

## Preface

## Non-Invasive Encapsulated/Well-circumscribed Follicular Thyroid Neoplasm with Papillary-like Nuclear Features (NIFTP) and Precursor Thyroid Tumors

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The introduction of borderline/precursor tumors into the thyroid tumor classification opens a new area in clinical practice of thyroid nodules, as well as in histopathological interpretation and cytological diagnosis of thyroid nodules. This special issue focuses on a newly introduced tumor entity; NIFTP (Non-Invasive encapsulated Follicular Thyroid neoplasm with Papillary-like nuclear features). More than ten expert thyroid pathologists and cytopathologists have contributed to this special issue, which is probably the first in any scientific journals. I am confident that readers can obtain new knowledge on these tumors and improve practice in both histopathological and cytopathological diagnosis of these borderline/precursor thyroid tumors.

The borderline/precursor thyroid tumors that are incorporated into the 4th edition of WHO classification of endocrine organs include hyalinizing trabecular adenoma/tumor (1, 2), well differentiated tumor of uncertain malignant potential (WDT-UMP), follicular tumor with uncertain malignant potential (FT-UMP) (3), and NIFTP (4, 5) (Table 1). Synonyms include well differentiated tumor with uncertain behavior (WDT-UB) (6) and atypical adenoma (7, 8). The borderline category of thyroid tumor classification has been proposed in the previous publications by our group, which includes extremely low-risk thyroid tumors labelled currently as carcinoma (low-risk papillary microcarcinoma, encapsulated papillary thyroid carcinoma (PTC) and capsular invasion only follicular carcinoma), in addition to NIFTP, WDT-UMP, FT-UMP and WDT-UB (3, 6, 9-12), probably equal to indolent lesion of epithelial origin (IDLE) as proposed by Esserman *et al.* (13) or very slow-growing cancer (those never causes problems because the patients will die of some other causes before the cancer is large enough to produce symptoms) as defined by Welch and Black (14). The spectrum of these thyroid tumors is reviewed in this special issue by LiVolsi and Baloch, and the experience in histology and cytology presented by thyroid experts from seven countries (Liu *et al.*, Chan *et al.*, Pusztaszeri *et al.*, Canberk *et al.*, Maletta *et al.*, Ng *et al.*, and Saglietti and Bongiovanni), and rich discussion by two invited commentaries (Rossi and Wu). The Special Issue Editor would like to thank all contributors for their great efforts and deep discussion from rich experience and profound perspectives on this new tumor entity, NIFTP.

Table 1: WHO classification of thyroid tumors in the 4th edition

1	Follicular Adenoma
2	<b>Hyalinizing Trabecular Adenoma/Tumor</b>
2A	<b>Other Encapsulated Follicular Patterned Thyroid Tumors</b>
2A-1	<b>Uncertain Malignant Potential (UMP)</b>
2A-2	<b>Non-invasive Follicular Thyroid Neoplasm with Papillary-like Nuclear Features (NIFTP)</b>
3	Papillary Carcinoma
4	Follicular Carcinoma
4A	Hurthle Cell Tumors
5	Poorly Differentiated Carcinoma
6	Undifferentiated Carcinoma
7	Squamous Cell Carcinoma
8	Medullary Carcinoma
9	Mixed Medullary and Follicular Cell Carcinoma
10	Mucoepidermoid Carcinoma
11	Sclerosing Mucoepidermoid Carcinoma with Eosinophilia
12	Mucinous Carcinoma
13	Ectopic Thymoma
14	Spindle Epithelial Tumor with Thymus-like Differentiation
15	Intrathyroid Thymic Carcinoma
16A	Paraganglioma
16B	Peripheral Nerve Sheath Tumors (including Schwannoma)
16C	Benign Vascular Tumors
16D	Angiosarcoma
16E	Smooth Muscle Tumors (including Leiomyoma and Leiomyosarcoma)
16F	Solitary Fibrous Tumor
17A	Langerhans Cell Histiocytosis
17B	Rosai-Dorfman Disease
17C	Follicular Dendritic Cell Tumor
17D	Primary Thyroid Lymphoma
18	Germ Cell Tumors
19	Secondary Tumors

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