

Targeted Axillary Dissection Using Surgical Marker Navigation after Neoadjuvant Chemotherapy - Medical University of Innsbruck, Austria

Egle D, Brunner C, Ritter M, et al. · Breast Cancer Center Tirol · Published January 2025

Study conclusion: This is the first patient series to show that target node identification using surgical marker navigation is feasible and accurate. The 100% identification rate at surgery was achieved in patients with histologically verified axillary lymph node involvement before NACT.



STUDY OVERVIEW

DESIGN	Retrospective consecutive case series
COHORT	20 patients with histologically verified node-positive breast cancer, all undergoing NACT before TAD
SETTING	Medical University of Innsbruck, Austria Apr 2022 – Mar 2023
COMPARATOR	Ultrasound-guided wire localization, current standard for TAD



PINTUITION® VS. WIRE-GUIDED FOR TAD





Outcome / Feature	Pintuition®	Wire-Guided
Target node identification	100% (20/20)	67–90%*
Marker retrieval confirmed	100%	Variable
Marker migration during NACT	None	Documented risk
Placement timing	Any day before surgery	Same-day only
Second procedure required	X None	Yes, pre-op wire
Real-time navigation guidance	√ Visual + audible	X
OR scheduling decoupled	√	X
Marker complications	0	Discomfort + risk
Radiation required	X None	N/A (wire)
Feasible if node ≠ sentinel	√ 100% in 30% cases	High failure risk*

Target Node Identification Rate: Pintuition® vs. Wire-guided Localization

100% identified PINTUITION®	67-90%* identified WIRE-GUIDED
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Wire fails in 10–33% of TAD cases* due to dislocation or inability to locate the target node

WHY PINTUITION® LEADS IN TAD

-  **Single-step marking: biopsy and localization in one visit**
The marker is placed at the time of biopsy, removing the need for a second pre-surgical procedure. Wire placement requires a separate, same-day invasive intervention.
-  **Flexible scheduling: surgery and radiology decoupled**
The marker can be placed any day before surgery with no same-day coordination with radiology required. Wire localization must happen on the day of surgery, which can cause OR delays.
-  **No migration risk: stable through the full course of NACT**
The marker remained in place across all 20 patients through multiple chemotherapy cycles. Standard clips and wires carry a documented migration risk in the period before surgery.
-  **Target node was not the sentinel in 30% of cases**
In 30% of patients the target node differed from the sentinel node, rising to 44% in those with residual disease. Independent marking of the confirmed positive node is essential, as wire guidance is most likely to fail in exactly these cases. The Pintuition® marker for the target node was identified in 100% of cases.

AVOIDING UNNECESSARY AXILLARY CLEARANCE

Reliable identification of the confirmed positive node allows Pintuition® to enable accurate TAD, **reducing morbidity by avoiding unnecessary axillary lymph node dissection** in patients who achieve nodal downstaging after NACT.



PINTUITION® ADVANTAGES FOR TARGETED NODE DISSECTION (TAD) AT A GLANCE

100% node identification

Single-step biopsy + marking

No wire migration

No radiation needed

Reduces ALND morbidity

Flexible pre-op scheduling

Real-time bi-directional feedback GPSDetect®

Clinical Impact

The data highlights the practicality of Pintuition® surgical marker navigation, potentially reducing costs by eliminating the need for a second localization procedure and by decoupling marker placement from the surgical procedure in the operating theater, with the ultimate aim of reducing treatment-related morbidity by avoiding unnecessary axillary lymph node dissection.