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## Evaluating and Designing a Grading System for Axillary Lymph Node Involvement in Breast Cancer Patients by Ultrasonography

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## Abstract

**Background:** Ultrasound is being increasingly used as a preoperative tool to evaluate axilla. We conducted this study to assess the accuracy of different morphological views of axillary ultrasound and breast mass to evaluate the efficacy of ultrasound to detect lymph node involvement in patients with clinically negative axillary node.

**Method:** In this retrospective study, 290 patients with clinically negative axilla underwent preoperative axillary ultrasound. The suspicious nodes were evaluated and details of various descriptors were noted. These nodes were sampled during axillary sentinel node biopsy or dissection, and the correlation of ultrasonographic findings with histopathological report was investigated to calculate the accuracy of different descriptors. Accordingly, a grading system of axillary lymph nodes involvement was formulated.

**Results:** Mean age of the patients was 47.61 + 10.99 (ranging 21-80 years). A total number of 211 (82.4%) patients had metastatic lymph node. There was no significant difference between age and pathology results (P = 0.884). Due to the presence of various descriptors, the most accurate descriptors to indicate nodal involvement were: tumor size , mean diameter of lymph node  $\geq 9.35$  mm, cortical thickness  $\geq 3$ mm, asymmetrical thickness of cortex and loss of hilar fat (P < 0.050).

**Conclusions:** Grading of nodal involvement on axillary ultrasonography can be useful for diagnosing patients with lymph node metastases, allowing these patients to proceed directly to ALND, avoiding unnecessary SLN biopsy.

Keywords: Axillary lymph node, Ultrasonography, SLN biopsy

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