

# Dual-Tracer Sentinel Lymph Node Biopsy May Not Contribute Additional Information to Directed Sentinel Lymph Node Biopsy When Staging the Axilla Following Neoadjuvant Chemotherapy in Breast Cancer

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## Background

Axillary lymph node dissection (ALND) is the standard of care for clinically node positive patients (pts) receiving neoadjuvant chemotherapy (NAC) following a breast cancer diagnosis. The high rate of pathologic complete response prompted investigation of surgical alternatives to ALND to determine axillary response. Standard dual tracer sentinel lymph node biopsy (tr-SLNB), if combined with identification of the biopsy proven and clipped axillary lymph node (LN) is associated with an acceptably low false negative rate. To ensure retrieval of this LN, it is our standard practice to perform a directed sentinel lymph node biopsy (d-SLNB) using an I-125 radioactive seed (RSL) to localize the biopsy proven and clipped LN at the time of surgery. This study attempts to evaluate the relative contributions of tr-SLNB, when combined with d-SLNB, in staging the axilla following NAC.

## Hypothesis

**d-SLNB alone can determine axillary nodal status after neoadjuvant chemotherapy.**

## Methods

- Retrospective review of a prospectively maintained NAC database (2014-2018)
- Pts who had percutaneous biopsy-proven LN metastasis and received NAC were identified
- After NAC, all pts underwent d- and tr-SLNB

## Results

- Of 151 pts undergoing d-SLNB and tr-SLNB, 5 were excluded due to unsuccessful RSL
- Success of dSLNB: 146/151 (97%) cases**

	n = 146
Age; mean (standard deviation)	51 (12)
Histology	
Invasive ductal carcinoma	139 (95%)
Invasive lobular carcinoma	6 (4%)
Metaplastic breast carcinoma	1 (1%)
Phenotype	
Luminal	69 (49%)
HER2 positive	39 (26%)
Triple negative	38 (25%)
Pre-NAC nodal status by imaging	
≤ 3 lymph nodes	120 (79%)
> 3 lymph nodes	26 (17%)
Number of lymph nodes excised	
d-SLNB (mean/median)	1/1
tr-SLNB (mean/median)	3/3

Table 1. Patient and tumor characteristics.

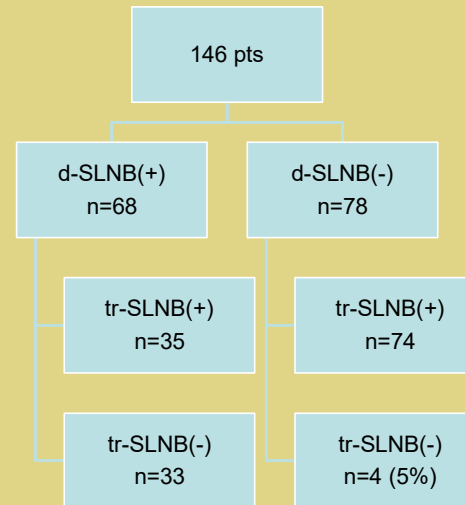


Figure 1. Pathologic status of d- and tr-SLNB.

- 4 pts had a negative d-SLNB and positive tr-SLNB: 3 had completion ALND and 1 was enrolled in clinical trial Alliace Z11202 and randomized to axillary radiation arm.

- In the 4 patients who had a negative d-SLNB, but involvement of tr-SLNB, one had scattered tumor cells in a single node, and had metastatic foci ranging from 0.1-0.8 cm in 2-3 LN on ALND.



**Figure 2.** Representative example of a pre-surgical mammogram confirming placement of radioactive seed within the LN which was pathologically positive and clipped prior to NAC. (Inset shows specimen radiograph of excised LN to confirm excision of clip & radioactive seed.)

**d-SLNB alone accurately characterized the axilla in 142/146 (97%)**

## Conclusions

- Directed sentinel lymph node biopsy (d-SLNB), alone, instead of in combination with tr-SLNB, can provide information on axillary status following NAC.**
- d-SLNB alone may be a reasonable alternative for axillary staging, allowing for decisions to omit or proceed to ALND by pathologic examination of a single lymph node.**
- Further investigation of clinical, and tumor characteristics is warranted to identify patient subsets that may safely omit tr-SLNB and reliably undergo d-SLNB alone.**