

AJCC癌症分期及臨床應用

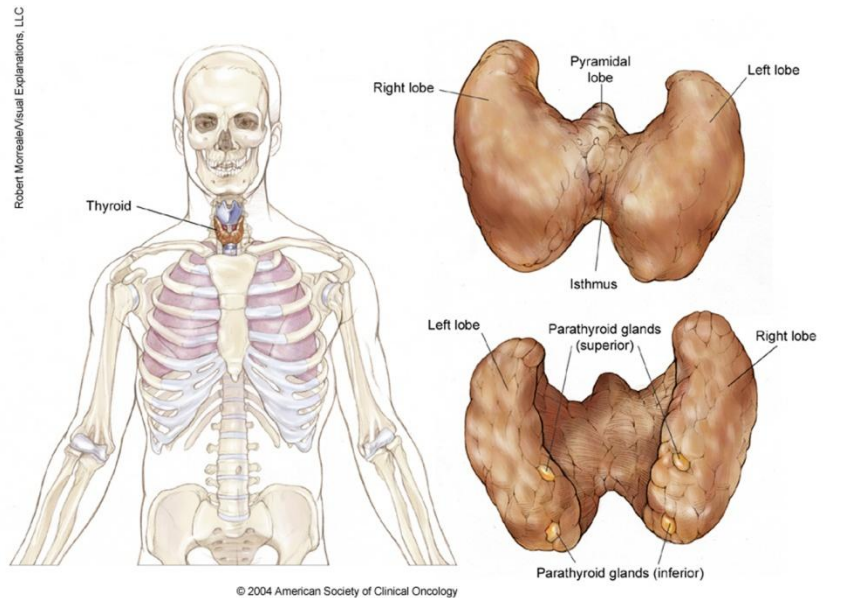
Thyroid cancer staging AJCC, 7th edition

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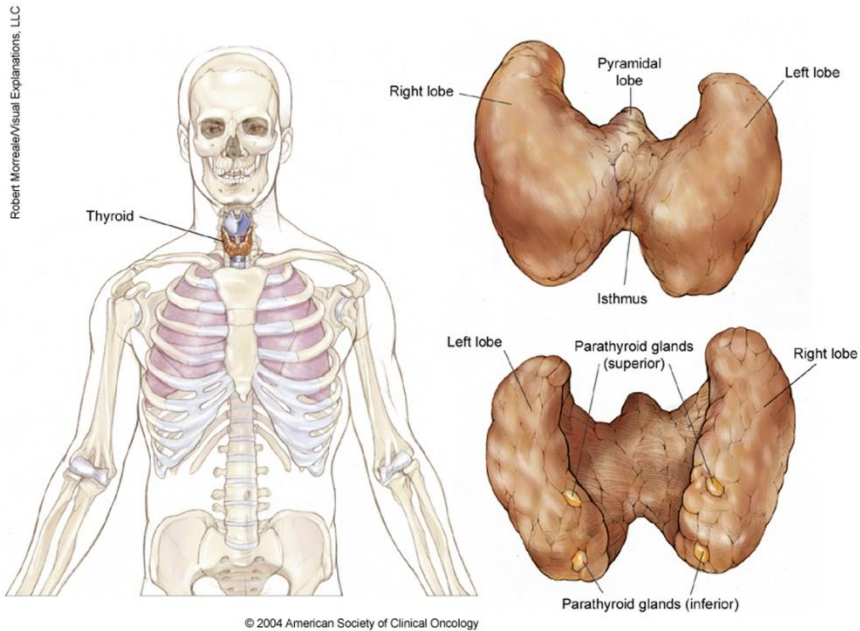
The Thyroid: Anatomy



- Located in the front of the neck just below the larynx (voicebox)
- Gland with two lobes, one on each side of the windpipe, joined by a narrow strip of tissue called the isthmus

The Thyroid: Function

- Important part of the endocrine system
- Absorbs iodine from the bloodstream to produce thyroid hormone, which regulates a person's metabolism



Thyroid Cancer Staging

- Staging is a way of describing a cancer, such as the size of a tumor and if or where it has spread
- Staging is the most important tool doctors have to determine a patient's prognosis
- Staging is described by the TNM system: the size and location of the Tumor, whether cancer has spread to nearby lymph Nodes, and whether the cancer has Metastasized (spread to other areas of the body)
- Thyroid cancer staging differs by tumor type and the age of the patient
- Recurrent cancer is cancer that comes back after treatment

Table 1**American Joint Committee on Cancer (AJCC)
TNM Staging For Thyroid Cancer (7th ed., 2010)****Primary Tumor (T)**

Note: All categories may be subdivided: (s) solitary tumor and (m) multifocal tumor (the largest determines the classification).

- TX** Primary tumor cannot be assessed
- T0** No evidence of primary tumor
- T1** Tumor 2 cm or less in greatest dimension limited to the thyroid
 - T1a** Tumor 1 cm or less, limited to the thyroid
 - T1b** Tumor more than 1 cm but not more than 2 cm in greatest dimension, limited to the thyroid
- T2** Tumor more than 2 cm but not more than 4 cm in greatest dimension limited to the thyroid
- T3** Tumor more than 4 cm in greatest dimension limited to the thyroid or any tumor with minimal extrathyroid extension (eg, extension to sternothyroid muscle or perithyroid soft tissues)
- T4a** Moderately advanced disease
Tumor of any size extending beyond the thyroid capsule to invade subcutaneous soft tissues, larynx, trachea, esophagus, or recurrent laryngeal nerve
- T4b** Very advanced disease
Tumor invades prevertebral fascia or encases carotid artery or mediastinal vessel

All anaplastic carcinomas are considered T4 tumors.

- T4a** Intrathyroidal anaplastic carcinoma
- T4b** Anaplastic carcinoma with gross extrathyroid extension

Regional Lymph Nodes (N)

Regional lymph nodes are the central compartment, lateral cervical, and upper mediastinal lymph nodes.

- NX** Regional lymph nodes cannot be assessed
- N0** No regional lymph node metastasis
- N1** Regional lymph node metastasis
 - N1a** Metastasis to Level VI (pretracheal, paratracheal, and prelaryngeal/Delphian lymph nodes)
 - N1b** Metastasis to unilateral, bilateral, or contralateral cervical (Levels I, II, III, IV, or V) or retropharyngeal or superior mediastinal lymph nodes (Level VII)

Distant Metastasis (M)

- M0** No distant metastasis
- M1** Distant metastasis

[Continued](#)

Stage grouping:

Separate stage groupings are recommended for papillary or follicular (differentiated), medullary, and anaplastic (undifferentiated) carcinoma.

Papillary or Follicular (differentiated)

Under 45 Years

Stage I Any T Any N M0**Stage II** Any T Any N M1*Papillary or Follicular*

45 Years and Older

Stage I T1 N0 M0**Stage II** T2 N0 M0**Stage III** T3 N0 M0

T1 N1a M0

T2 N1a M0

T3 N1a M0

Stage IVA T4a N0 M0

T4a N1a M0

T1 N1b M0

T2 N1b M0

T3 N1b M0

T4a N1b M0

Stage IVB T4b Any N M0**Stage IVC** Any T Any N M1*Medullary Carcinoma (all age groups)***Stage I** T1 N0 M0**Stage II** T2 N0 M0

T3 N0 M0

Stage III T1 N1a M0

T2 N1a M0

T3 N1a M0

Stage IVA T4a N0 M0

T4a N1a M0

T1 N1b M0

T2 N1b M0

T3 N1b M0

T4a N1b M0

Stage IVB T4b Any N M0**Stage IVC** Any T Any N M1*Anaplastic Carcinoma*

All anaplastic carcinomas are considered Stage IV

Stage IVA T4a Any N M0**Stage IVB** T4b Any N M0**Stage IVC** Any T Any N M1**Histopathologic Type**

