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Updates in Surgical Management for Breast Cancer
June 26

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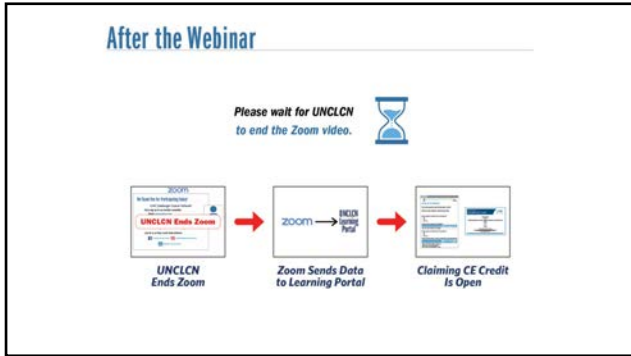
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6



7

Our Presenter



Kristalyn Gallagher,
DO, FACS, FACS

Kristalyn Gallagher, DO, FACS, FACS, is a Breast Surgical Oncologist, Associate Professor of Surgery, and the Chief of breast surgery at the University of North Carolina in Chapel Hill.

Nationally, she serves as the Vice Chair for the Association of Women Surgeons Foundation and the Chair of the American Society of Breast Surgeons Candidate Education Committee.

She is dedicated to empowering and supporting women surgeons and teaching and training future surgeons. Her research interests include clinical trials, developing new innovative surgical techniques, and personalizing breast cancer treatment options.

Dr. Gallagher is also dedicated to patient care and is a committed educator for students, residents, and fellows.

8

Our Presenter

9

Our Presenter

- 5. Kristalyn Gallagher, DO, FRCOS, FACS, is a co-PI for a national clinical trial to reduce the incidence of lymphedema for patients undergoing lymph node surgery.

10

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11

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12

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2. She is a surgical coach and helps train other surgeons nationally in oncoplastic surgical techniques.

13

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2. She is a surgical coach and helps train other surgeons nationally in oncoplastic surgical techniques.
1. She is trained in oncoplastic surgery so every surgery she attempts to hide scars and rearrange tissues to make things look as natural as possible.

14

Sample Poll Everywhere Question



15

ACCME Disclosure

This activity has been planned and implemented under the sole supervision of the Course Director, Stephanie Wheeler, M.D., M.H., in association with the UNC Office of Continuing Professional Development (CPD). The course director received research support from AstraZeneca (ended June 2023) and Pfizer Medical Foundation (ended December 2023). These financial relationships have been mitigated. CPD staff have no relevant financial relationships with ineligible companies as defined by the ACCME.

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16

ANCC Disclosure

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17

Breast cancer surgery is a common treatment that can involve removing the cancer, removing lymph nodes, or reconstructing the breast.

True

False

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18

Updates in the Surgical Management of Breast Cancer

June 26, 2024

Kristalyn Gallagher, DO, FACOS, FACS

- Breast Surgical Oncology & Oncoplastic Surgery
- Associate Professor of Surgery at UNC, Chapel Hill
- Chief, Breast Surgery
- Director, UNC Surgical Breast Program







19

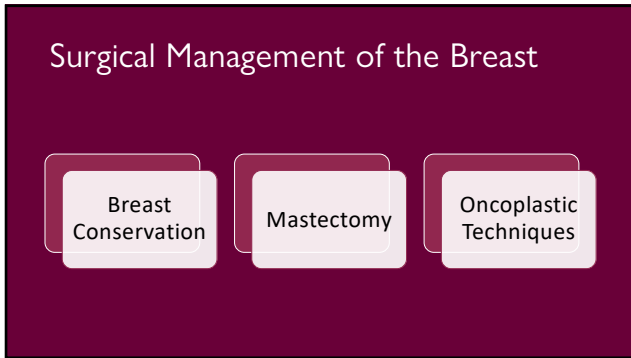
No Relevant Disclosures

20

Objectives

-  Discuss surgical management of the breast
-  Review current guidelines and considerations for the management of the axilla
-  Review surgical approach to minimize lymphedema
-  Future directions

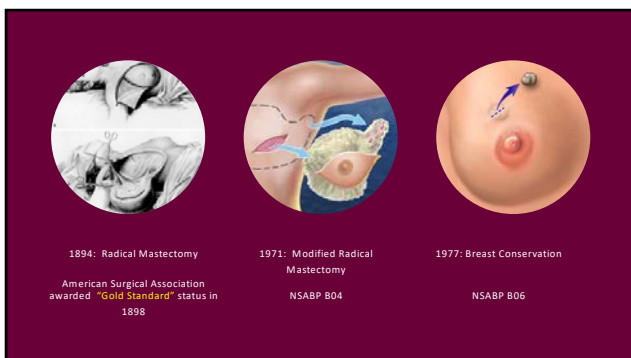
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24

RTC Comparing Local Recurrence Rates After BCT with/without XRT

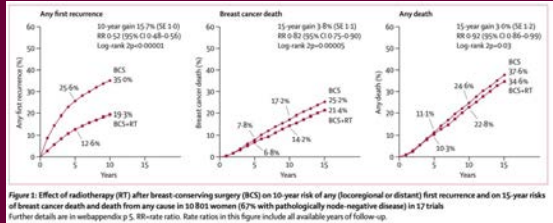


Figure 1. Effect of radiotherapy (RT) after breast-conserving surgery (BCS) on 10-year risk of any (locoregional or distant) first recurrence and on 15-year risks of breast cancer death and death from any cause in 10 801 women (82% with pathologically node-negative disease) in 17 trials. Further details are in webappendix p.5. RR=rate ratio. Rate ratios in this figure include all available years of follow-up.

