

Stromal Modulation and its Role in the Diagnosis of Papillary Patterned Thyroid Lesions

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مكان وتاريخ النشر:

Asian Pac J Cancer Prev, **16 (8)**, 3307-3312

Abstract:

The papillary patterned lesion of thyroid may be challenging with many diagnostic pitfalls. Tumor stroma plays an important part in the determination of the tumor phenotype. CD34 is thought to be involved in the modulation of cell adhesion and signal transduction as CD34(+) fibrocytes are potent antigen-presenting cells. Smooth muscle actin (SMA) positivity could be diagnostic for fibroblast activation during tumorigenesis. We aimed to examine the expression of CD34 and alphaSMA in the stroma of papillary thyroid hyperplasia, papillary thyroid carcinoma and papillary tumors of uncertain malignant potential in order to elucidate their possible differential distribution and roles. A total number of 54 cases with papillary thyroid lesions were studied by routine H&E staining, CD34 and ASMA immunostaining. ASMA was not expressed in benign papillary hyperplastic lesions while it was expressed in papillary carcinoma, indicating that tumors have modulated stroma. Although the stroma was not well developed in papillary lesions with equivocal features of uncertain potentiality, CD34 was notable in such cases with higher incidence in malignant cases. So ASMA as well as CD34 could predict neoplastic behavior, pointing to the importance of the stromal role. Differences between groups suggest that the presence of CD34 + stromal cells is an early event in carcinogenesis and is associated with neoplasia, however ASMA+ cells are more likely to be associated with malignant behavior and metastatic potential adding additional tools to the light microscopic picture helping in diagnosis of problematic cases with H&E.