Diagnostic Accuracy of Axillary Ultrasound for Detecting Nodal Metastasis in Clinically Node-Negative Breast Cancer: Correlation with Final Histopathology

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OBJECTIVE

- Axillary ultrasound (AUS) is routinely used to evaluate nodal involvement.
- However, its ability to exclude occult nodal metastasis in clinically node-negative patients remains uncertain.
- To evaluate the frequency of nodal metastasis detected on sentinel lymph node biopsy (SLNB) among patients with benign preoperative AUS findings.

METHODS

- A retrospective review of **72 patients** who underwent upfront surgery with SLNB was performed.
- **Inclusion criteria:** clinically node-negative, curative intent, early breast cancer, pre-chemotherapy disease.
- **Primary outcome** was the occult nodal metastasis rate, defined as the proportion of patients with benign AUS findings who were subsequently found to have metastatic nodal disease on final pathology.

RESULTS

72 unique patients with benign preoperative AUS

21 patients (29.2%) with nodal metastasis on SLNB

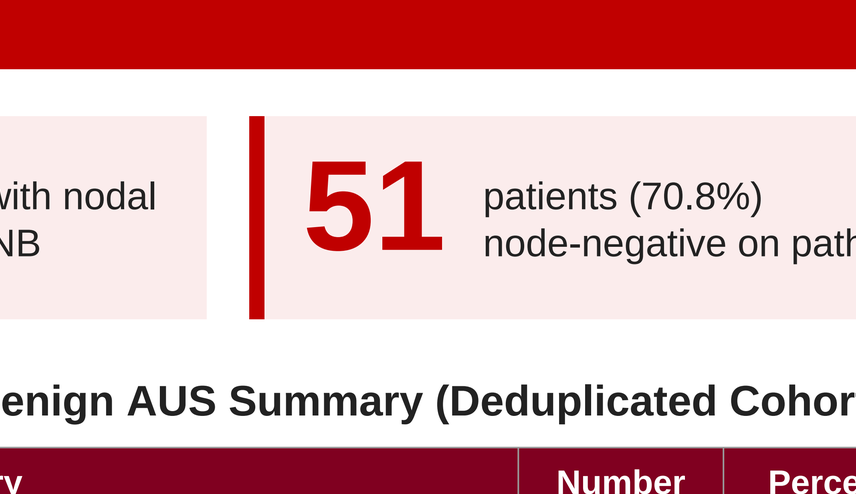
51 patients (70.8%) node-negative on pathology

- A total of **72 unique patients** with benign preoperative axillary ultrasound findings were included.
- Sentinel lymph node biopsy identified nodal metastases in **21 patients (29.2%)**.
- **51 patients (70.8%)** had node-negative pathology.
- Thus, nearly one-third of patients with benign sonographic findings harbored occult nodal metastases despite the absence of suspicious radiological features.
- The negative predictive value of benign AUS for excluding nodal metastasis was **70.8%**.

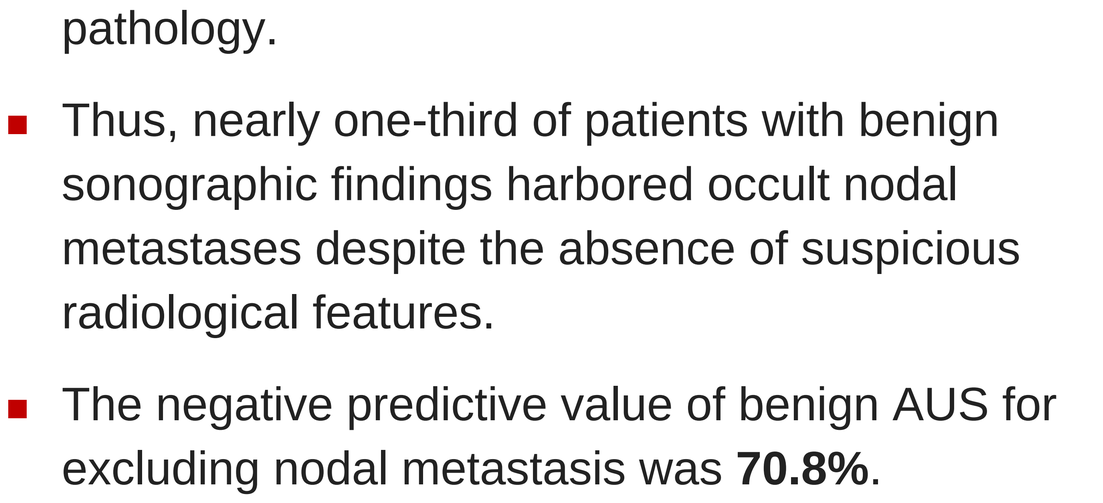
Benign AUS Summary (Deduplicated Cohort)

Category	Number	Percentage
Total benign ultrasound patients	72	100.0%
True negatives (node-negative SLNB)	51	70.8%
False negatives (node-positive SLNB)	21	29.2%

False-Negative vs True-Negative AUS



ULTRASOUND IMAGE



Axillary ultrasound image showing a lymph node.

CONCLUSION

- Benign axillary ultrasound demonstrated **limited ability to exclude nodal metastasis** in clinically node-negative breast cancer.
- Our findings highlight the limitations of ultrasound as a stand-alone staging modality and support the continued role of sentinel lymph node biopsy for accurate axillary staging in clinically node-negative breast cancer.