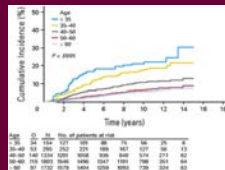
Years 1976-1999

EBCTCG meta-analysis, Lancet 2011

25

Modern LRR Risk after BCT

- Modern series showed that with multimodal management of early-stage breast cancer resulted in a much lower **5-15%** (compared to 19-35% ipsilateral breast tumor recurrence (IBTR)-2,3
- Several factors associated with risk of IBTR^{1,2,3,4}
 - Age at diagnosis
 - Tumor grade (high grade)
 - Receptor Status (TNBC, HER2+)
 - EIC
 - Adjuvant therapy (RT, ET, Chemo, Targeted tx)



¹Brewster et al. JNCI 2008, ²Bosma et al. BCRT 2016, ³Wrieling et al. JAMA Onc 2017, ⁴van der Ley et al. Semin Radiat Onc 2012.

26

Which is Better: Lumpectomy or Mastectomy?

- Traditionally
- Lumpectomy = Mastectomy in terms of overall survival (OS)
 - Mastectomy had a lower risk of local-regional recurrence (LRR)



Lumpectomy

Mastectomy

27

Which is Better: Lumpectomy or Mastectomy?

Traditionally

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- Mastectomy had a lower risk of local-regional recurrence (LRR)



28

Overview

- Retrospective review of a prospectively maintained database
- 2006-2016
- cT1-3, cN0-3 breast cancer
- Excluded
 - Women >70 yo (d/t possible omission of XRT with BCS)
 - Bilateral breast cancer
 - Multiple synchronous ipsilateral cancers
 - Neoadjuvant chemotherapy
 - BCS alone
 - De novo stage IV disease
- N=13,914 (BCS: 8,228 and Mastectomy: 5,686)

Vasilyeva et al. Ann Surg Oncol 2023

29

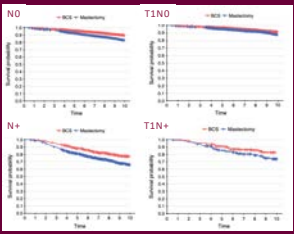
BCT Resulted in Better OS Than Mx

Multivariate analysis

ALL: HR 1.37, p<0.001
 N+: HR 1.46, p=0.002

Mastectomy was associated with an increased risk of death

cN0: HR 1.49, 95% CI 1.27-1.74, p<0.001
 cN+: HR 1.59, 95% CI 0.99-2.57, p=0.055
 NS



Vasilyeva et al. Ann Surg Oncol 2023, H Pass Best Papers of 2023 ASBrS 2024 Annual Meeting

30

BCT Resulted in Improved BCSS

Multivariate analysis
 ALL: HR 1.32, p<0.001
 N+: HR 1.44, p=0.008

Mastectomy was associated with an increased risk of death from breast cancer
 cN0: HR 1.60, 95% CI 1.23-2.09, p<0.001
 cN+: HR 1.47, 95% CI 0.85-2.57, p=0.2
 NS

**No DIFFERENCE IN LRR
HR 1.44, p=0.008**

Vasiliyeva et al. Ann Surg Oncol 2023, H Pass Best Papers of 2023 ASBrS 2024 Annual Meeting

31

T1 Patients: Surgical Overtreatment?

- Should be amenable to BCS
- In this series, 50% of T1N+ and 30.5% pts had a Mastectomy
- BCSS and OS favored BCS
- No difference in local control
- Important to counsel LRR still possible after a Mastectomy

Conclusion:

- In an era of contemporary systemic treatment, BCT was associated with better BCSS and OS and equivalent LRR compared to mastectomy

Vasiliyeva et al. Ann Surg Oncol 2023, H Pass Best Papers of 2023 ASBrS 2024 Annual Meeting

32

Integrating These Findings into Everyday Practice

- The seminal RCT demonstrated that BCT was equivalent to mastectomy but had an increased incidence of local recurrence – old data
- Multiple recent studies have shown that BCT improves survival including
 - Young patients
 - High-risk tumors
 - N0 and N+ cohorts

Vasiliyeva et al. Ann Surg Oncol 2023, H Pass Best Papers of 2023 ASBrS 2024 Annual Meeting

33

Integrating These Findings into Everyday Practice

- Possible Explanations (survival)
 - Mastectomy induces a larger inflammatory response
 - Mastectomy may delay the initiation of adjuvant treatment
- Possible Explanations (LRR)
 - Better diagnostic imaging delineating extent of disease
 - Better margin assessment
 - More precise XRT
 - Significantly improved systemic treatment
- Again demonstrates that tumor biology and not the extent of surgery is important
- It's time to update our counseling!

Vasilyeva et al. Ann Surg Oncol 2023, H Pass Best Papers of 2023 ASBrS 2024 Annual Meeting

34

Is Radiation necessary for all patients undergoing BCT?

Yes

No

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Is Radiation Necessary for ALL Patients Undergoing BCT?



