

Quantitative study of lymphocytic infiltration of the thyroid gland in the presence or absence of cancer

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Lymphocytic infiltration is a common finding of thyroid biopsy specimens. First of all L. Woolner and his associates in 1959 [1] described this infiltration, in a study of 360 thyroid biopsies performed in the absence of cancer, as a chronic lymphocytic thyroiditis and upgraded it as focal, mild and severe.

Chronic lymphocytic thyroiditis is also a common feature of thyroid biopsies performed in the presence of cancer, but no clarification has been made about preceding or following coexisting malignancy. Immunological response in cases of carcinoma [2] or development of carcinoma from degenerate epithelial cells in cases where lymphocytic infiltration precedes cancer [3] could explain this coexistence. No strong evidence has been found to support the above theories. Up to date the lymphocytic infiltration value is subjective and it depends on the pathologist examining the thyroid biopsy, and this is a fact. We can rule out severe follicular thyroiditis and Hashimoto's disease – of course – where lymphocytic infiltration is so intense that no false evaluation is possible.

Our aim was to evaluate the percentage of lymphocytic infiltration in various pathological conditions of the thyroid gland, and compare the amount of lymphocytic infiltration in neoplastic and non-neoplastic conditions. Our study was based on the quantitative method of analysis of tissues (morphometry) performed by Chalkley [5]. The material examined included 101 cases of thyroidectomy which were classified in ten groups according to their histological features. It appears from the analysis of our results that there is a statistically significant difference in the percentage of lymphocytic infiltration in the cases of carcinoma in comparison with the colloid goiter group and the adenoma group. Based on the percentage of replacement of thyroid tissue by lymphoid tissue, lymphocytic infiltration could be classified into three categories. In categories A and B there is a replacement of thyroid tissue ranging from 0 - 1%, respectively. In category C which includes Hashimoto's and lymphocytic thyroiditis the percentage of replacement of thyroid tissue is over 5%. The great difference in percentages observed between categories B and C is in contradiction with the gradual transition from mild to severe lymphocytic infiltration. From the above we could presume that immunological mechanisms "participate" in the pathogenesis of category C only, taking into account that the lymphocytic infiltration is the response to the presence of a primary lesion. The – constantly found – lymphocytic infiltration values in thyroid carcinoma are significantly lower than the ones found in category C and it seems, as proposed by some authors, that the development of carcinoma from degenerate epithelial cells is a rather remote possibility. The opposite, i.e. the activation of an immunological mechanism and subsequent lymphocytic infiltration following the degeneration and necrosis of epithelial cells in cases of carcinoma, appears more probable. It could also be presumed that the two conditions are merely coexistent and not pathogenetically related.

References

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