American Society of Clinical Oncology

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Sentinel Lymph Node Biopsy in Early-Stage Breast Cancer

Clinical Oncology Guideline Recommendations

Introduction

- ASCO convened an Expert Panel to develop recommendations for the use of SNB in oncology practice and to determine its suitability in the staging and management of early-stage breast cancer.
- The guidelines characterize the utility of SNB in accurately determining whether axillary metastases are present.
- Guidance in special situations is also offered.

Guideline Methodology

- An ASCO Expert Panel completed a review and analysis of data available through February 2004:

  ✓MEDLINE
  ✓Cochrane Collaboration Library

Guideline Methodology (cont'd): Panel Members

Gary H. Lyman, M. D., M.P.H. *Co-Chair*	Univ. of Rochester School of Medicine and Dentistry
Armando E. Giuliano, M.D., *Co-Chair*	John Wayne Cancer Institute
Al B. Benson III, M.D.	Northwestern University
Diane C. Bodurka, M.D.	UT MD Anderson Cancer Center
Harold J. Burstein, M.D., Ph.D.	Dana-Farber Cancer Institute
Alistair J. Cochran, M.D.	David Geffen School of Medicine at UCLA
Hiram S. Cody III, M.D.	Memorial-Sloan Kettering Cancer Center
Stephen B. Edge, M.D.	Roswell Park Cancer Institute
Sharon Galper, M.D.	Brigham and Women's Hospital
James A. Hayman, M.D.	University of Michigan
Theodore Y. Kim, D.O.	Tufts New England Medical Center
Cheryl L. Perkins, M.D., RPH	The Susan G. Komen Breast Cancer Foundation
Donald A. Podoloff, M.D.	UT MD Anderson Cancer Center
Visaharan Sivasubramaniam, M.D.	University of Kentucky
Roderick R. Turner, M.D.	Saint John's Health Center
Richard Wahl, M.D.	Johns Hopkins University
Donald L. Weaver, M.D.	University of Vermont College of Medicine
Eric P. Winer, M.D.	Dana-Farber Cancer Institute
Antonio C. Wolff, M.D.	Sidney Kimmel Cancer Center at Johns Hopkins

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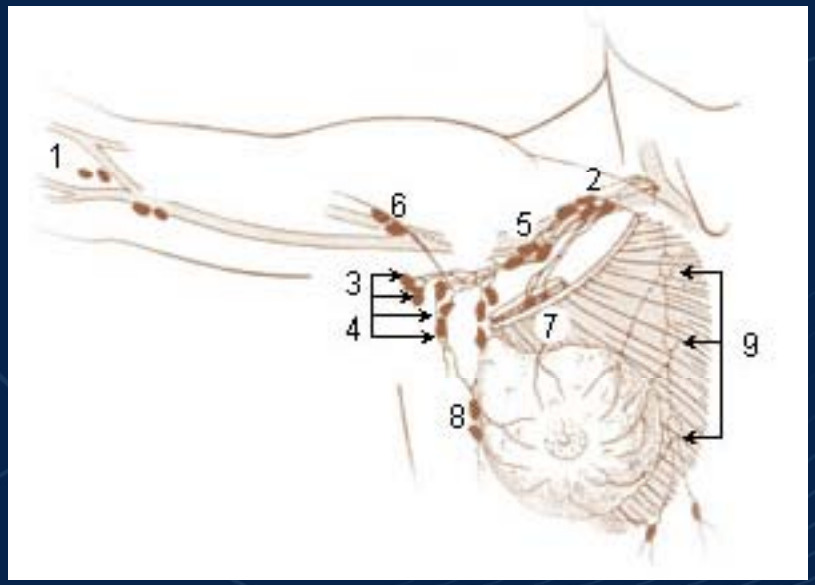
Background

The disease status of the axillary lymph nodes is the **most significant prognostic factor** for patients with early stage breast cancer.

Accurate assessment of Nodes is important for **staging**, **prognosis**, and guiding **treatment** selection.



Background (cont'd)

ALND may result in:

- Lymphedema
- Nerve injury
- Shoulder dysfunction
- Other complications

SNB:

- reduces the risk of lymphedema
- is thought to be associated with fewer complications such as infection (cellulitis) of the chest wall and arm, sensory changes, and lymphedema.

Early studies suggested that SNB could be reliably performed in selected patients with early-stage breast cancer.

Background (cont'd)

SNB is a relatively new procedure with wide variation in reported test performance characteristics.