36

Radiation

- The addition of RT reduces the risk of LRR by half and cancer death rates by a sixth.
- Breast cancer is a heterogeneous disease, and absolute benefit varies for individual patients
- Side Effects:
 - Breast pain
 - Fibrosis
 - Increased cardiac mortality
 - Lymphedema
 - Poorer cosmetic result
 - Low risk of radiation-induced sarcoma
- Are there patients who are unlikely to benefit from RT and avoid morbidity and cost?



BH Chao. The Breast. 2024.

37

RCTs defining low-risk patient subgroups

Randomized trials of radiation therapy after breast conserving surgery for early breast cancer.

Years	No. Of patients	Age (years)	Median follow-up (years)	Local recurrence (%)	
				ET ^a	ET ^a + RT ^b
Kunkler et al. [11]	2003-2009	1326	<65	9.1	9.5
Hughes et al. [12]	1994-1999	636	<70	12.6	10.0
Blamey et al. [13]	1992-2000	1172	<70	10.3	4.8
Foster et al. [14]	1996-2004	869	Postmenopausal	9.9	7.6
Fyles et al. [15]	1992-2000	769	<50	5.6	7.7
Fisher et al. [16]	1989-1998	3209	<18	8.0	16.5
Winer et al. [17]	1991-1998	347	<45-75	9.9	20.0
Jarrous et al. [18]	1985-1991	585	<70	5.7	24.5

^a ET, endocrine therapy.
^b RT, radiation therapy.

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BH Chao. The Breast. 2024.

39

RCTs defining low-risk patient subgroups

Years	No. of patients	Age (years)	Median follow-up (years)	Local recurrence (%)		
				RT ^a	RT ^b - RT ^a	
Knudsen et al. [13]	2003-2009	1,126	<65	9.1	5.5	0.9
Hughes et al. [17]	1994-1999	436	>70	12.0	10.0	2.0
Harney et al. [12]	1993-2006	1,172	>70	10.2	4.8	1.1
Patino et al. [15]	1996-2004	869	Postmenopausal	9.9	7.6	2.5
Pylin et al. [14]	1992-2000	769	>50	3.6	7.7	0.6
Parker et al. [11]	1989-1998	2,000	>18	6.0	16.5	2.8
Wissler et al. [16]	1991-1998	347	>45-75	9.9	20.0	6.0
Fornace et al. [17]	1985-1991	985	>70	5.7	24.5	5.9

^a RT, endocrine therapy.
^b RT, radiation therapy.

BH Choo. *The Breast*. 2024.

40

Landmark Trials Looking at Possible Omission of RT for early-stage BCT

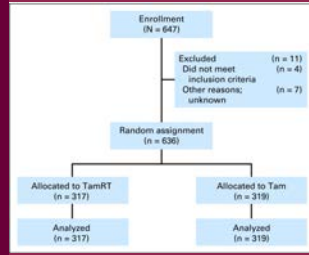
CALGB 9343

PRIME II

41

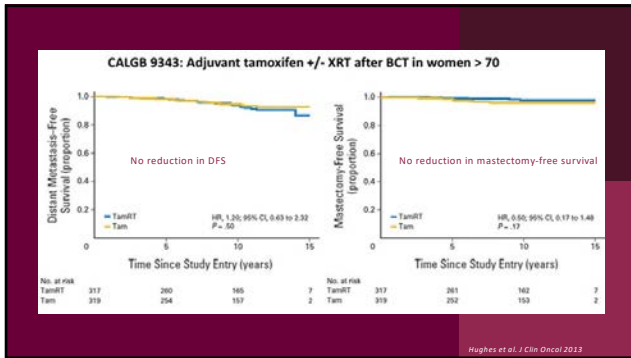
CALGB 9343

- RCT including 647 patients from 1994-1999
- Inclusion:
 - >70 yo
 - ER+
 - Clinical Stage I (T1 N0)
- Randomized to Tam + RT or Tam Alone
- Median follow up: 12.6 yrs

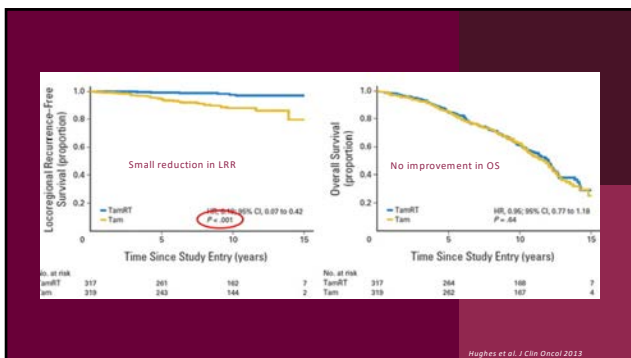


Hughes et al. *J Clin Oncol* 2013

42



43



44



PRIME II

PRIME II: Breast-Conserving Surgery with or without Irradiation in Early Breast Cancer

Background: Breast-conserving surgery (BCS) with irradiation is a standard treatment for early-stage breast cancer. However, the role of irradiation in BCS remains unclear. The PRIME II trial compared BCS with irradiation to mastectomy with or without irradiation.

Objectives: The primary objective was to compare overall survival between the two groups. Secondary objectives included breast recurrence-free survival, distant recurrence-free survival, and quality of life.

Design: A randomized controlled trial.

Results: The trial included 1,000 patients. There was no significant difference in overall survival between the two groups. Breast recurrence-free survival was significantly higher in the BCS with irradiation group.

Conclusions: Breast-conserving surgery with irradiation is noninferior to mastectomy with or without irradiation for overall survival and breast recurrence-free survival.

