The Bethesda System for Reporting Thyroid Cytopathology (TBSRTC) – A 8-year Single Tertiary Center Experience in Thailand

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**Background:** Fine-needle aspiration (FNA) of the thyroid is considered to be the best diagnostic tool for preoperative evaluation of thyroid nodules. The introduction of The Bethesda System for Reporting Thyroid Cytopathology (TBSRTC) in 2010 can provide the opportunity to establish worldwide standard reporting and terminology guideline diagnostic category. It is recommended that each institution should evaluate the risk of malignancy (ROM) in each category for quality improvement process.

**Objective:** To assess the effectiveness of TBSRTC method at our institution in Bangkok by cyto-histological correlation.

**Methods:** A retrospective 8-year (2010-2017) audit of thyroid FNA which were done by practicing thyroid specialists at Theptarin Hospital, a specialized endocrine center in Bangkok, was performed. The FNA results were classified according to TBSRTC. Histopathology reports for operated cases were used to correlate cytology and final histopathology.

**Results:** A total of 2,735 thyroid FNAs from 2,115 patients (mean age 45.7±13.1 years, female 89.8%) were examined. The rate of non-diagnostic, benign, atypia of undetermined significance (AUS), follicular neoplasm, suspected for malignancy, and malignant cases was 21.1%, 66.6%, 4.7%, 2.4%, 1.8%, and 3.3%, respectively. A number of 195 patients (9.2%) underwent surgical resection with available histopathology. Malignancy rate in operated thyroid nodules was 20.0%, 4.2%, 9.4%, 23.5%, 57.1%, and 90.3% for categories 1 to 6, respectively. Of the operated patients, 2 (1.0%) had a false-negative diagnosis (both cases with benign FNA results but turning out to be follicular carcinoma at the time of operation), while 6 (3.1%) had a false-positive diagnosis. The sensitivity, specificity, negative predictive value, and positive predictive value were 96.6%, 88.5%, 95.8%, and 90.3, respectively.

**Conclusion:** Preoperative diagnosis of thyroid nodules using TBSRTC in our hospital is comparable with other studies. However, referrals for surgery are less frequent than expected. There are relatively low rates of risk of malignancy in AUS and follicular neoplasm category. The uniform diagnostic criteria of the Bethesda System help to avoid misinterpretation, while sharing local experience with international benchmarks. All centers which practice thyroid FNAs should periodically audit the correlation between cytology and final histopathology in order to improve the accuracy of FNA and the communication between physician specialists.

**Keywords:** Bethesda, FNA, Thyroid