There are four major histopathologic types:

- Papillary carcinoma (including follicular variant of papillary carcinoma)
- Follicular carcinoma (including Hürthle cell carcinoma)
- Medullary carcinoma
- Undifferentiated (anaplastic) carcinoma

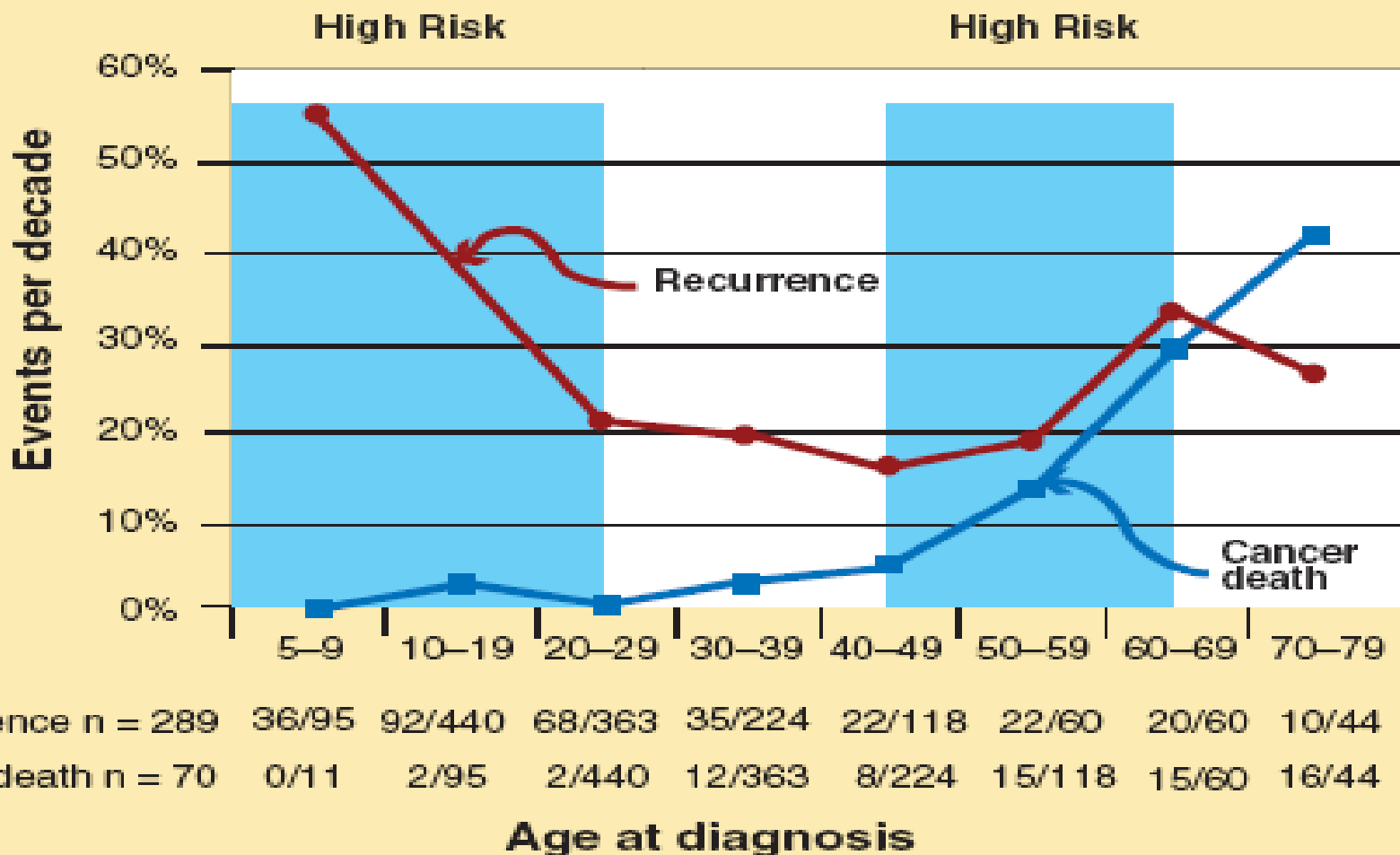
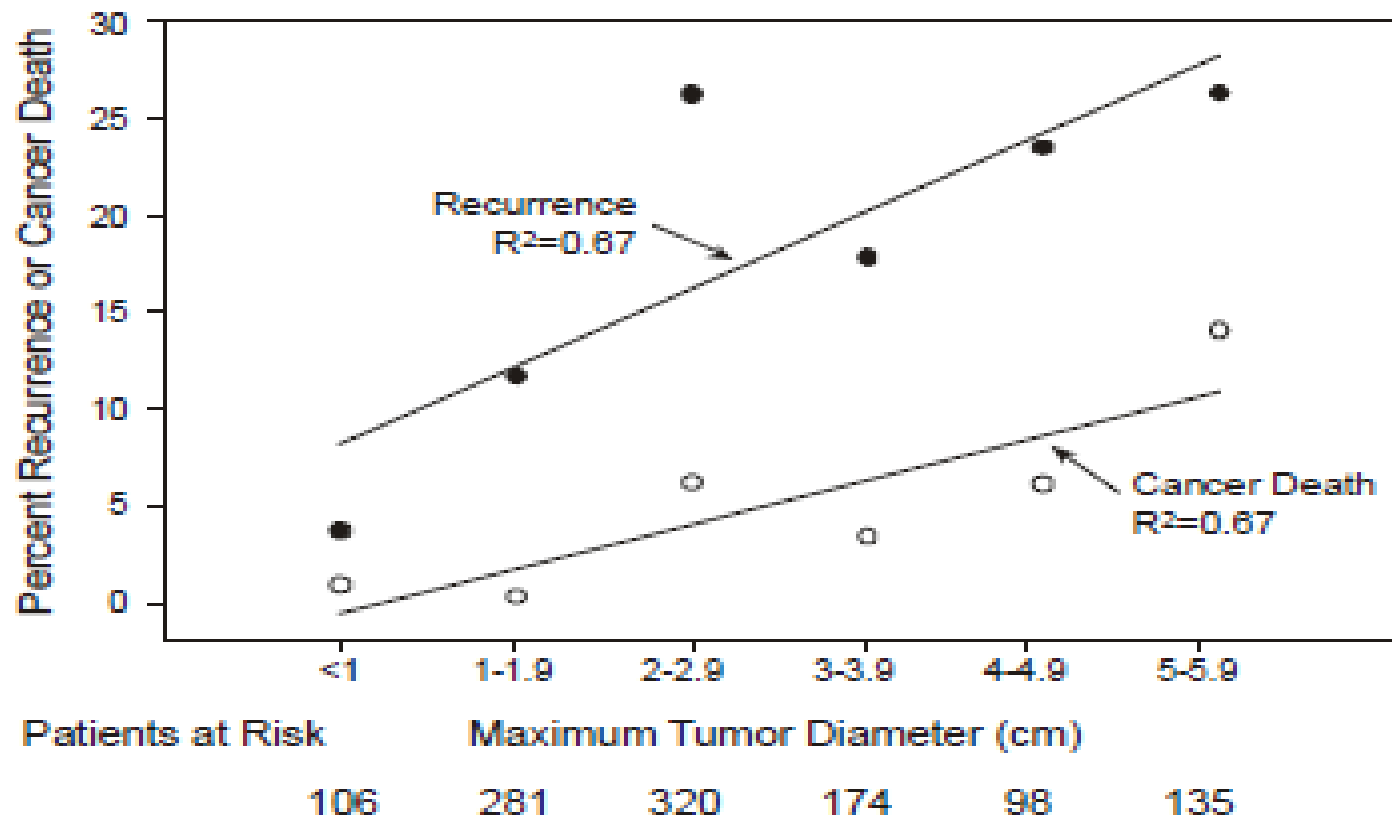
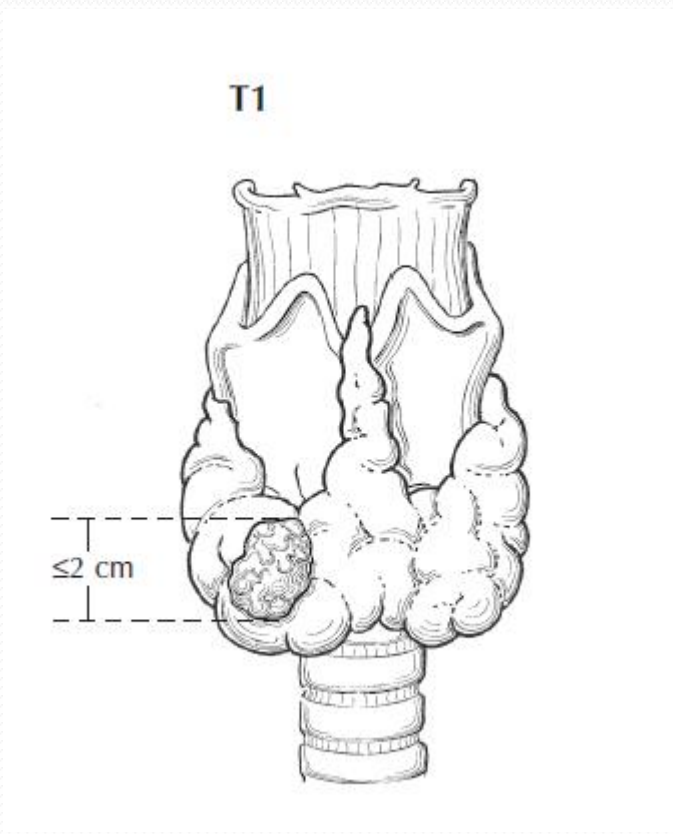