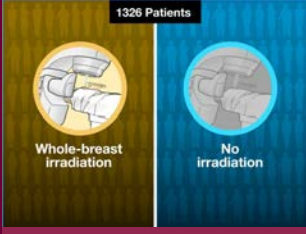
Kunkler et al. NEJM 2023. DOI: 10.1056/NEJMoa2207386.

45



PRIME II

- 1326 patients from 2003-2009
- Inclusion Criteria:
 - >65 yo
 - T1 or T2 (≤3cm)
 - BCT
 - Clear Margins
 - Planned ET
- Randomized to WBRT or no RT
- Median f/up 9.1 yrs



1326 Patients

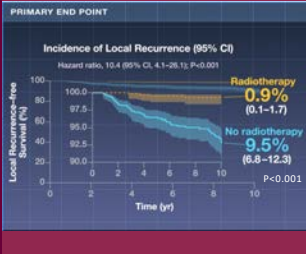
Whole-breast irradiation

No irradiation

Kunkler et al. NEJM 2023. DOI: 10.1056/NEJMoa2207586.

46

PRIME II



PRIMARY END POINT

Incidence of Local Recurrence (95% CI)

Hazard ratio, 10.4 (95% CI, 4.1–28.1); P<0.001

Radiotherapy: 0.9% (0.1–1.7)

No radiotherapy: 9.5% (6.8–12.3)

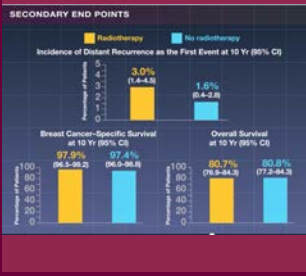
P<0.001

Kunkler et al. NEJM 2023. DOI: 10.1056/NEJMoa2207586.

47

PRIME II

- The investigators concluded, "Omission of radiotherapy was associated with an increased incidence of local recurrence but had no detrimental effect on distant recurrence as the first event or overall survival among [patients] 65 years of age or older with low-risk, hormone receptor-positive early breast cancer."



SECONDARY END POINTS

Incidence of Distant Recurrence as the First Event at 10 Yr (95% CI)

Radiotherapy: 3.0% (1.4–4.6)

No radiotherapy: 1.6% (0.4–2.8)

Breast Cancer-Specific Survival at 10 Yr (95% CI)

Radiotherapy: 97.9% (96.5–99.3)

No radiotherapy: 97.4% (96.0–98.8)

Overall Survival at 10 Yr (95% CI)

Radiotherapy: 80.7% (78.8–84.8)

No radiotherapy: 80.9% (77.2–84.8)

Kunkler et al. NEJM 2023. DOI: 10.1056/NEJMoa2207586.

48

Improving Prognostic Precision

49

CAMERAN Trial at UNC

- Investigating which is better? APBI or ET
- PI: Dana Casey, MD
- Inclusion:
 - Age >65 yo
 - Low risk tumor (<3 cm, grade 1-2, Node negative, hormone receptor positive)
 - Patients randomized to APBI or ET

50

Should repeat lumpectomy ever be considered for patients?

Yes 0%


No 0%

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51

Can you repeat a lumpectomy?

Historically




ABSOLUTELY NOT

52

Current Evidence

- Mastectomy is no longer consider absolutely "obligatory" for IBTR
- Consider for:
 - Low risk (small, luminal A)
 - When RT may not be required
- Re-do lumpectomy + Repeat RT when IBTR > 5 years after primary treatment
- Panel 50/50 for re-do lumpectomy when repeat RT was not an option

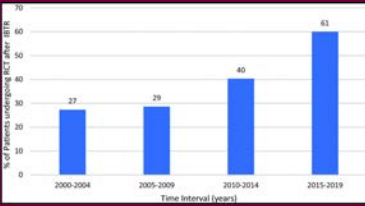


Burstein et al. Ann Oncol 2021

53

Management of ipsilateral breast tumor recurrence following breast conservation surgery: a comparative study of re-conservation vs mastectomy

Arendt Buij Van den Broek¹, Jihye Choi², Viorad Sevdin³, Tiana Li⁴, Monica Mironis⁵, Lior Z. Bruzon⁶, Ilan S. Coif⁷



Time Interval (years)	% of Patients Undergoing Re-conservation after IBTR
2000-2004	27
2005-2009	29
2010-2014	40
2015-2019	63

Van Den Broek et al. BCRT 2021

54

Oncoplastic Surgery

When cancer surgery (oncologic surgery) and plastic reconstructive surgery are combined in a single operation



58

Purpose

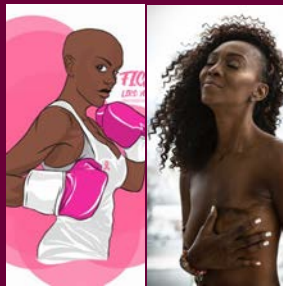
Remove the cancer and reshape the breast into a normal appearing breast



59

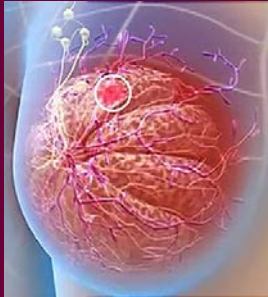
Why is Oncoplastic Surgery Important?

