...you can manage your swelling fairly well and reduce your risk of infection, but it’s burdensome, and sometimes even if you do everything right, you still have problems. Just a bug bite and you can become sick very quickly”

“As of May of 2020, I was deemed now permanently and totally disabled primarily due to the complications of lymphedema as it is connected to my Post Mastectomy Pain Syndrome. I haven’t had a day without pain since”

“I cried when I heard I may die from breast cancer, but I’m beginning to understand the impact of lymphedema on the rest of my life. I am not sure which is worse.”

Incorporate ILR Technique



- Pre-operative decision making
- Care coordination
- Combined procedure
- Preserve superficial axillary veins

Conclusion

- Axillary management has become progressively multidisciplinary and complex
- Evolution is toward less invasive axillary management
- ILR will play an increasing role in risk reduction
- Horizon: deeper understanding biology of lymph node metastasis

Thank You!