SNB is widely practiced despite:

- few controlled clinical studies
- a lack of long-term survival data
- little data on other important clinical outcomes

ASCO convened an Expert Panel to develop recommendations for the use of SNB in oncology practice and to determine its suitability in the staging and management of early-stage breast cancer.

Guideline Questions

- Can full ALND be avoided in patients who have negative findings on SNB?
- Is full ALND necessary for all patients with positive findings on SNB?
- What is the role of SNB in special circumstances in clinical practice?
- What factors affect the success of SNB (including low rates of complications and false-negative results)?
- What are the potential benefits and harms associated with SNB?

Can full ALND be avoided in patients with negative findings on SNB?

- *On the basis of the available evidence, the Panel supports the use of SNB for staging disease in most women with clinically negative axillary nodes.*
- *ALND should be done when the SNB procedure fails or is technically unsatisfactory or when clinically suspicious nodes are present in the axilla after all sentinel lymph nodes (SLNs) have been removed.*
- *Suspicious palpable nodes should also be submitted as SLNs, and in this context, the surgeon should have a low threshold for default to ALND.*

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Considerations

- Negative findings in SNB appear to be predictive of negative axillary nodes in nearly all patients.
- The incidence of axillary recurrence after negative findings on SNB is comparable to that following ALND.
- SNB has a comparable false negative rate in the setting of both mastectomy and breast-conserving surgery.

Is full ALND necessary for all patients with positive findings on SNB?

The Panel recommends routine ALND for patients with a positive SLN according to routine histopathologic examination.

The Panel recommends routine ALND for patients with micrometastases (>-0.2≤2 mm) found on SNB, regardless of the method of detection.

Considerations

- Among patients with a positive SLN, 48.3% are found to have additional node disease on ALND.
- Metastasis is found in non-sentinel nodes in about 10% of patients with ITCs in the SLN and in 20%-35% of patients with micrometastases in the SLN.
- IHC evaluation can upstage disease for 10% of patients who have a negative SLN by routine histopathologic exam; relevance of this conversion to a higher stage is unknown at this time.
- It remains unclear whether ITCs or micrometastases detected with H&E staining or special stains represents an adverse prognostic indicator and whether ALND should be carried out in all such cases.

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What is the role of SNB in special circumstances in clinical practice?

- Large and Locally Advanced Invasive Breast Cancers (T3-T4)

  Not recommended. Consider the use of SNB for women with tumors smaller than 5 cm.

- Inflammatory Breast Cancer

  Not recommended. There are also insufficient data to recommend the use of SNB for women with other T4 lesions (skin invasion and/or chest wall invasion).

Special Circumstances (cont'd)

- Multicentric Tumors

  The test performance of SNB suggests that the technique can be applied in this setting.

Special Circumstances (cont'd)

- Ductal Carcinoma In Situ
  - *The Panel recommends considering SNB for patients with DCIS when a mastectomy is indicated or when immediate reconstruction is planned.*
  - *The Panel does not recommend routine use of SNB in breast-conserving surgery.*
  - *Some Panel members recommend SNB for breast-conserving surgery or mastectomy in large or high-grade DCIS, so as to avoid a second operation on the axilla if invasive cancer is found.*

Special Circumstances (cont'd)

- Older Age and Obesity

  Findings that accurate ID of the SLN decreases with increasing age and body mass do not support any contraindication for SNB in these individuals.

- Male Breast Cancer

  It is unlikely that SNB will be any less accurate in men than it is in women, but there are limited data to make categorical recommendations about the use of SNB for men with breast cancer.

Special Circumstances (cont'd)

- Pregnancy

  There are insufficient data at this time to recommend the use of SNB in pregnant women with breast cancer.

- Evaluation of Internal Mammary Lymph Nodes

  There are limited data on the use of SNB to evaluate internal mammary nodes.

Special Circumstances (cont'd)

- Prior Breast or Axillary Surgery

Prior diagnostic or excisional breast biopsy is not a contraindication to SNB.

There are insufficient data at this time to recommend SNB in the setting of prior non-oncologic breast surgery, such as reduction or augmentation mammoplasty or breast reconstruction.

Not recommended: SNB in the setting of prior axillary surgery.

Special Circumstances (cont'd)

- Suspicious Palpable Axillary Lymph Nodes

  Not recommended. If SNB is undertaken in the setting of clinically suspicious nodes, these nodes must be removed regardless of whether they take up dye or radiolabeled colloid.

- Preoperative Systemic Therapy

  Data is insufficient to recommend SNB or to suggest appropriate timing of SNB for patients receiving preoperative systemic chemotherapy.

