

**TITLE OF THE ABSTRACT:** Role of Ultrasound Acoustic Radiation Force Impulse in Differentiating Benign from Malignant Palpable Lymph Nodes

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**OBJECTIVES:**

The purpose of this study was to evaluate the diagnostic performance of acoustic radiation force impulse imaging in differentiating benign from malignant peripheral lymphadenopathy.

**METHODS:**

This was a prospective study approved by the Institutional Review Board with financial grant for the same. Ultrasound and ARFI imaging of peripheral lymph nodes were performed and correlated with pathological results, which were used as the reference standard. The virtual touch tissue imaging and virtual touch tissue quantification parameters of ARFI were analysed in 86 lymph nodes of which 78 were included in the study. Using receiver operating characteristic curve analysis, the diagnostic usefulness of ARFI values were evaluated with respect to their sensitivity, specificity, and area under the curve.

**RESULTS:**

The mean area ratio of benign lymph nodes was 0.88 ( $\pm 0.2$ ) and that of malignant lymph nodes was 1.17 ( $\pm 0.14$ ). The mean shear wave velocities (SWV) of benign and malignant lymph nodes were 2.02 m/s ( $\pm 0.94$ ) and 3.7 m/s ( $\pm 2.27$ ) respectively. The sensitivity, specificity, PPV, NPV & AUC of VTI area ratio was 97%, 77%, 77% 97% & 0.86, of SWV lymph node was 71%, 70%, 66%, 75% & 0.78, and of SWV ratio was 68%, 79%, 72%, 75% and 0.82, respectively. ARFI was found to have a superior diagnostic performance over conventional ultrasound and colour Doppler in the characterization of lymph nodes.

**KEYWORDS:** ARFI, acoustic radiation force impulse, ultrasound, elastography, lymph node.