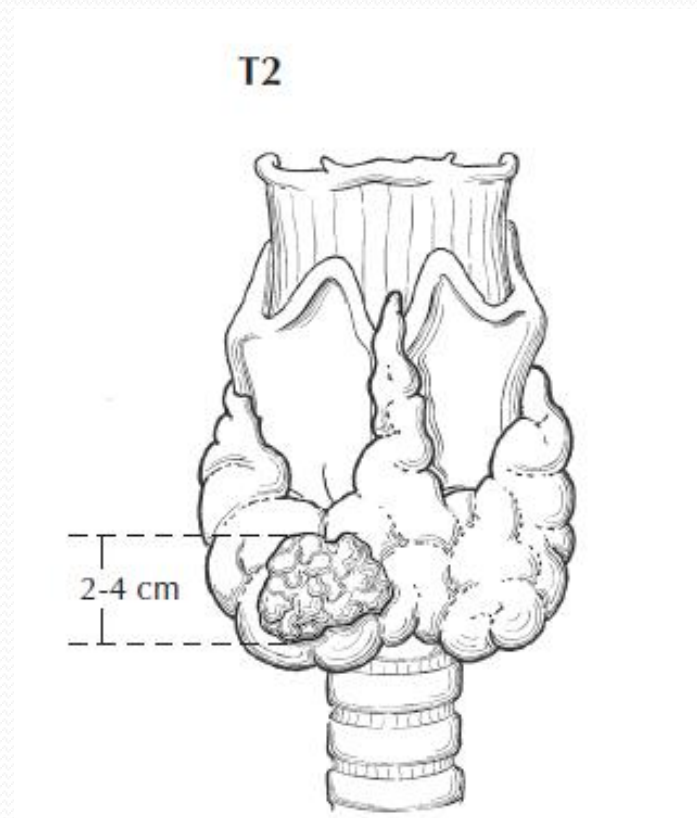
Figure 1: Thyroid Cancer Recurrence and Mortality—Outcome expressed as tumor recurrence and cancer-specific mortality. Recurrence rates are highest at the extremes of age, whereas mortality rates simply increase with age, most rapidly after age 45 years. This figure shows why mortality rates alone do not describe outcome measured in terms of recurrence, which produces substantial treatment and morbidity. Modified from Mazzaferri and Jhiang,[15] with permission of Elsevier Publishing Co.

Relationship of cancer recurrence and mortality to tumor size

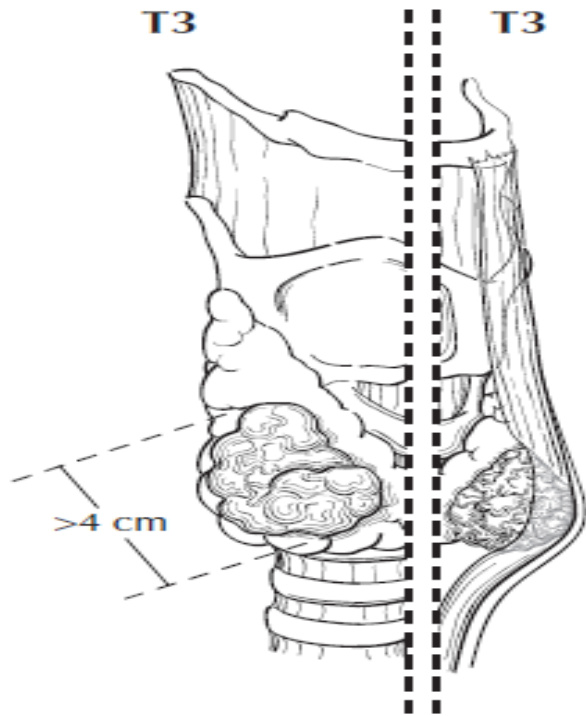




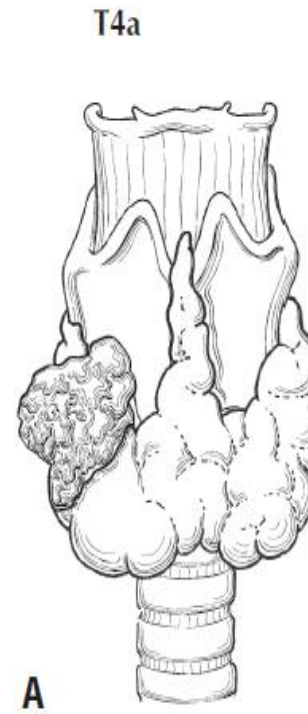
T₁ -Tumor ≤ 2 cm in greatest dimension
 limited to the thyroid.
 T_{1a}-Tumor ≤ 1 cm, limited to the thyroid
 T_{1b}-Tumor >1 cm but ≤ 2 cm in
 greatest dimension



T₂- Tumor >2 cm but ≤ 4 cm in
 greatest dimension,
 limited to the thyroid

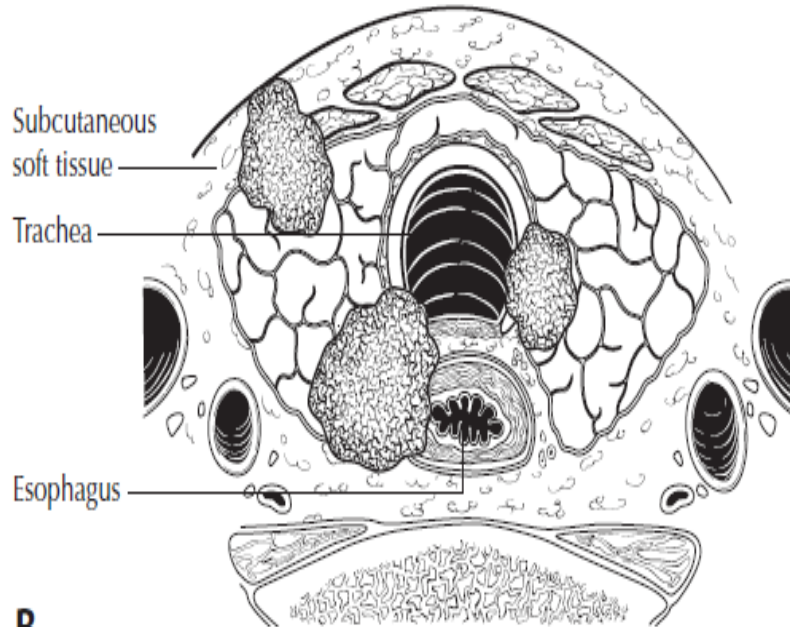


T₃- Tumor >4 cm in greatest dimension limited to the thyroid or any tumor with minimal extrathyroid extension (e.g., extension to sternothyroid Muscle or perithyroid soft tissues).