- BCT is the standard of care in management of early-stage breast cancer
- Goal of BCT is tumor-free resection margins and local control
- Secondary goal: satisfactory cosmetic outcome
- Cosmetic outcomes are associated with patient satisfaction and improved QOL
 - Poor outcomes affect up to 40% patients undergoing BCT
 - Direct correlation between cosmetic outcome and patient's anxiety and depression score, body image, sexuality and self-esteem.¹



Cochrane RA et al. Br J Surg. 2003;90(12):1503-1509.

60



Factors influencing cosmesis

- Surgery
 - Incision placement
 - Amount/Volume of tissue excised
 - Tissue rearrangement
 - Tumor location
- Adjuvant treatment
 - Radiation
 - Systemic therapies

Cochrane RA et al. Br J Surg. 2003;90(12):1505-1509.

61



Incision Placement

- Periareolar
- Inframammary fold
- Curvilinear in the superior pole of the breast
- Parallelogram if you need to remove skin
- Radial in the inferior pole of the breast
- Try to avoid the V-line

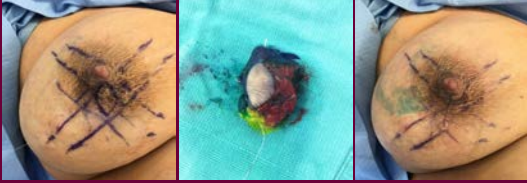
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Incision placement

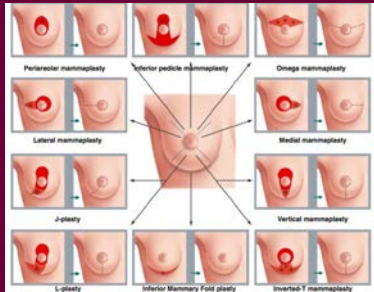
63

Radial incision within the areola



64

Reshaping the breast



65

Lumpectomy with Breast Reduction



66

Oncoplastic Mastopexy



67

The aesthetically flat closure



68

Why go flat?

- Avoid additional surgeries
- Minimize surgery time
- Not wanting foreign body (BIA-ALCL) or extended healing with autologous reconstruction
- Lower risk of complications
- Ability to not wear a shirt or a bra if desired

The decision to go flat or have reconstruction is a personal one.

Going flat does not mean patients are not interested in achieving an excellent aesthetic result

69

"Going Flat" After Mastectomy: PRO by Online Survey

- 931 women with uni- or bilateral mastectomy for treatment of breast cancer or elevated breast cancer risk

Baker JL, Dixon DS, Attal DJ. "Going Flat After Mastectomy: Patient-Reported Outcomes by Online Survey. Ann Surg Onc 2021. 28:2493-2505. <https://doi.org/10.1245/s10434-020-09448-9>.

70

"Going Flat" After Mastectomy: PRO by Online Survey

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71

"Going Flat" After Mastectomy: PRO by Online Survey

- 931 women with uni- or bilateral mastectomy for treatment of breast cancer or elevated breast cancer risk
- The top two reasons for going flat were avoidance of a foreign body placement and a desire for a faster recovery
- 65% of respondents felt they received adequate information about surgical options so they could make the right decision
- 20.7% of respondents felt that their surgeon did not respect or support their decision to go flat

Baker JL, Dixon DS, Attal DJ. "Going Flat After Mastectomy: Patient-Reported Outcomes by Online Survey. Ann Surg Onc 2021. 28:2493-2505. <https://doi.org/10.1245/s10434-020-09448-9>.

72

"Going Flat" After Mastectomy: PRO by Online Survey

- In a multivariate analysis, **low level of surgeon support** for the decision to go flat was the strongest predictor of low satisfaction score
- Greater satisfaction was associated with receiving adequate information about surgical options

Baker JL, Dixon DS, Attal DJ. "Going Flat After Mastectomy: Patient-Reported Outcomes by Online Survey. Ann Surg Onc 2021. 28:2493-2505. <https://doi.org/10.1245/s10434-020-09448-9>.

73

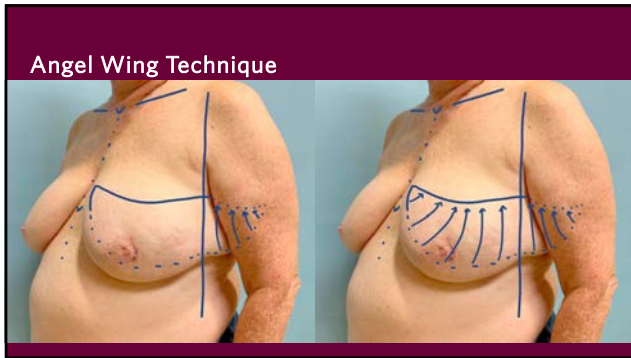
Conclusion

- Most patients undergoing mastectomy alone are satisfied with their surgical outcome
- Surgeons may optimize patient experience by recognizing and supporting a patient's decision to go flat

74

Flat Mastectomy in Small Breast

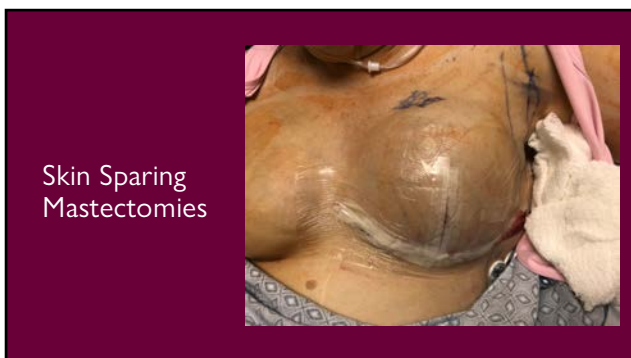
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78

