Relationship between Ultrasonographic Echogenecity and Intratumoral Fibrosis and Tumor Growth Pattern in Papillary Thyroid Carcinoma

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INTRODUCTION

Objectives
Ultrasonography (USG) is a most powerful tool for evaluation of papillary thyroid cancer (PTC). Preoperative USG characteristics correlated with several prognostic factors for PTC. Tumor fibrosis is known to be an important histologic prognostic features in head and neck cancer. However, there is a lack of studies for tumor fibrosis in PTC. This study aimed to evaluate the relationship between ultrasonographic finding and intratumoral fibrosis and growth pattern in PTC.

Materials and Methods
In all, 170 fresh cases with PTC patients underwent total thyroidectomy with central neck dissection (CND). Lateral neck dissection was performed in case of lateral neck metastasis. Retrospective analysis for USG finding such as echogenicity and pathologic characteristics including intratumoral fibrosis and tumor growth pattern were conducted.

Results
Ninety (53%) patients had USG finding with marked hypoechogenecity. According to histologic characteristics, group with marked hypoechogenecity had more tumour fibrosis and more invasive growth pattern than the group with iso- or hypechoegnecity. There was no significant difference in age, sex, tumor size, extrathyroidal extension, and presence of central or lateral neck metastasis between the two groups. In univariate and multiple regression analysis, tumor fibrosis and growth pattern were significantly associated with USG echogenicity.

Conclusions
These findings suggest that intratumoral fibrosis and tumor growth pattern are important determinants of preoperative ultrasonographic echogenicity in PTC.

METHODS AND MATERIALS

- Total thyroidectomy with Central ND with/without Lateral ND
- Fresh case
- From March, 2007 through March, 2009
- Retrospective analysis
  - Clinical & demographic finding
  - Pathologic slide review by pathologist with H&N speciality
  - USG finding review by experienced endocrinologist
- Inclusion criteria
  - T1 PTC
- 170 patients

- Demographic data
  - Male : 23, female : 147
  - Mean age : 50.2 years old (range 23-80)
  - Tumor size : 7.4 mm (range 2-20 mm)

- Clinical characteristics
  - Age / Gender
  - Tumor size
  - ETE
  - Central (N1a) or Lateral Neck Metastasis (N1b)

- Pathology
  - Intratumoral fibrosis
  - Tumor growth pattern

- USG
  - Echogenicity

- Statistical Analysis
  - Multiple linear regression analysis for parameters
  - Uni- / Multivariate logistic analysis for echogenicity

DISCUSSION

- Correlation
  - ETE : Gender / Tumor size / Tumor growth pattern
  - N1a : Tumor size / Echogenecity
  - N1b : Gender / Tumor size / Tumor growth pattern / N1a
  - Echogenecity : Tumor growth pattern / Tumor fibrosis

- PTC with marked hypoechogenecity have more
  - increased Tumor fibrosis
  - infiltrative Tumor growth pattern
  - than that with iso- or hypechoegnecity

- Histopathologic characteristics of PTC such as tumor fibrosis & tumor growth pattern can be determinant factors of preoperative USG echogenicity

- Marked hypoechogenecity
  - Extrathyroid extension
  - Central lymph node metastasis

- USG echogenicity is a preoperative predictive factor for tumor stage in PTC

- USG echogenicity is characterized by tumor fibrosis and growth pattern

- These results suggest that tumor fibrosis and growth pattern can be a negative prognostic factor of PTC

CONCLUSIONS

In PTC...

REFERENCES