



INTRAOPERATORY ASSESSMENT OF SENTINEL NODE IN BREAST CANCER PERFORMING ONE STEP NUCLEIC ACID AMPLIFICATION (OSNA) ASSAY ON THE WHOLE LYMPH NODE

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Goals

An accurate intraoperative sentinel node (SN) assessment could improve surgical management of breast cancer patients. Several studies suggest that molecular tests may be more sensitive than current intraoperative tests. However, the use of alternate sections for molecular and morphological diagnosis may generate discrepancies in the results of the two procedures. The aim of this study was to evaluate the reliability of OSNA Assay performed using the whole lymph node for intraoperative diagnosis.

Methods

106 SN from 90 breast cancer patients were analyzed. OSNA eligibility was limited to patients with primary tumors positive for CK19 on pre-operative biopsies or fine needle aspiration. SN was sliced at 2 mm and imprint cytology was performed on two slides (Figure 1).

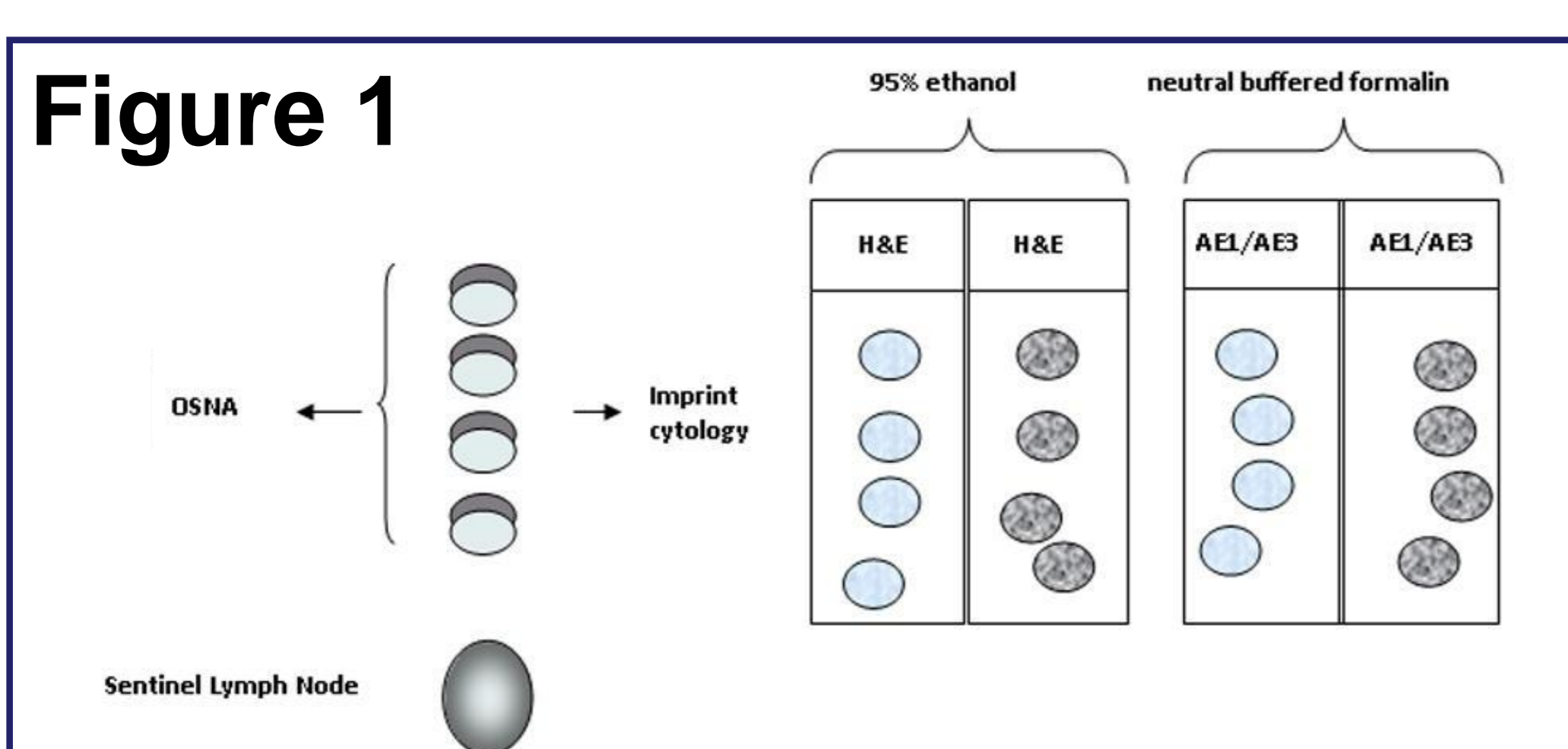


Figure 1: Preparation of the SN for evaluation by OSNA. After imprint cytology the whole SN was analyzed by OSNA.

Methods

One was stained with rapid H&E and the other was tested by rapid immunocytochemistry with anticytokeratin AE1/AE3 antibody. The whole SN was then analyzed by OSNA Assay. The concordance between OSNA results and the imprint cytology was calculated. Cases with discordant results were re-evaluated on backup material by quantitative real time-PCR for markers of metastases. Primary tumor variables were collected for each patient. Finally we compared OSNA results with those obtained in a series of 169 SN examined with traditional histology during the same period.

Results

OSNA results were negative in 61 patients and positive in 29 (18 with micrometastasis and 11 with macrometastasis). The concordance between imprint cytology was of 0.51K (Table 1).

Table 1.

OSNA Assay	Imprint Cytology (H&E/ICC)		
	Positive (%)	Negative (%)	Total
Macromts	9 (82)	2 (18)	11
Micromts	4 (22)	14 (78)	18
Negative	0	61 (100)	61
Total	13 (14)	77 (86)	90

K 0.51

Table 1. Correlation between OSNA assay results and cytological imprint diagnosis of 131 SLN examined.

Results

All of the negative cases were negative with imprint cytology. However touch imprint cytology failed to show metastatic involvement in 55% of positive OSNA Assay. The real time-PCR performed on the backup material confirmed the results obtained by OSNA. OSNA results showed a good correlation with the presence of vascular invasion and a high proliferation index of the primary breast tumors. Moreover the rate of metastases in non-SN of the axilla after a diagnosis of metastases in SN was similar comparing OSNA results with those obtained by examining SN with traditional histology (Table 2).

Macrometastasi	OSNA	TRADITIONAL METHODS
Rate of metastases in non-SN of the axilla	45%	48%
Vascular invasion	82%	64%

Micrometastasi	OSNA	TRADITIONAL METHODS
Rate of metastases in non-SN of the axilla	25%	22.2%
Vascular invasion	39%	38%

Table 2. Rate of metastases in non-SN of the axilla after a diagnosis of macro or micrometastases in SN

Conclusions

Our results confirm that the whole SN examination by OSNA may be applied as a reliable test in the intraoperative diagnosis of SN.