Nipple Sparing Mastectomies



79

Surgical Management of the Axilla

	
Clinically Node Negative (cN0)	Clinically Node positive (cN+)
<small>Pathological Node-Positive (pN+)</small>	<small>Down-stages to pN0 after chemotherapy Still node-positive after chemotherapy</small>

80

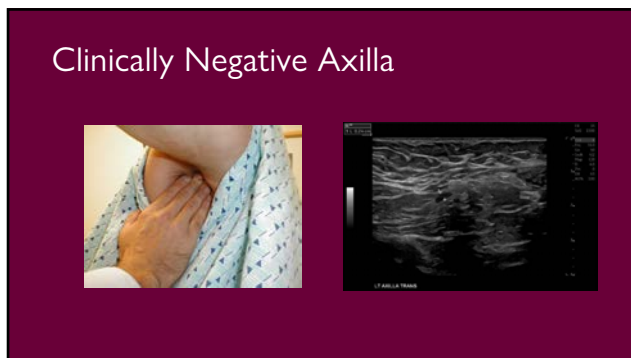
Poll Everywhere

* You are seeing a 41 year old patient in your clinic who has a 2.5 cm invasive ductal carcinoma (IDC), grade 3, hormone receptor-positive (ER+, PR+) and HER2 receptor negative. She is planning breast conservation with a lumpectomy. On exam, you do not feel any axillary adenopathy.

81



82



83

Clinically Node Negative

- Sentinel lymph node excision**
 - Was SOC for many years for invasive cancer
 - May help direct treatment recommendations
- Omission of axillary surgery**
 - PRIME2 and CALGB 9343: RT omission. Can we consider omission of SLN for patients >70 yo with tumors <3 cm, favorable pathology and negative clinical exam
 - SOUND trial: included any age, tumor <2 cm, favorable phenotype, negative axillary US

84

Axillary Management

- 1996: Sentinel lymph node biopsy established as a standard method for axillary staging in clinically node-negative patients

85

Sound Trial

JAMA Oncology

RCT: Sentinel Lymph Node Biopsy vs No Axillary Procedure in Small Node-Negative Breast Cancer

POPULATION	INTERVENTION	FINDINGS
<p>3463 Women</p> <p>Mean age 60.5 (SD 10.1) y</p>	<p>SLNB</p> <p>SLN was removed</p>	<p>SLNB vs ALND, 97.7%</p> <p>95% CI, 95.5% to 99.9%</p> <p>95% CI, 0.84 to 1.04</p>

Gentili et al. JAMA Oncol. 2023

86

ACOSOG Z0011

- RCT of SLN vs ALND for T1-2 cancers and 1 or 2 + SLN
- Lumpectomy and planned WBRT
- Planned adjuvant therapy
- At ALND, 27% had residual + nodes
- Radiation treatment
 - 89% whole breast
 - 15-19% regional nodal RT
 - 50% high tangents

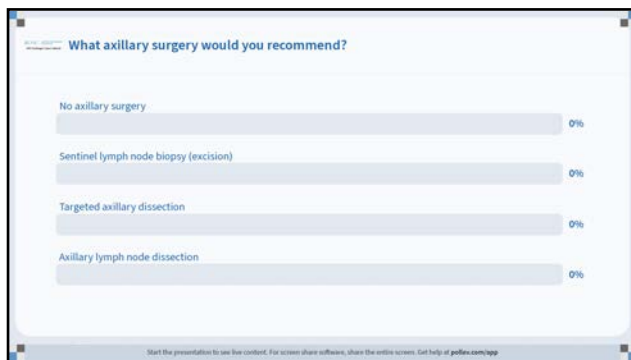
With 10 year follow up, there is no role for ALND for patients with +SLN and otherwise meeting Z11 criteria (< 3 +nodes, XRT, adjuvant Rx)

87

Poll Everywhere

• You are seeing a 52 year old patient who initially presented with a 4 cm triple negative (ER-, PR-, HER2-) IDC with a positive lymph node. She has now completed neoadjuvant chemotherapy and had an excellent response. On imaging her breast cancer is no longer visible and the lymph node now has normal appearance. She is planning to undergo lumpectomy.

88



89

Node Positive Patients after NAC

- ACOSOG Z1071¹
- SENTINA²
- SN FNAC³
- Design: cT1-4 N1-2 underwent NAC followed by SLN and ALND.
- Compared SLN pathology to the remaining axillary nodes (FNR)

¹Boughey et al. JAMA 2013 Oct 9;310(14):1455-61.
²Kuehn et al. Lancet Oncol. 2013 Jun;14(7):609-18.
³Boileau et al. J Clin Oncol. 2015 Jan 20;33(3):258-64

90

Node Positive Patients after NAC

	ACOSOG Z1071 ¹	SENTINA ²	SN FNAC ³
SLN Identification Rate	92.7%	87.8%	87.6%
Overall FNR	12.6%	14.2%	13.4%
FNR			
Mapping Agents			
One Agent	20.3%	16%	16%
Dual Agent	10.8%	8.6%	5.2%
Number SLN			
1 SLN	31%	24.3%	18.2%
2 SLN	21.1%	18.5%	
≥ 3 SLN	9.1%	4.9%	4.9%
IHC	8.7%	NR	8.4%

¹Boughey et al. JAMA 2013 Oct 9;310(14):1455-61.
²Roche et al. Lancet Oncol. 2013 Jun;14(7):609-20.
³Balleau et al. J Clin Oncol. 2015 Jan 20;33(1):258-64

91

ACOSOG 1071

- Subgroup with clipped positive node
- When clipped node was in SLN FNR dropped to 6.8%

Boughey et al. JAMA 2013 Oct 9;310(14):1455-61.