What factors affect the success of SNB? (including low rates of complications and false-negative findings)

- The strongest predictor of the false negative rate across trials appears to be the proportion of patients for whom mapping is successful.

The Panel strongly supports the Guidelines for Performance of Sentinel Lymphadenectomy for Breast Cancer developed and updated in 2003 by the American Society of Breast Surgeons

http://www.breastsurgeons.org/officialstmts/sentinel.shtml

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What factors affect the success of SNB? (including low rates of complications and false-negative findings) (cont'd)

The Panel recommends that surgeons take a formal course on the technique, with didactic and hands-on training components; have an experienced mentor; keep track of individual results, including proportion of successful mappings, false-negative rates, and complication rates; and maintain follow-up on all patients over time.

Pathologists should be trained and experienced in the detection of the minimal amount of disease that is characteristically found in SLNs.

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What are the potential benefits and harms of SNB?

As with any medical procedure, written informed consent should be obtained from all patients before SNB.

The benefits and harms of the procedure, including the potential for a false-negative result, should be explained to the patient.

What are the potential benefits and harms of SNB? (cont'd)

Written patient education materials should provide accurate information on:

Potential Costs

Contraindications

Risk of complications

Risk of radiation exposure

Lack of long-term survival data

Need for a multidisciplinary team

Follow-up protocols for each procedure

Considerations

- The reported incidence of lymphedema following ALND varies widely and is dependent on many variables.
- SNB reduces but does not completely eliminate the risk of lymphedema; SNB is thought to be associated with fewer complications such as infection (cellulitis) of the chest wall and arm, sensory changes, and lymphedema.
- The patient should be told that there are limited data from controlled clinical trials in which the two procedures are compared.
- It should be explained that outcomes improve with greater experience of the surgeon and pathologist, and referrals to qualified teams should be routinely offered.

Summary

Clinical Circumstance	Use of SNB
T1 or T2 tumors	Acceptable
T3 or T4 tumors	Not recommended
Multicentric tumors	Acceptable
Inflammatory breast cancer	Not recommended
Ductal carcinoma in situ (DCIS) with mastectomy	Acceptable
DCIS without mastectomy	Not recommended except for large DCIS (>5cm) on core biopsy or with suspected or proven microinvasion.
Suspicious, palpable axillary nodes	Not recommended
Older age	Acceptable

Summary (cont'd)

Clinical Circumstance	Use of SNB
Obesity	Acceptable
Male breast cancer	Acceptable
Pregnancy	Not recommended
Evaluation of internal mammary lymph nodes	Acceptable
Prior diagnostic or excisional breast biopsy	Acceptable
Prior axillary surgery	Not recommended
Prior non-oncologic breast surgery (reduction or augmentation mammoplasty, breast reconstruction, etc.)	Not recommended
After preoperative systemic therapy	Not recommended
Before preoperative systemic therapy	Acceptable

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Conclusions

- Once a multidisciplinary team is experienced with the procedure, reasonable levels of accuracy are achieved, with reported identification rates of more than 95%.
- For patients who have a positive SNB and for patients in whom a SLN is not identified intraoperatively, ALND should be considered standard practice until the results of ongoing clinical trials are evaluated.
- Appropriately identified patients, successfully mapped, with a negative SNB do not require a level I or II ALND.
- While the diagnostic accuracy of SNB has beeen demonstrated to the satisfaction of most clinicians, further RCTs are needed to evaluate the therapeutic impact and long-term outcomes associated with the procedure.

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Additional ASCO Resources

- The full text of the 2005 guideline is available at: http://www.jco.org/cgi/reprint/JCO.2005.08.001v1

- A patient guide is available at: http://www.plwc.org/plwc/external_files/SNB_Patient_Guide.pdf

ASCO Guidelines

It is important to realize that many management questions have not been comprehensively addressed in randomized trials and guidelines cannot always account for individual variation among patients. A guideline is not intended to supplant physician judgment with respect to particular patients or special clinical situations and cannot be considered inclusive of all proper methods of care or exclusive of other treatments reasonably directed at obtaining the same results. Accordingly, ASCO considers adherence to this guideline to be voluntary, with the ultimate determination regarding its application to be made by the physician in light of each patient's individual circumstances. In addition, the guideline describes administration of therapies in clinical practice; it cannot be assumed to apply to interventions performed in the context of clinical trials, given that clinical studies are designed to test innovative and novel therapies in a disease and setting for which better therapy is needed. Because guideline development involves a review and synthesis of the latest literature, a practice guideline also serves to identify important questions for further research and those settings in which investigational therapy should be considered.

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