

## **Aspiration biopsy of the thyroid - the significance of evaluation according to Bethesda classification, differentiated carcinoma incidence in autoimmune thyroiditis.**

### **Introduction:**

Improved diagnostics led to an increased number of detected thyroid nodules. Sonography and fine needle thyroid biopsy has become the basic method for thyroid nodules evaluation. Since 2010 the Bethesda System for Reporting Thyroid Cytopathology is used in some centres. Another common thyroid disease is autoimmune thyroiditis. According to some older studies a nodule in a patient with thyroiditis has a higher risk of malignancy. Current opinions dispute these findings. The difference in data appears to depend primarily on whether cytological or surgical findings are analysed.

### **Objective:**

The aim of our study was to reclassify thyroid biopsy results according to the Bethesda categories in patients who underwent thyroidectomy and to determine the malignant potential of the individual categories. We then determined in equivocal cytological findings whether the recommendations for surgery, the type of cytologic atypia and the results of repeated biopsies had an impact on the incidence of malignant findings. Another objective was to identify how autoimmune thyroiditis affects the risk of thyroid cancer, particularly by comparing cytological and histological findings, as well as the presence of antibodies and thyreotropin (TSH) levels.

### **Patients and methods:**

The first part of the study involved 1.310 cytological findings from patients who subsequently underwent thyroidectomy. The findings were retrospectively classified according to the Bethesda system. In the second part, the cohort was expanded to over 6.411 cytological findings and the nodules of non-operated patients were included in the evaluation. The autoimmune thyroiditis diagnosis was confirmed by the presence of at least 2 of 3 criteria: positive antibodies, typical sonography and higher than normal TSH value. TSH was designated as low at a level of less than 0.4 mIU/L and normal at higher levels.

### **Results:**

After reclassification, the results in the individual categories differed slightly from the recommendations. For borderline results, when surgery was recommended by the pathologist, there was higher probability of neoplasia (follicular adenomas and carcinomas) but not malignancy. Nuclear atypia was associated with a higher incidence of malignancy, architectural atypia with a higher incidence of adenomas. Repeat biopsies rather than immediate intervention spared half of the patients in the borderline category from surgery. In patients with thyroiditis a higher incidence of thyroid cancer was detected in the cytological but not the histological findings. Low levels of TSH and the presence of antibodies did not decrease the risk of malignancy.

### **Conclusion:**

The Bethesda classification would not improve the diagnosis of malignancy in our centre, compared to the original system. In our cohort the presence of autoimmune thyroiditis was not found to be a risk factor for thyroid cancer.

**Key words :** Thyroid nodule, Bethesda classification, thyroid carcinoma, autoimmune thyroiditis