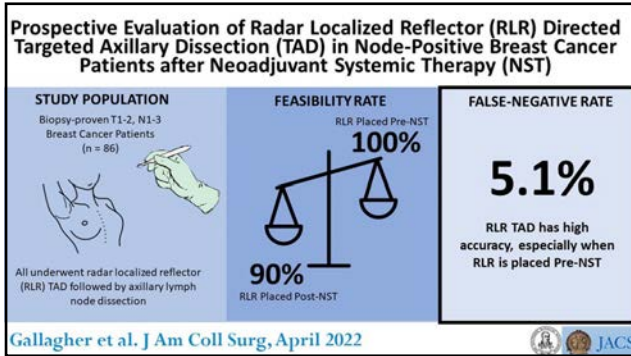
92

TAD: MD Anderson

- MD Anderson: TAD (targeted axillary dissection) trial
 - 191 patients
 - FNR for clipped node alone 4.2%
 - FNR for SLN alone 10.1%
 - FNR for SLN + clipped node 1.4%

Caudie et al. J Clin Oncol 2016

93



94

Poll Everywhere

- You are seeing a 52 year old patient who initially presented with a 4 cm triple negative (ER-, PR-, HER2-) IDC with a positive lymph node. She has now completed neoadjuvant chemotherapy and had an excellent response. On imaging her breast cancer is no longer visible and the lymph node now has normal appearance.
- She has now completed lumpectomy/TAD and final pathology shows she has 2/3 lymph nodes involved with carcinoma, the largest metastasis measuring 9 mm.

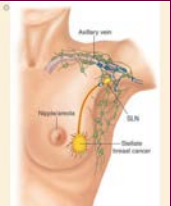
95



96

What to do with N+ After NACT

• Currently: Axillary lymph node dissection



97

Alliance A011202: A Randomized Phase III Trial Comparing Axillary Lymph Node Dissection to Axillary Radiation in Breast Cancer Patients (cT1-3 N1) Who Have Positive Sentinel Lymph Node Disease After Receiving Neoadjuvant Chemotherapy

Julij Shegroy MD, Bruce Jaffe MD, Thomas Buchholz MD, M. F. Freeman, Brynna MD, Kelly Hunt MD, Jane Armes, PhD, PhD, Vera Baran, PhD

Pre-Registration

T1-3 N1 M0, FNA or CNB showing +LN NACT (minimum 4 cycles)
Neg axilla on PE after NACT

↓ SLN with intra-op eval

SLN (+)
Intraop randomization

↓

ALND + Nodal RT (omit axilla) Axillary RT + Nodal RT

SLN (-)
Wait for final path

↓

If SLN (+), then register and randomize

Post-Surgery Registration


T1-3 N1 M0, FNA or CNB showing +LN NACT (minimum 4 cycles)
Neg axilla on PE after NACT
+SLN on final path and ALND not performed

↓

ALND + Nodal RT (without RT to dissected axilla)


Axillary RT and Nodal RT

98



ScienceDirect

journal homepage: www.JournalofSurgicalResearch.com



Association for Academic Surgery

Omission of Axillary Dissection in Node Positive Breast Cancer After Neoadjuvant Systemic Therapy

Check for updates

Gray B. Peery, BS,^a Joyce Pak, MPH,^b Laura Burkbauer, MD,^a Chris B. Agala, PhD,^c Julia M. Selfridge, MD,^d Kristalyn K. Gallagher, DO,^e and Philip M. Spanheimer, MD^{a,*}

Peery et al. J Sur Res 2023

99

Novel Technique to Minimize Lymphedema

100

Lymphedema

- Can develop within days and up to 30 years
- 80% within 3 years of surgery; the remainder at a rate of 1% per year
- "Lymphedema is worse than mastectomy"
- "I fear lymphedema more than the cancer"
- "Lymphedema reminds me I have cancer every day"



—Disipio, Lancet Oncol 2013 Metaanalysis of 72 studies

101

Etiologic Factors

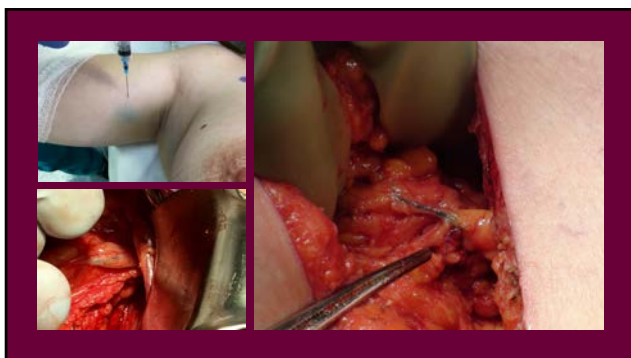
Non-Controllable	Controllable
<ul style="list-style-type: none">• Obesity• Age >55• Hypertension• Infection• Increase tumor size• Nodal burden• Recurrence	<ul style="list-style-type: none">• <u>Damage</u>• <u>Radiation</u>• <u>Surgery</u>• Chemotherapy

102

Axillary Reverse Mapping

Hypothesis: Mapping the drainage of the arm with blue dye: **Axillary Reverse Mapping (ARM)** and sparing or reapproximating the lymphatics draining the upper extremity during SLNB or ALND would decrease the subsequent development of lymphedema as compared to SLNB or ALND without sparing the upper extremity lymphatics.