T_{4a}- Tumor of any size extending Beyond the thyroid capsule to invade subcutaneous soft tissues, larynx, trachea, esophagus, or recurrent laryngeal nerve.

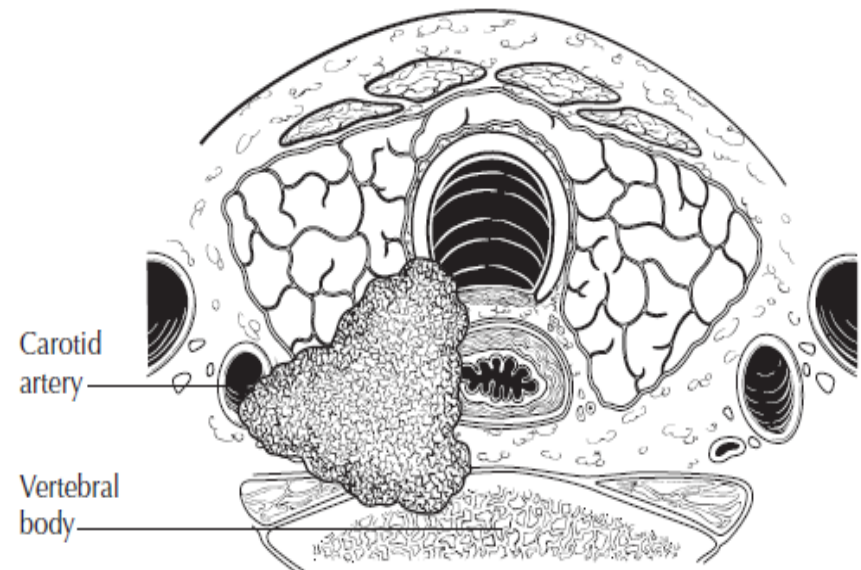
T4a



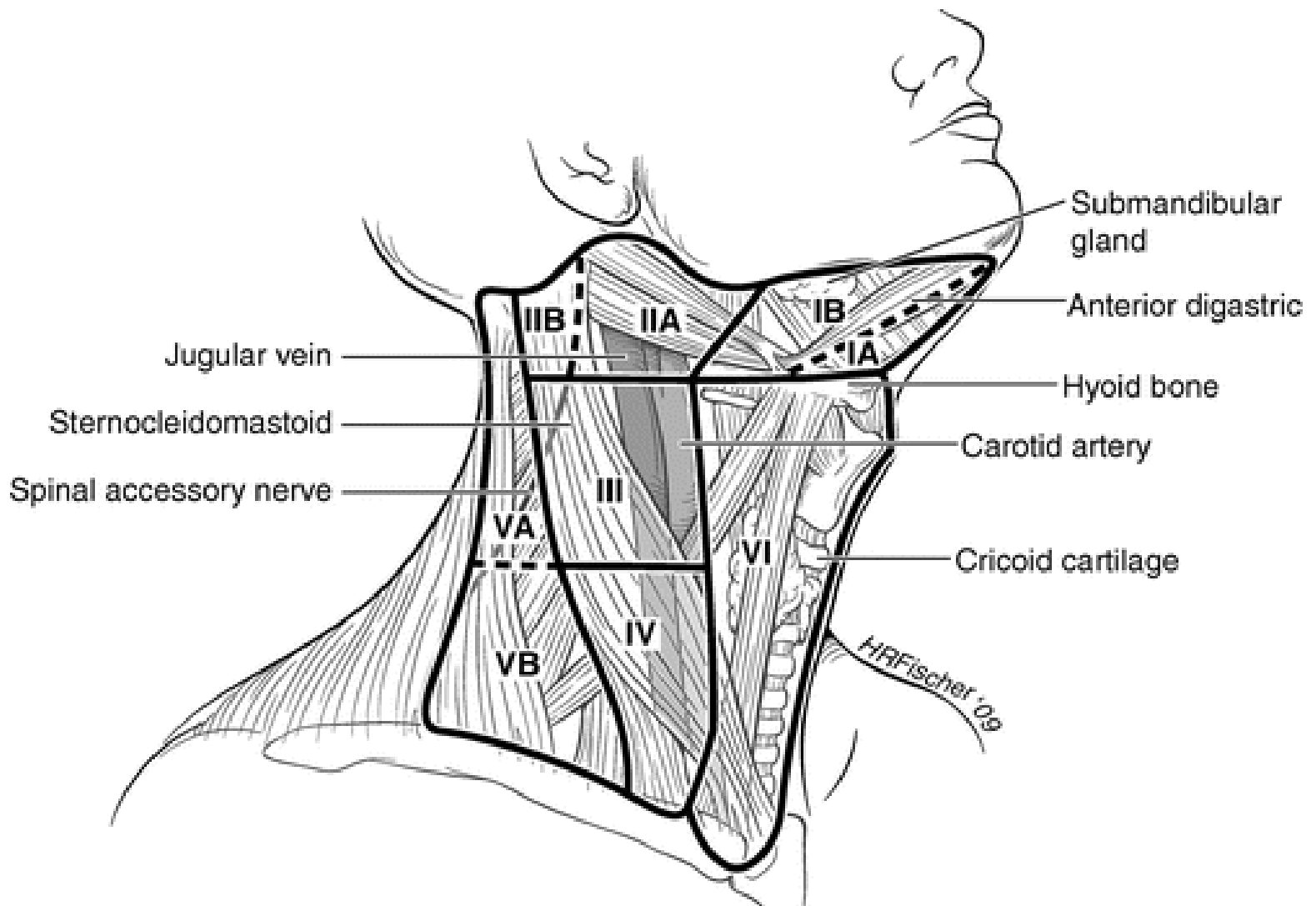
B

T4a- Tumor of any size extending Beyond the thyroid capsule to invade subcutaneous soft tissues, larynx, trachea, esophagus, or recurrent laryngeal nerve.
**Intrathyroidal anaplastic carcinoma

