



Part 1

General overview: epidemiology, histologic types and major oncogenic drivers in thyroid cancer

















2017 B Six Diagnos	ethesda System for R tic Categories associated with <u>Risk of M</u>	eporti	ng Thu	yroid Cytopa	thology _{Management}	
	Diagnostic Category	ROM if NIFTP not cancer	ROM if NIFTP is cancer	Management		
	Nondiagnostic/unsatisfactory Cyst fluid only Acellular specimen Other: Obscuring factors	5–10%	5–10%	Repeat fine needle aspiration under ultrasound guidance		
	Benign Benign follicular nodule Chronic lymphocytic (Hashimoto) thyroiditis, in proper clinical setting Granulomatous (subacute) thyroiditis	0–3%	0–3%	Clinical and US follow-up until two negative		
~20% of FNA cases cytology of undetermined significance	Atypia of undetermined significance/ follicular lesion of undetermined significance	6-18%	10-30%	Repeat FNA, molecular testing, or lobectomy	?? Risk of Malignancy ?	
	Follicular neoplasm/ suspicious for a follicular neoplasm (Specify if Hürthle cell type)	10-40%	25-40%	Molecular testing, lobectomy		
	Suspicious for malignancy	4560%	50-75%	Lobectomy or near-total thyroidectomy		
	Malignant Papillary thyroid carcinoma Medullary thyroid carcinoma Poorly differentiated carcinoma Undifferentiated (anaplastic) carcinoma Squamous cell carcinoma Carcinoma with mixed features Metastatic malignancy Non-Hodgkin lymphoma Other	94–96%	97–99%	Lobectomy or near-total thyroidectomy		













	N	utation-specific inhibitors			
Drug	Mechanism of Action		Tumor Type	Tumor Type	
Dabrafenib + Trametinib	BRAF (V600E, V60	OK) + MEK1/2 inhibitors	BRAF V600E ⁺	BRAF V600E ⁺ ATC	
Larotrectinib	NTRK inhibitor: TR	KA, TRKB, TRKC	NTRK fusion ⁺	NTRK fusion ⁺ solid tumors	
Entrectinib	NTRK inhibitor: TR	KA, TRKB, TRKC, ALK, ROS1	<i>NTRK</i> fusion ⁺ <i>ROS1</i> fusion ⁺	<i>NTRK</i> fusion ⁺ solid tumors <i>ROS1</i> fusion ⁺ NSCLC	
Selpercatinib (LIBRETTO)	RET inhibitor		<i>RET</i> mutant ⁺ <i>RET</i> fusion ⁺ T	<i>RET</i> mutant ⁺ MTC <i>RET</i> fusion ⁺ TC (PTC, PDTC, ATC)	
Pralsetinib (ARROW)	RET inhibitor		<i>RET</i> mutant ⁺ MTC <i>RET</i> fusion ⁺ TC (PTC, PDTC, ATC)		
Dabrafenib + Trametinib	Larotrectinib	Entrectinib	Selpercatinib	Pralsetinib	
May 2018	Nov 2018	Aug 2019	May 2020	Dec 2020	
ATC: 69% ORR	TC: 5/5 PR	n/a	TC: 79%-100% ORR	DTC: 89% ORR	

