103



104

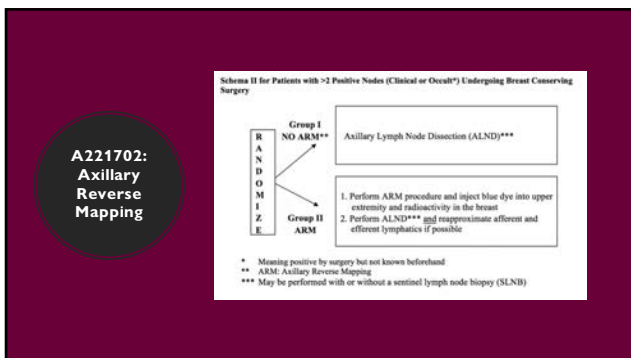
EFFECTIVE Lymphedema	
SLNB	0.8% (3/350)
ALND	6.5% (10/154)
TOTAL	2.5% (13/504)

Tummel et al. Ann Surg 2017

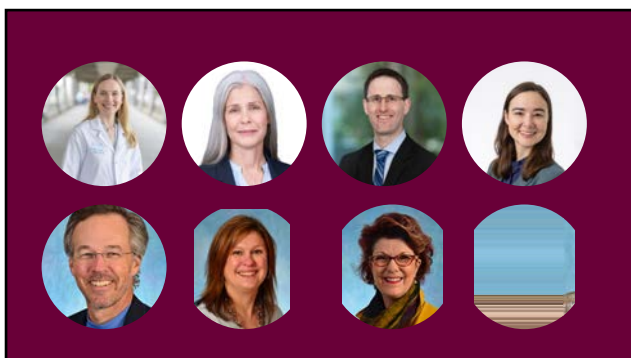
105

Anastomosis		
	BLUE ARM Transections	Lymphedema
Not Reanastomosed	54.2% (39/72)	12.8% (5/39)
Reanastomosed	45.8% (33/72)	0% (0/33)

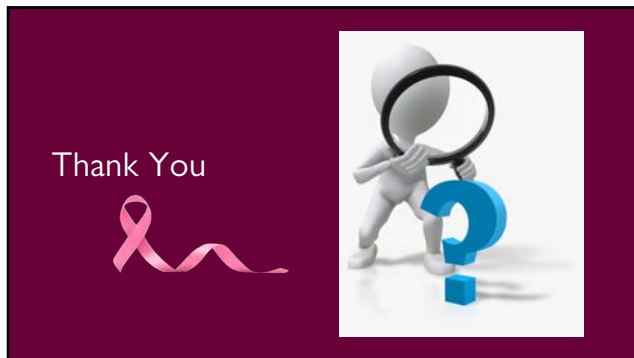
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107



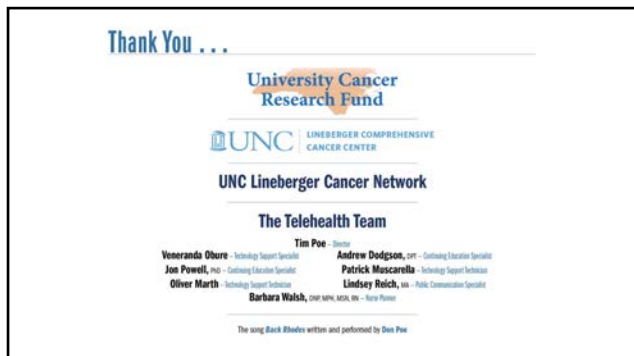
108



109



110






111

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	<p>PATIENT-CENTERED CARE</p> <p>Colorectal Cancer: Epidemiology, Risk Factors, and Screening Strategies Lisa M. Gangarosa, MD</p>	<p>July 10 12:00 PM</p>
	<p>ADVANCED PRACTICE PROVIDER</p> <p>Strategies for Managing Toxicities of Oral Oncolytics Kevin Chen, PharmD, MS Blanka Patel, PharmD, CPP Aimee Faso, PharmD, BCOP, CPP</p>	<p>July 17 4:00 PM</p>
	<p>PATIENT-CENTERED CARE</p> <p>Community Engagement in Cancer Care Veronica Carltisle, MPH, CHES</p>	<p>August 14 12:00 PM</p>

112

Self-Paced, Online Courses learn.unclcn.org/spoc

	<p>PATIENT-CENTERED CARE</p> <p>Updates on Management of Early-Stage Breast Cancer Yara Abdou, MD</p>
	<p>ADVANCED PRACTICE PROVIDER</p> <p>Using Acceptance and Commitment Therapy (ACT) to Help Cancer Survivors Move Forward After Treatment Melissa Holt, DNP, PMHNP-BC Lisa Kansner, PsyD</p>
	<p>RESEARCH TO PRACTICE</p> <p>Current Concepts in Spinal Oncology Michael Galgano, MD, FAANS</p>

113

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114