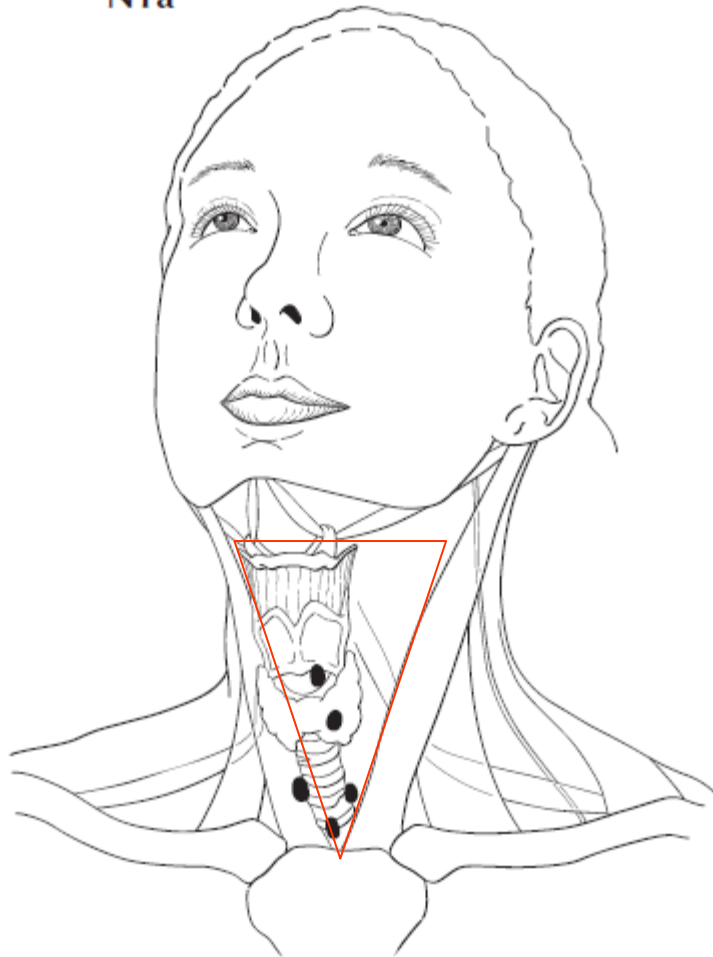
T4b



T4b- Tumor invades prevertebral fascia or encases carotid artery or mediastinal vessels.
**Anaplastic carcinoma with gross extrathyroid extension

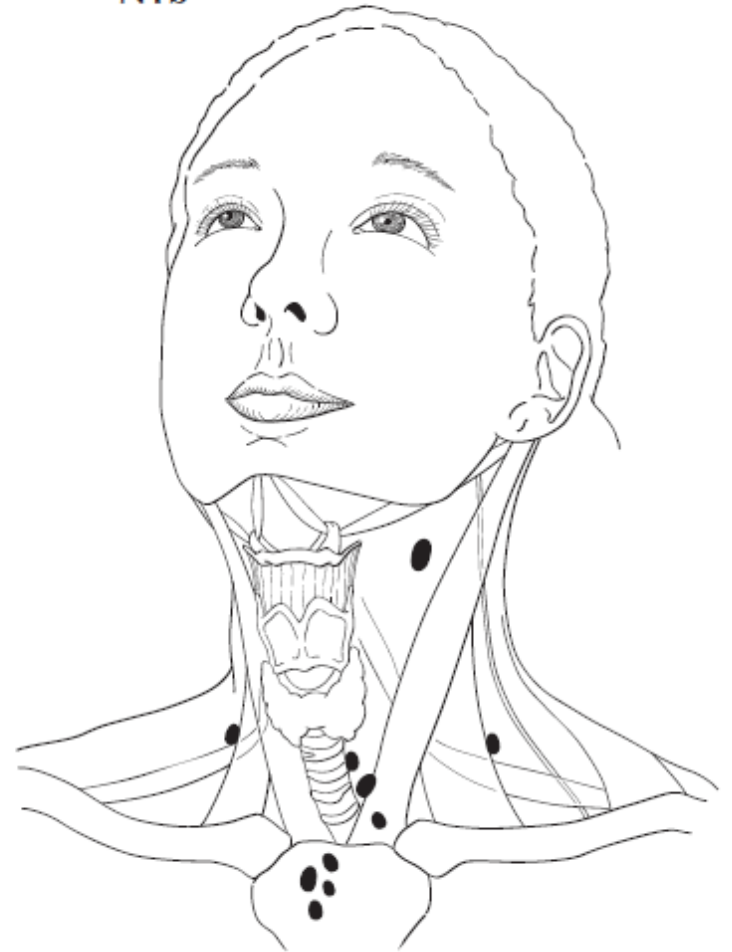


N1a



Metastases to Level VI (pretracheal, paratracheal, and prelaryngeal/Delphian lymph nodes).

N1b



Metastases to unilateral, bilateral, or contralateral cervical (Levels I, II, III, IV, or V) or retropharyngeal or superior mediastinal lymph nodes (Level VII)

Table 2. Regional Lymph Nodes (N)^{a,b}

NX	Regional lymph nodes cannot be assessed.
N0	No regional lymph node metastasis.
N1	Regional lymph node metastasis.
N1a	Metastases to Level VI (pretracheal, paratracheal, and prelaryngeal/Delphian lymph nodes).
N1b	Metastases to unilateral, bilateral, or contralateral cervical (Levels I, II, III, IV, or V) or retropharyngeal or superior mediastinal lymph nodes (Level VII).

^aReprinted with permission from AJCC: Thyroid. In: Edge SB, Byrd DR, Compton CC, et al., eds.: AJCC Cancer Staging Manual. 7th ed. New York, NY: Springer, 2010, pp 87-96.

^bRegional lymph nodes are the central compartment, lateral cervical, and upper mediastinal lymph nodes.

Table 3. Distant Metastasis (M)^a

M0	No distant metastasis.
M1	Distant metastasis.

^aReprinted with permission from AJCC: Thyroid. In: Edge SB, Byrd DR, Compton CC, et al., eds.: AJCC Cancer Staging Manual. 7th ed. New York, NY: Springer, 2010, pp 87-96.

Stage	T	N	M
<i>Papillary or follicular (differentiated)</i>			
YOUNGER THAN 45 YEARS			
I	Any T	Any N	M0
II	Any T	Any N	M1
45 YEARS AND OLDER			
I	T1	N0	M0
II	T2	N0	M0
III	T3	N0	M0
	T1	N1a	M0
	T2	N1a	M0
	T3	N1a	M0
IVA	T4a	N0	M0
	T4a	N1a	M0
	T1	N1b	M0
	T2	N1b	M0
	T3	N1b	M0
	T4a	N1b	M0
IVB	T4b	Any N	M0
Stage IVC	Any T	Any N	M1

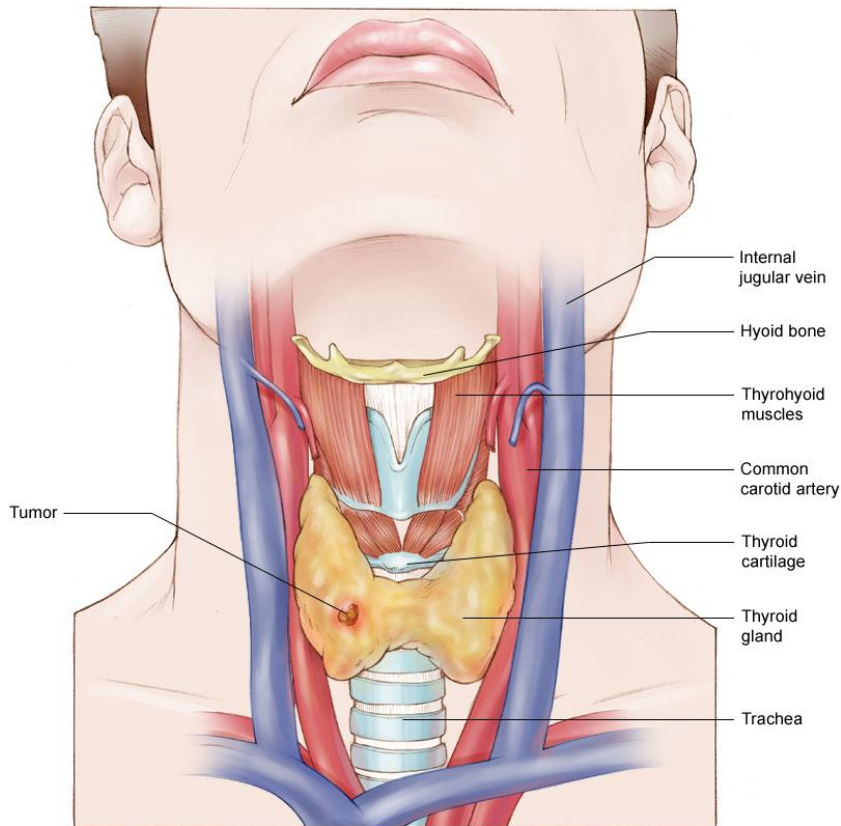
Medullary carcinoma (all age groups)

