

**Preoperative imaging assessment of papillary thyroid carcinoma: in comparison with US, CT and US navigation**

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The purpose of this study was to validate the diagnostic accuracy of US navigation in preoperative US in thyroid papillary cancer patients in comparison with pre-operative ultrasound (US) and neck CT. Age, sex, tumor number and size, tumor multiplicity, extrathyroidal extension, central LNM and lateral LNM and other associated thyroid pathology were each evaluated in consecutive patients that subsequently underwent surgery for papillary thyroid cancer. The diagnostic accuracy of pre-operative ultrasound and neck CT in evaluation of each factor were evaluated. Larger than 5 mm in short transverse diameter, round shape, and loss of hilum was used as an indicator of LN metastasis in the pre-operative US, neck CT, and US navigation with CT.

Pre-op US showed 42.4% sensitivity with 83.30% specificity for central and 85.7% sensitivity with 93.4% specificity for lateral neck metastasis. Neck CT showed 31.3% sensitivity with specificity of 87.3% for central and 78.6% sensitivity with 95.7% specificity for lateral neck metastasis.

US navigation with CT revealed 33.3% sensitivity with specificity of 85.3% for central, 85.7% sensitivity with 95.7% specificity for lateral neck metastasis, 32.5% sensitivity with 96.3% specificity for tumor multiplicity, 81.8% sensitivity with 67.9% specificity for extrathyroidal extension of tumor, and 13.8% sensitivity with 100% specificity for other associated thyroid pathology.

When performing pre-op assessment US navigation with CT can increase the diagnostic accuracy in lateral neck LN metastasis, tumor multiplicity, and other associated thyroid pathology slightly.