ABSTRACT

BACKGROUND:

The advent of ancillary test like immunohistochemistry is becoming very useful in discriminating benign from malignant thyroid neoplasms. Galectin-3 is a marker implicated in the regulation of cellular proliferation, apoptosis, malignant transformation and metastasis of tumor cells. CD56 is expressed in normal thyroid follicular cells and its absence of expression is found to be associated with malignancy.

AIMS:

To study the immunohistochemical expression of Galectin-3 and CD56 in thyroid neoplasms and to evaluate the usefulness of combining these immunohistochemical markers in differentiating malignant from benign thyroid tumors.

MATERIALS AND METHODS:

In this prospective study, we evaluated the expression of two immunohistochemical markers - Galectin-3 and CD56 in 30 cases of thyroid neoplasms. The benign neoplasms included follicular adenoma (n=7) and Hurthle cell adenoma (n=1). The malignant neoplasms included papillary thyroid carcinoma (classical type) (n=14), papillary carcinoma-follicular variant (n=4) and follicular carcinoma (n=4).

RESULTS:

In this study, there was 100% diffuse and strong positive expression of Galectin-3 in all the 14 cases of papillary carcinoma (classical type), favouring it to be a marker for detection of papillary carcinoma. Among the 4 cases of follicular variant of papillary carcinoma, 3 cases (75%) showed galectin-3
positivity. Absence of CD56 membrane staining was noted in 13 out of the 14 cases (92.9%) of papillary carcinoma (classical type) and also 3 out of 4 cases (75%) of follicular variant of papillary carcinoma and 2 out of 4 cases of follicular carcinoma showed negative CD56 expression.

Galectin-3 in our study showed 100% negativity in follicular adenoma (7 out of 7 cases). All the benign cases (7 cases of follicular adenoma and 1 case of Hurthle cell adenoma) (100%) showed positive staining with CD56, supporting it to be a marker for benignity.

CONCLUSION:

Galectin-3 is found to be a good marker of malignancy, especially in the diagnosis of papillary thyroid carcinoma. CD56 is considered a good negative diagnostic marker for papillary thyroid carcinoma. CD56 is found to be a better marker to indicate the benign nature of the tumor. Absence of CD56 expression is useful for differentiating follicular variant of papillary carcinoma from benign follicular thyroid lesion like follicular adenoma. This combined panel of markers - galectin-3 and CD56 was very useful in discriminating malignant from benign thyroid neoplasms, especially, in tumors with equivocal morphological features like follicular variant of papillary carcinoma from follicular adenoma.

Keywords: Thyroid neoplasms, papillary carcinoma, papillary carcinoma-follicular variant, follicular adenoma, immunohistochemistry, Galectin-3, CD56.