

Vascular pattern and spectral parameters of power Doppler ultrasound as predictors of malignancy risk in thyroid nodules

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Abstract

Determination whether spectral Doppler ultrasound parameters, including resistance index (RI) and pulsatility index (PI), or vascular pattern can be used to distinguish malignant from benign thyroid nodules. **Materials and Methods:** We prospectively examined 120 thyroid nodules in patients undergoing surgery. The flow pattern seen via power Doppler examination was ranked for each nodule on a scale of 0 to 4 as follows: absent, perinodular alone, mixed with perinodular prominency, mixed with intranodular prominency, and exclusively intranodular, respectively. For each nodule, the RI and PI values were recorded as the average of the recordings obtained. Pathological examination were used as a proof of final diagnosis to categorize all nodules as benign or malignant. **Results:** The malignant nodules had a mean RI of 0.72 ± 0.13 . These values were significantly higher than those associated with benign nodules (0.60 ± 0.08) ($P=0.000$). Malignant nodules had a mean PI of 1.10 ± 0.33 that were also significantly different from those associated with benign nodules (0.91 ± 0.19) ($P=0.000$). Shifting to intranodular vascularization had a significant correlation with malignancy ($P=0.001$). **Conclusion:** Spectral parameter and vascular pattern are useful to distinguish malignant from benign thyroid nodules, especially for those with suspicious or undetermined fine-needle aspiration biopsy. © 2008 The American Laryngological, Rhinological and Otological Society, Inc.

Reaxys Database Information

Author keywords

PI; Power doppler US; RI; Thyroid nodule

Indexed Keywords

EMTREE medical terms: adult; article; differential diagnosis; Doppler echography; echography; female; human; image processing; male; middle aged; neovascularization (pathology); nodular goiter; pathology; physiology; prospective study; pulsatile flow; sensitivity and specificity; thyroid gland; thyroid nodule; thyroid tumor; vascular resistance; vascularization; aspiration biopsy; benign tumor; disease classification; Doppler flowmetry; flow measurement; histopathology; human tissue; major clinical study; malignant neoplastic disease; prediction; priority journal; rating scale; risk assessment; surgical patient; tumor blood flow; tumor vascularization

MeSH: Adult; Diagnosis, Differential; Female; Goiter, Nodular; Humans; Image Processing, Computer-Assisted; Male; Middle Aged; Neovascularization, Pathologic; Prospective Studies; Pulsatile Flow; Sensitivity and Specificity;