I	T1	N0	M0
II	T2	N0	M0
	T3	N0	M0
III	T1	N1a	M0
	T1	N1a	M0
	T2	N1a	M0
	T3	N1a	M0
IVA	T4a	N0	M0
	T4a	N1a	M0
	T1	N1b	M0
	T2	N1b	M0
	T3	N1b	M0
	T4a	N1b	M0
	Stage IVB	T4b	Any N
IVB	T4b	Any N	M0
IVC	Any T	Any N	M1

Anaplastic carcinoma^c

IVA	T4a	Any N	M0
IVB	T4b	Any N	M0
IVC	Any T	Any N	M1

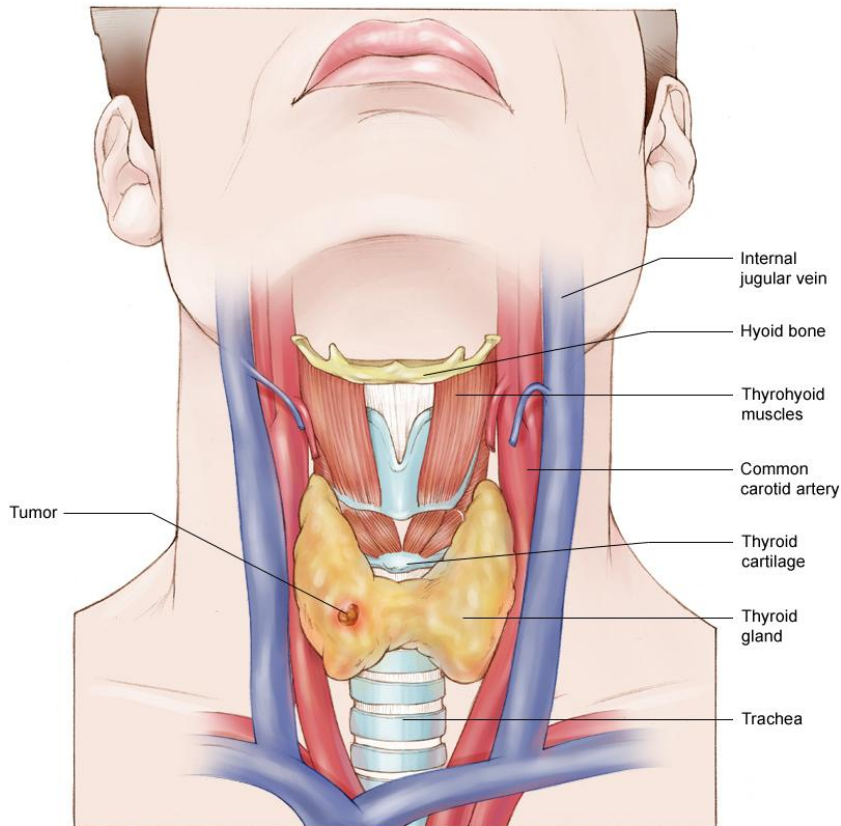
Stage I Papillary or Follicular Thyroid Cancer, patients younger than 45



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- Localize to the thyroid gland and regional lymph nodes
- In as many as 50% of cases, there are multifocal sites of papillary Ca throughout the gland.
- Most papillary cancers have some follicular elements but this does not change the prognosis

Stage I Papillary or Follicular Thyroid Cancer, patients 45 or older

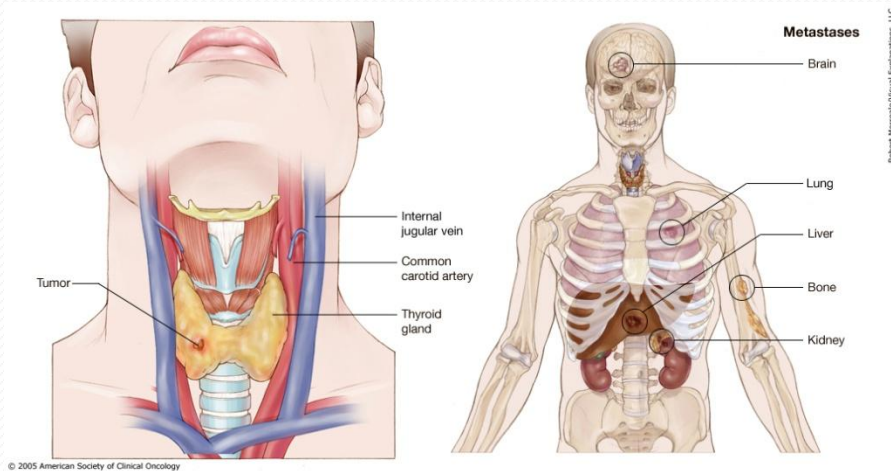


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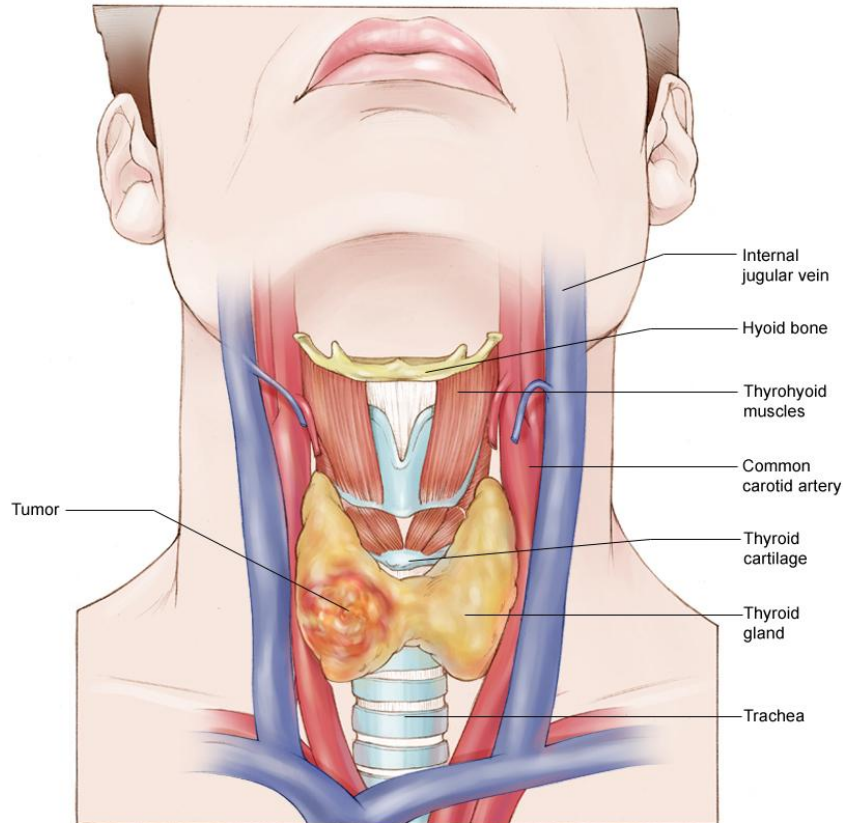
- A small tumor (<2cm) with no spread to the lymph nodes and no metastasis
- In as many as 50% of cases, there are multifocal sites of papillary Ca throughout the gland.
- Most papillary cancers have some follicular elements but this does not change the prognosis

Stage II Papillary or Follicular Thyroid Cancer, patients younger than 45

- A tumor with any metastasis regardless of spread to lymph nodes
- In as many as 50% to 80% of cases, there are multifocal sites of papillary adenocarcinomas throughout the gland.
- Most papillary cancers have some follicular elements, but this does not appear to change the prognosis.



