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## The validity of immunocytochemistry in differentiating between benign and malignant thyroid neoplasms pre-operatively

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**Preface:** FNAC is the most commonly used diagnostic modality for the pre-operative assessment of thyroid neoplasms. However, FNAC, when used alone, has its own pitfalls including the inability to differentiate between benign and malignant follicular neoplasms, difficulty in identifying a follicular variant of papillary carcinoma etc. This study addresses the issue of whether preferential overexpression of galectin-3 in thyroid malignancies can serve to make a presurgical diagnosis between benign and malignant thyroid neoplasms on FNAC. The other marker used was TTF-1, to identify the thyroid origin of the neoplastic cells.

**Objective:** To estimate the sensitivity, specificity and predictive values of galectin-3 and TTF-1 in detecting malignant neoplasms of the thyroid on FNA smears.

**Study Sample:** FNA smears of solitary thyroid nodules taken at the Cytopathology division in the Department of Pathology, Aster MIMS hospital Calicut a tertiary health care system were analyzed from June 2016 to July 2017.

**Study Method:** Immunocytochemistry was performed with galectin-3 and TTF-1 on fresh FNA smears by the standard protocol. Positive staining for galectin-3 was considered when any single epithelial cell showed cytoplasmic or nucleocytoplasmic immunostaining. Positive staining for TTF-1 was considered when any single epithelial cell showed nuclear immunostaining. Postoperative histological diagnosis represented the gold-standard.

**Results:** Out of the total 39 cases Gal-3 positivity was seen in 100% (16/16) cases of malignancy and 9% (2/22) cases of benign thyroid lesions. Also, although not statistically significant, the 2 cases of follicular adenoma in our study group were negative whereas grade-2 positivity was seen in the case of follicular carcinoma, minimally invasive type.

**Conclusion:** Galectin-3 expression is thus a reliable marker of malignancy (particularly in papillary carcinoma) and strong Gal-3 expression should, therefore, prompt immediate surgical removal. Immunostaining should be assessed along with Pap-stained smears. This study further demonstrates efficacy when smears themselves were used instead of cell block sections.

### Biography

Mahsheena KM has completed her MD Pathology from Kerala University of health sciences and DNB pathology from National Board of Education (NBE). She was working as Assistant Professor pathology in Government medical college Calicut. She is an Associate member of Royal College of Pathology (RCPath), UK obtaining her FRCPath. She is actively involved in the ITSS:International Training Support Scheme under the Royal College of Pathology, UK. She has presented Free oral paper presentation at American society for clinical pathology (ASCP) annual meet in November 2016. She has several publications to her credit. She has great passion for teaching, diagnostic evaluation and research works.

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