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## Diagnostic Fine Aspiration Cytology of Papillary Carcinoma of Thyroid.

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### ABSTRACT

Papillary Carcinoma appears as an irregular solid or cystic mass or nodule in a normal Thyroid Parenchyma .Fine needle aspiration cytology is a rapid, reliable, conclusive and cost effective diagnostic tool and Pathologists should be aware of the cytological features of such lesions so as to avoid diagnostic pitfalls.

**Keywords:** Fine needle aspiration cytology, papillary carcinoma of Thyroid

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## INTRODUCTION

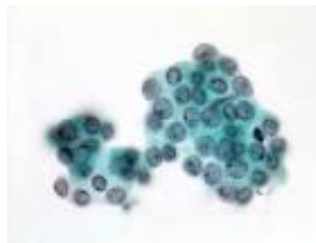
Papillary carcinoma is the predominant form of thyroid malignancy. Females are more affected than males. It can present in any age group, the mean age at the time of initial diagnosis being approx. 40 yrs. Diagnosis using FNAC also requires awareness of the disease. There is evidence of increase of papillary carcinoma in Hashimoto thyroiditis. The incidence of Thyroid cancer, especially PC has been steadily increasing. Irradiation during the first two decades of life is particularly carcinogenic to the thyroid (after a latent period of 20 yrs). Genetic studies of PC show that these are monoclonal tumours and activation of a new oncogene named Papillary thyroid carcinoma (PTC) has been identified in 20-30% of these tumours.

FNAC is considered the best first line diagnostic procedure for a thyroid nodule. It is imperative to use this as a diagnostic aid in these cases. Proper evaluation of aspirates in these cases can avoid unnecessary surgeries.

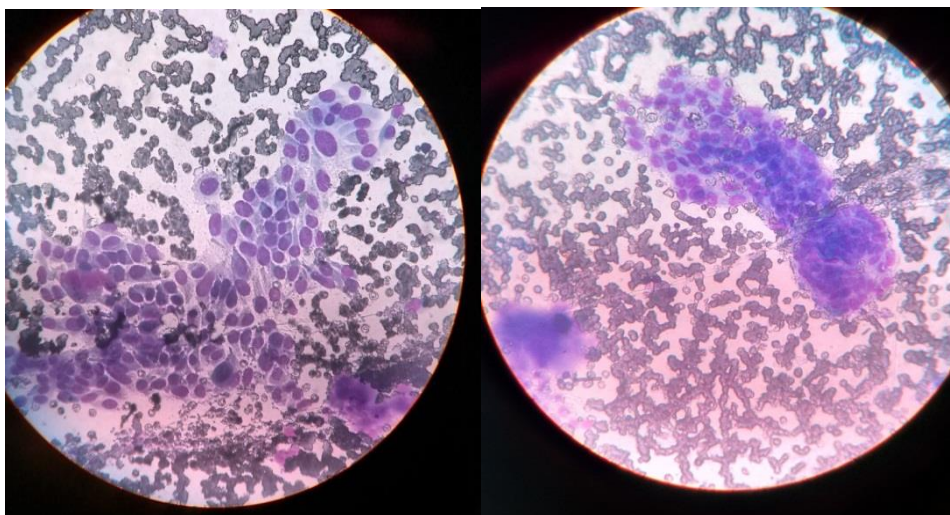
## CASE REPORT

A 35 years old, female, Phula Devi, presented with a firm swelling nodular in the midline of neck, on local examination, Size was 2cms x 2cms, moved with deglutition, non tender, with normal temperature. Her haematological profile and blood chemistry and thyroid function test was done. CBC-- TLC- 10400, Neut- 28%, Lymph- 55%, E- 16%, m- 01%, B- 0%, Plt- 2.97 lakhs, Total Rbc- 4.33 mill/PCV- 38.1 MCH -- 30.9 MCHC -- 35.2 MCV-- 88 Blood Sugar (random) -- 96.5 mg/dl, S. urea -- 20.7 mg/dl, S. Cr. -- 0.87 mg/dl T3- 91.5, T4- 7.1, TSH- 4.34. Routine haematological and biochemical investigations revealed no abnormalities. USG of the Thyroid showed a well defined Hypoechoic (Left lobe) of Thyroid.

Aspiration was done using a 10 mL syringe and a 25 gauge needle to yield a blood mixed aspirate. FNAC was carried out and wet fixed smears were stained by Papanicolaou (PAP) stain and air dried smears were stained by May Grunwald Giemsa stain. The smear was stained with H and E, Papanicolaou and MGG stains. The results of the histopathological investigation were consistent with the diagnosis of papillary carcinoma made earlier.

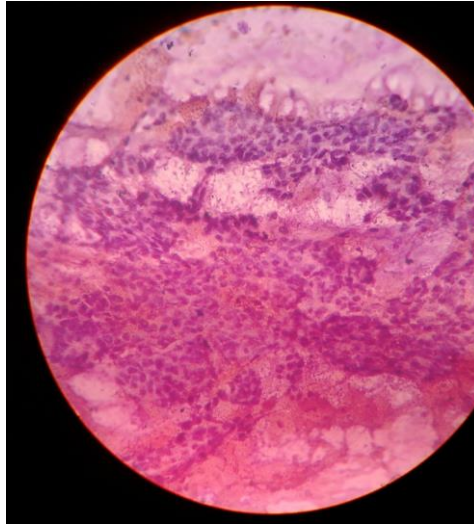


(PAPX100) Showing Papillary cluster



(MGGX400) Monolayered clusters of tumour cells in PC

FNAC of thyroid show rich cellularity comprising monolayer sheets with papillary architecture, multi-layered syncytial fragments or branched sheets, microacini and papillary fragments of follicular cells with enlarged nuclei with irregular contour. Some of the nuclei show longitudinal grooves and occasional intranuclear inclusions and pale finely granular chromatin, with presence of inspissated or gummy colloid, consistent with neoplastic pathology, Papillary Carcinoma of Thyroid.



HPE Papillary carcinoma of Thyroid

The best diagnostic feature of papillary thyroid carcinoma are finely dispersed chromatin, and nuclear envelope irregularity. The chromatin of a papillary thyroid carcinoma is dispersed into very fine particles and since much of the chromatin is smoothly adherent to the nuclear envelope, even a tiny fold will cause the nuclear envelope associated chromatin to appear as a linear aggregate or longitudinal groove.

#### DISCUSSION

Papillary Ca appears as an irregular solid or cystic mass or nodule in a normal thyroid parenchyma. The other close differential diagnosis is oncocytic (oxyphilic) variant of papillary carcinoma. The thyroid is particularly sensitive to effects of ionizing radiation.

Both accidental & medical exposure to ionizing radiation has been linked to increased risk for thyroid cancer. Other conditions predisposing to papillary thyroid cancer include oral contraceptive, benign thyroid nodule, late menarche & late age of first birth. Thyroid carcinoma is common in persons of all ages, with a mean age of 49 yrs.

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