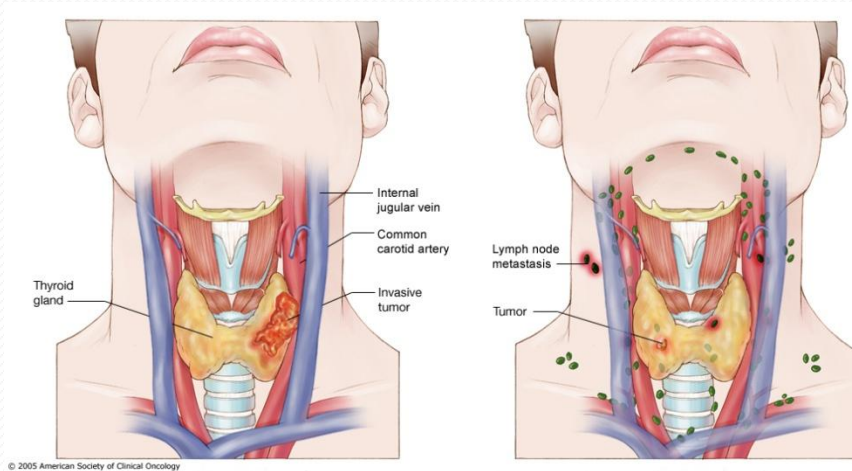
Stage II Papillary or Follicular Thyroid Cancer, patients 45 or older



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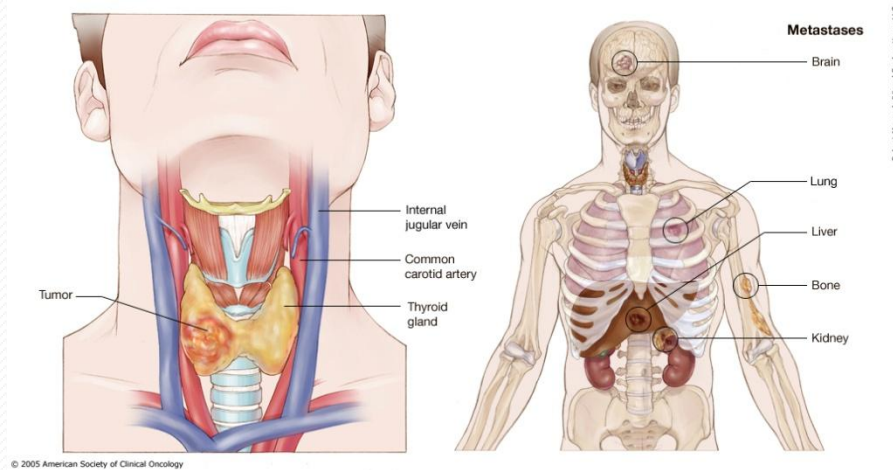
- A larger (2-4cm), non-invasive tumor but no spread to lymph nodes and no metastasis
- Treatment includes surgery, hormone therapy, possible I-131 therapy after surgery

Stage III Papillary or Follicular Thyroid Cancer, patients 45 or older



- Tumor is larger than 4 cm and is limited to the thyroid or with minimal extrathyroid extension, or any tumor with positive LNs limited to the pretracheal, paratracheal, or prelaryngeal/Delphian nodes.
- Papillary carcinoma that has invaded adjacent cervical tissue has a worse prognosis than tumors confined to the thyroid

Stage IV Papillary or Follicular Thyroid Cancer, patients 45 or older



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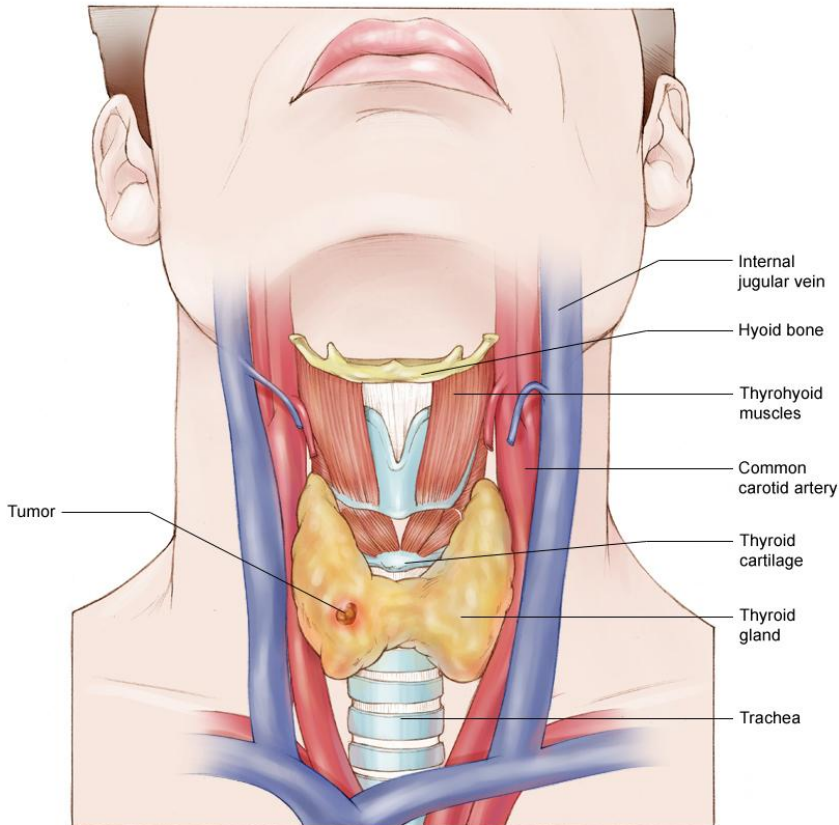
- Tumor extension beyond the thyroid capsule to the soft tissues of the neck, cervical lymph node metastases, or distant metastases
- The lungs and bone are the most frequent distant sites of spread, though such distant spread is rare in this type of thyroid cancer.
- Papillary carcinoma more frequently metastasizes to regional lymph nodes than to distant sites. The prognosis for patients with distant metastases is poor

Stage IVA	T4a	N0	M0
	T4a	N1a	M0
	T1	N1b	M0
	T2	N1b	M0
	T3	N1b	M0
	T4a	N1b	M0
Stage IVB	T4b	Any N	M0
Stage IVC	Any T	Any N	M1

Hürthle cell carcinoma

- Hürthle cell carcinoma is a variant of follicular carcinoma with a similar prognosis and should be treated in the same way as equivalent stage non-Hürthle cell follicular carcinoma

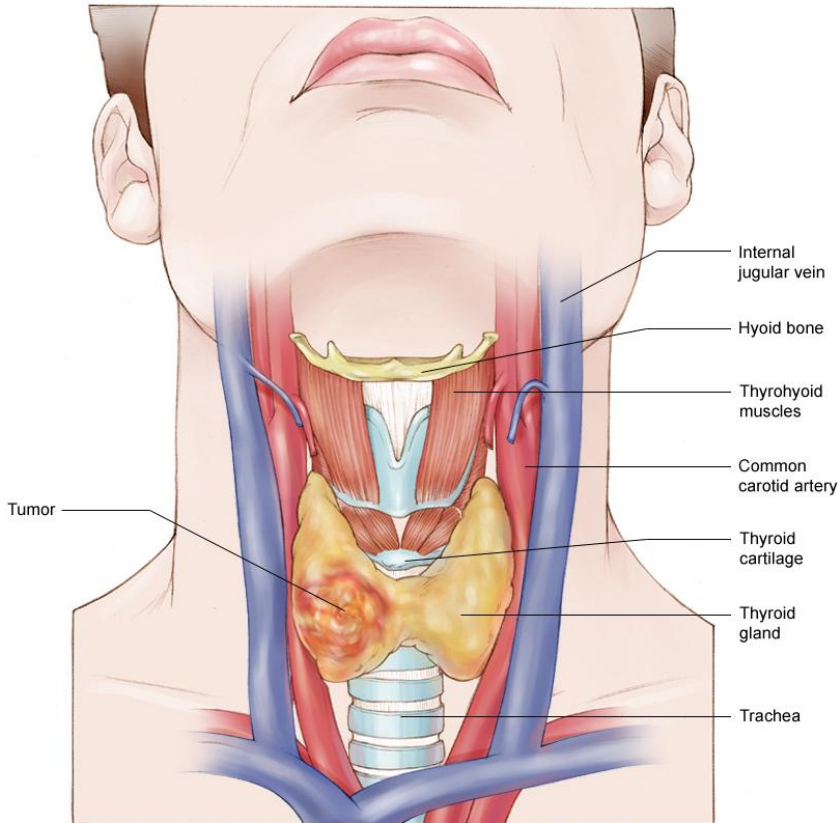
Stage I Medullary Thyroid Cancer



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- A small tumor with no spread to lymph nodes and no metastasis
- Treatment includes surgery, hormone therapy, and possible I-131 therapy after surgery

