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Cytopathologic correlation of indeterminate or atypical cells in fine-needle aspiration cytology of thyroid

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Fine-needle aspiration cytology (FNAC) is a simple, accurate, fast as well as economic diagnostic tool of thyroid nodules; therefore FNAC is used routinely as the first step in evaluating thyroid nodules. Although FNAC is highly sensitive and specific method, between 10-30% of the FNAC of thyroid nodules are diagnosed as 'indeterminate' or 'atypical', and this may cause unnecessary surgical intervention to patients. In this study, we retrospectively reviewed the results of 100 FNAC cases of thyroid, which were confirmed histologically during August 2004 to June 2006, and correlated the cytopathologic features with histologic diagnoses in 'indeterminate' or 'atypical' group.

Among 100 FNAC cases of thyroid, 17 cased were benign, 20 were indeterminate or atypical, 61 were papillary carcinomas, and 2 were follicular neoplasms. The overall accuracy of cytologic diagnosis was 76%. In indeterminate or atypical group of FNAC (n=20), histologic diagnosis showed 2 cases (10%) of adenomatous goiters, 2 cases (10%) of Hashimoto's thyroiditis, 13 cases (65%) of papillary carcinomas, 1 case (5%) of follicular adenoma, and 2 cases (10%) of follicular carcinomas. The all cases of indeterminate or atypical group exhibited nuclear grooves, and about half of the cases were partially suboptimal specimens including scanty cellularity and/or drying artifacts. The most valuable cytopathologic features for differential diagnosis of papillary carcinoma in indeterminate or atypical group were intranuclear inclusions and moderate to marked nuclear size variation. Papillary microarchitecture and psammoma body were identified only in one case respectively, but they were considered as helpful diagnostic features.

In conclusive, papillary carcinomas have a majority of indeterminate or atypical group. The adequate sampling and preparation of FNAC specimen is important to reduce indeterminate or atypical group, and close observation for identifying intranuclear grooves or papillary microarchitectures are needed to differential diagnosis of papillary carcinoma