

CLINICAL UTILITY AND RESOURCE IMPLICATIONS OF ROUTINE SENTINEL LYMPH NODES FROZEN SECTION FOLLOWING NEOADJUVANT CHEMOTHERAPY IN BREAST CANCER PATIENTS

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OBJECTIVES

Intraoperative frozen section (FS) of sentinel lymph nodes (SLNs) enables immediate axillary lymph node dissection (ALND) when metastases are detected.

- Increasing nodal pathological complete response rates after neoadjuvant chemotherapy (NACT) and evolving axillary de-escalation strategies have questioned routine FS.
- Although FS has high diagnostic accuracy after NACT, few positive results alter management, raising concerns regarding its routine use and resource utilization.

METHODS

- Study Design:** Retrospective audit at SKMCH&RC, Peshawar.

Population: 130 consecutive breast cancer patients undergoing Sentinel Lymph Node biopsy after neoadjuvant chemotherapy (NACT).

- Study period:** 1 January 2025–31 August 2026.
- Diagnostic accuracy:** Intraoperative frozen section (FS) was compared with final histopathology to calculate sensitivity, specificity, Positive Predictive Value PPV and Negative Predictive Value NPV.
- Clinical utility:** Assessed by determining the frequency with which Frozen Section changed immediate surgical management.

RESULTS

- Mean age:** 39.4 ± 7.7 years.
- Histology:** Invasive ductal carcinoma—Grade 3 (51%) and Grade 2 (49%).
- Clinical T stage:** T1 (9%), T2 (80%), T3 (5%), T4 (5%), Tx (1%).
- Nodal status:** Clinically node-negative (79%); pathological node negative (21%).
- Molecular subtypes:** Triple-negative (56%), HER2-positive (20%), Luminal A (24%).
- Mean SLNs retrieved:** 2.2.
- FS findings:** Nodal metastases detected in **7 patients (5.3%)**, all confirmed on final histopathology.

- Management:** All **7 patients** underwent immediate **ALND**.

- Diagnostic performance:** No false-positive/false-negative cases; **100%** sensitivity, specificity, PPV, NPV, and accuracy.

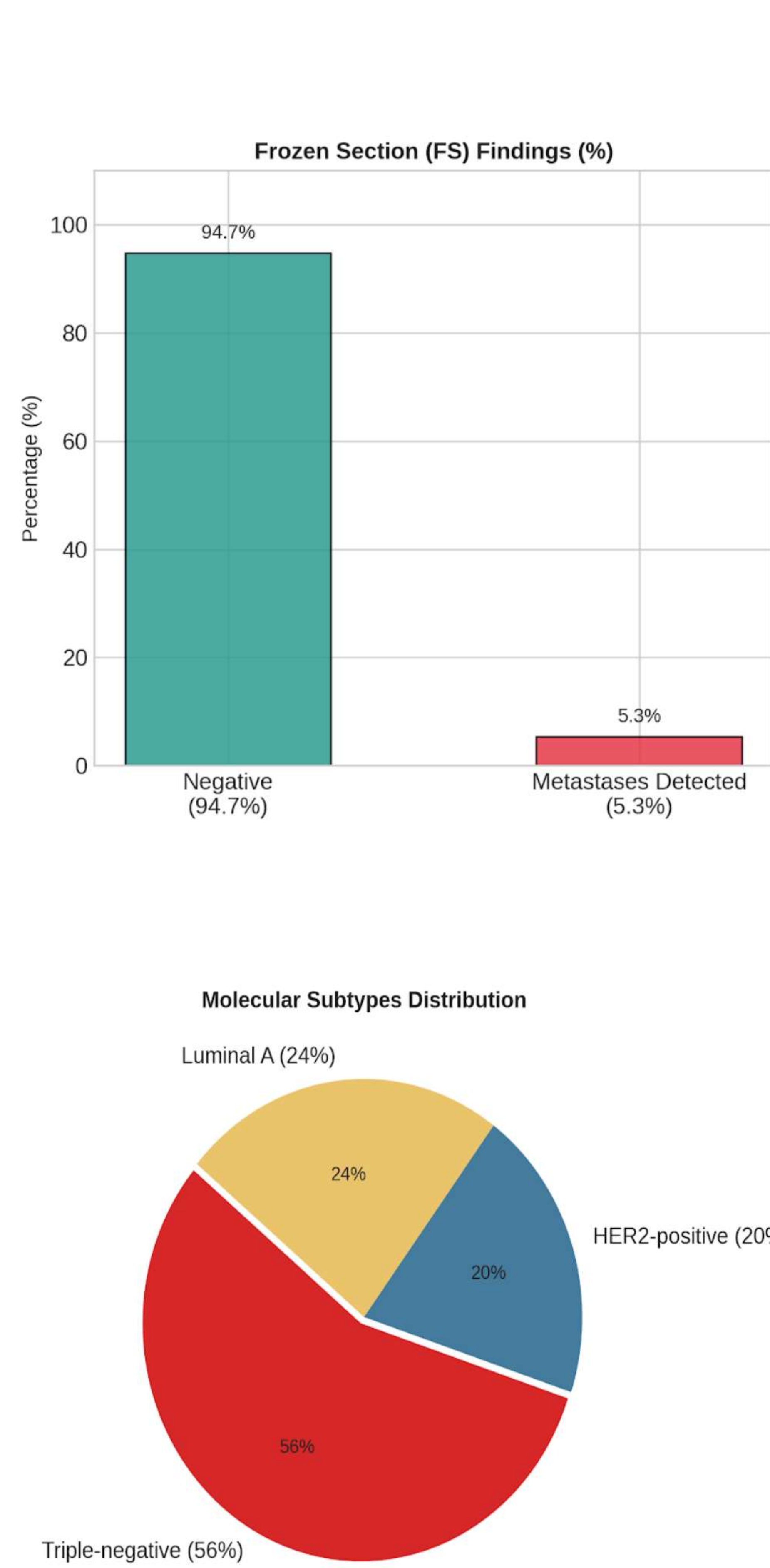
- Clinical utility:** FS altered management in only **5.3%** of patients.

- Efficiency:** **18.5 FS** procedures were required to identify **one** patient needing immediate ALND.

- Concordance:** 100% agreement between FS and final histopathology for detected nodal metastases.

- Key finding:** Despite excellent diagnostic accuracy, FS rarely changed intraoperative management.

RESULTS



CONCLUSION

- Excellent diagnostic accuracy:** 100% concordance between SLN frozen section and final histopathology.
- Low clinical yield:** FS altered intraoperative management in only 5.3% of patients.
- 94.7%** underwent FS without any change in operative management. Routine FS requires additional theatre, anaesthetic, and pathology resources.
- Selective rather than routine FS** may improve resource utilization and prospective cost-effectiveness studies are warranted.