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| **Supplementary Table 1.** Definitions of TNM classification | | | | |
|  | UICC TNM Classification, 8th ed (21) | AJCC Cancer Staging Manual,8th ed (22) | General rules for the description of thyroid cancer, 8th ed (23) | General rules for the description of thyroid cancer, 9th ed\* |
| T-Primary Tumor |  | | | |
| TX | Primary tumor cannot be assessed | | | |
| T0 | No evidence of primary tumor | | | |
| T1 | Tumor ≤2 cm in greatest dimension, limited to the thyroid | | | |
| T1a | Tumor ≤1 cm in greatest dimension, limited to the thyroid | | | |
| T1b | Tumor >1 cm but ≤2 cm in greatest dimension, limited to the thyroid | | | |
| T2 | Tumor >2 cm but ≤4 cm in greatest dimension, limited to the thyroid | | | |
| T3 | Tumor >4 cm limited to the thyroid, or gross extrathyroidal extension invading only strap muscles (sternohyoid, sternothyroid, thyrohyoid, or omohyoid muscles) | | | |
| T3a | Tumor >4 cm limited to the thyroid | | | |
| T3b | Tumor of any size with gross extrathyroidal extension invading strap muscles | | | |
| T4 | Includes gross extrathyroidal extension beyond the strap muscles | | | |
| T4a | Gross extrathyroidal extension invading subcutaneous soft tissues, larynx, trachea, esophagus, or recurrent laryngeal nerve from a tumor of any size | | | |
| T4b | Gross extrathyroidal extension invading prevertebral fascia or encasing the carotid artery or mediastinal vessels from a tumor of any size | | | |
| N-Regional Lymph Node |  | | | |
| NX | Regional lymph nodes cannot be assessed | | | |
| N0 | No regional lymph node metastasis | | | |
| N1 | Regional lymph node metastasis | | | |
| N1a | Metastasis in level VI (pretracheal, paratracheal, and prelaryngeal/Delphian lymph nodes) or upper /superior mediastinum | Metastasis to level VI or VII (pretracheal, paratracheal, or prelaryngeal/Delphian, or upper mediastinal) lymph nodes. This can be unilateral or bilateral disease | Metastasis in central neck compartment (prelaryngeal, pretracheal, paratracheal, perithyroid, upper /superior mediastinum) lymph node‡  ‡AJCC Level VI or VII | |
|  | N1a-1: Lymph node metastasis ≤3 cm and the absence of extra-nodal extension  N1a-2: Lymph node metastasis >3 cm or the presence of extra-nodal extension  N1a-3: XIb metastasis |
| N1b | Metastasis in other unilateral, bilateral or contralateral cervical (Levels I, II, III, IV, or V) or retropharyngeal | Metastasis to unilateral, bilateral, or contralateral lateral neck lymph nodes (levels I, II, III, IV, or V) or retropharyngeal lymph nodes | Metastasis in other unilateral, bilateral or contralateral cervical (superior/inferior deep cervical, lateral deep cervical, submandibular, submental) lymph node†  †AJCC Levels I, II, III, IV, or V | |
|  | N1b-1: Lymph node metastasis ≤3 cm and the absence of extra-nodal extension  N1b-2: Lymph node metastasis >3 cm or the presence of extra-nodal extension |
| Extrathyroidal invasion classification |  |  | Ex0: No extrathyroidal invasion | |
|  | Ex1a: Perithyroidal adipose tissue |
| Ex1 | Ex1b: Extrathyroidal invasion into anterior cervical muscles, or parathyroid |
| Ex2 | Ex2a: Tracheal adventitia, recurrent laryngeal nerve, esophagus muscular layer, cricothyroid muscle, inferior constrictor muscle of pharynx |
| Ex2b: Subcutaneous adipose tissue, tracheal mucosa, esophagus mucosa, internal jugular vein, brachiocephalic vein, larynx, pharynx, sternocleidomastoid muscle |
| Ex3: Prevertebral fascia or encasing the carotid artery or mediastinal vessels |
| M-Distant Metastasis |  | | | |
| M0 | No distant metastasis | | | |
| M1 | Distant metastasis | | | |
| Stage Classification |  | | | |
| DTC Under 55 y |  | | | |
| Stage I | Any T, Any N, M0 | | | |
| Stage II | Any T, Any N, M1 | | | |
| DTC 55 y and Older |  | | | |
| Stage I | T1a, T1b, T2, N0, M0 | | | |
| Stage II | T3, N0, M0 / T1, T2, T3, N1, M0 | | | |
| Stage III | T4a, Any N, M0 | | | |
| Stage IVA | T4b, Any N, M0 | | | |
| Stage IVB | Any T, Any N, M1 | | | |
| DTC: differentiated thyroid cancer. \*The Japanese Society of Endocrine Surgery and the Association of Thyroid Pathology published the 9th edition of General rules for the description of thyroid cancer in October 2023 (Japan Association of Endocrine Sugery and The Japanese Society of Thyroid Pathology. General Rules for the Description of Thyroid Cancer, 9th edition (In Japanese). Tokyo: Kanehara & Co., Ltd; 2023). | | | | |