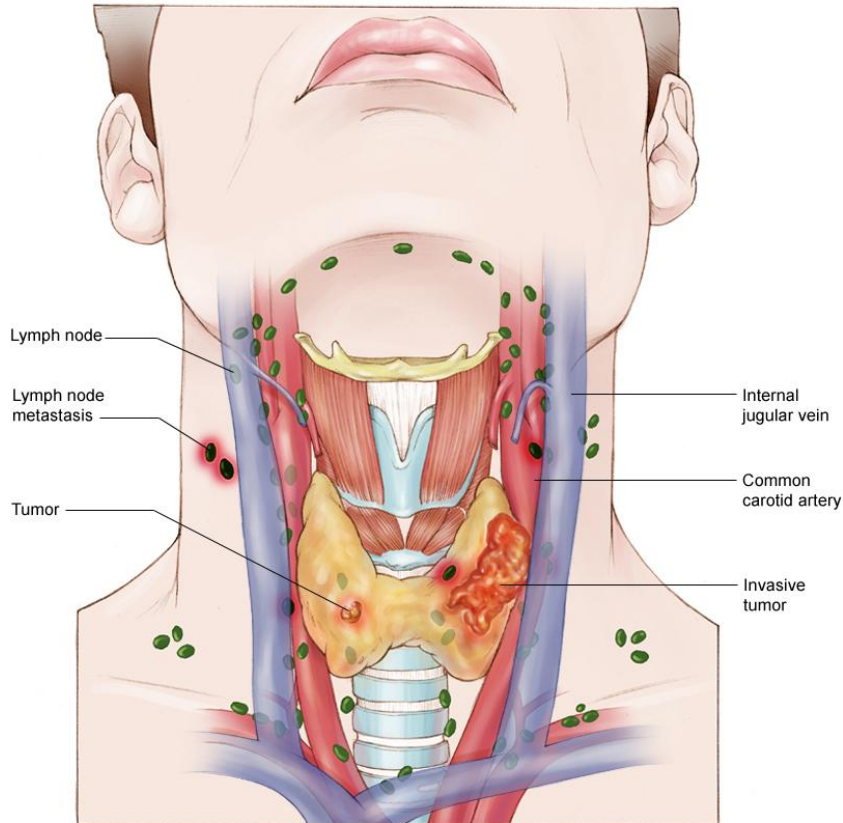
Stage II Medullary Thyroid Cancer



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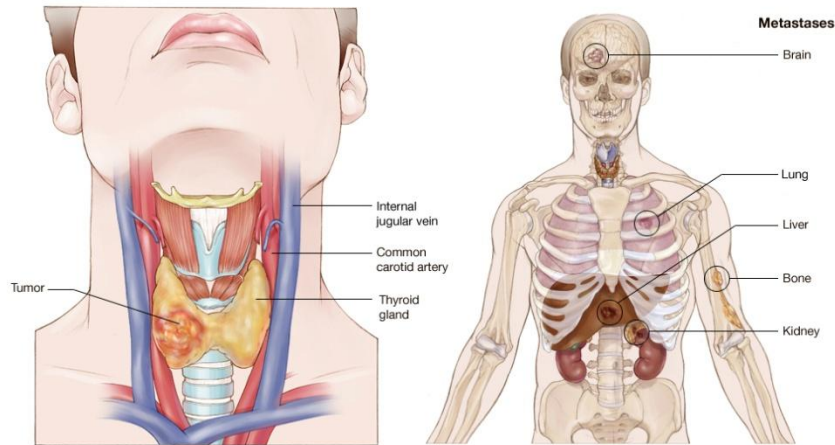
- Any tumor with no spread to the lymph nodes and no metastasis
- Treatment includes surgery, hormone therapy, possible I-131 therapy after surgery

Stage III Medullary Thyroid Cancer



- Any tumor that has spread to the lymph nodes, but has not metastasized
- Treatment includes surgery, hormone therapy, possible I-131 therapy or external-beam radiation therapy after surgery

Stage IV Medullary Thyroid Cancer



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- Any evidence of metastasis
- Treatment may include a combination of surgery, hormone therapy, I-131 therapy, external-beam radiation therapy, and chemotherapy
- Clinical trials

Stage IV Anaplastic Thyroid Cancer

- All anaplastic/undifferentiated tumors, regardless of tumor size, location, or metastasis
- Treatment may include a combination of surgery, hormone therapy, I-131 therapy, external-beam radiation therapy, and chemotherapy
- Clinical trials

SUMMARY OF CHANGES

- Tumor staging (T) has been revised and the categories redefined.
- T4 is now divided into T4a and T4b.
- Nodal staging (N) has been revised.
- All anaplastic carcinomas are considered T4. The T4 category for anaplastic carcinomas is divided into T4a (intrathyroidal anaplastic carcinoma—surgically resectable) and T4b (extrathyroidal anaplastic carcinoma—surgically unresectable).
- For papillary and follicular carcinomas, the stage grouping for patients older than 45 has been revised. Stage III includes tumors with minimal extrathyroid extension. Stage IVA includes tumors of any size extending beyond the thyroid capsule to invade subcutaneous soft tissues, larynx, trachea, esophagus, or recurrent laryngeal nerve. Stage IVB includes tumors that invade prevertebral fascia, carotid artery, or mediastinal vessels. Stage IVC includes advanced tumors with distant metastasis.

Papillary or Follicular

Under 45 Years

Stage I	Any T	Any N	M0
Stage II	Any T	Any N	M1

Papillary or Follicular

45 Years and Older

Stage I	T1	N0	M0
Stage II	T2	N0	M0
Stage III	T3	N0	M0
	T1	N1a	M0
	T2	N1a	M0
	T3	N1a	M0
Stage IVA	T4a	N0	M0
	T4a	N1a	M0
	T1	N1b	M0
	T2	N1b	M0
	T3	N1b	M0
	T4a	N1b	M0
Stage IVB	T4b	Any N	M0
Stage IVC	Any T	Any N	M1

Medullary Carcinoma

Stage I	T1	N0	M0
Stage II	T2	N0	M0
Stage III	T3	N0	M0
	T1	N1a	M0
	T2	N1a	M0
	T3	N1a	M0
Stage IVA	T4a	N0	M0
	T4a	N1a	M0
	T1	N1b	M0
	T2	N1b	M0
	T3	N1b	M0
	T4a	N1b	M0
Stage IVB	T4b	Any N	M0
Stage IVC	Any T	Any N	M1

Anaplastic Carcinoma
All anaplastic carcinomas are considered Stage IV

Stage IVA	T4a	Any N	M0
Stage IVB	T4b	Any N	M0
Stage IVC	Any T	Any N	M1

Thank You For Your attention

