# **Thyroid and Adrenal Gland Quizzes**

Grade tables are posted at the end of the document.

# Quiz 1

1. Which of these is NOT true of the Thyroid gland?
   1. The thyroid gland is an endocrine gland
   2. The thyroid gland is divided in two lobes
   3. The thyroid gland is a paired site
   4. The thyroid gland Secretes hormones
2. Follicular cells in the Thyroid produce which hormones
   1. Thyroxine
   2. Triiodothyronine
   3. Calcitonin
   4. Both a and b
3. Which type of the malignant Thyroid cancer makes up about 80% of all Thyroid cancers?
   1. Anaplastic Thyroid Carcinoma
   2. Sporadic Medullary Thyroid Cancer
   3. Follicular Cell Carcinoma
   4. Papillary Cell Carcinoma
4. What type of malignant Thyroid cancer develops from C cells of the Thyroid gland?
   1. Anaplastic Thyroid Carcinoma
   2. Medullary Thyroid Cancer
   3. Follicular Cell Carcinoma
   4. Papillary Cell Carcinoma
5. This data item records the grade of a solid primary tumor before any treatment whether surgical resection or initiation of any treatment including neoadjuvant.
   1. Grade Post-Therapy
   2. Grade Pathological
   3. Grade Clinical
   4. None
6. Which of the 2018 Grade data items can be blank?
   1. Grade Clinical
   2. Grade Pathological
   3. Grade Post-Therapy
   4. None of the above
7. This data item records the grade of a solid primary tumor that has been resected and for which no neoadjuvant therapy was administered.
8. Grade Post-Therapy
9. Grade Pathological
10. Grade Clinical
11. None
12. This data item records the grade of a solid primary tumor that had been resected following neoadjuvant therapy.
13. Grade Post-Therapy
14. Grade Pathological
15. Grade Clinical
16. None
17. A patient presented with a left thyroid mass and palpable lymphadenopathy. A fine needle aspiration was done of the thyroid which was positive for carcinoma. The patient then had a left thyroidectomy with ipsilateral modified neck dissection. Final Diagnosis Moderately differentiated medullary carcinoma.

* Grade Clinical \_\_\_9\_\_\_
* Grade Pathological \_\_\_B\_\_\_
* Grade Post-Therapy \_\_\_\_\_\_

1. A patient presents with a history of cough and dyspnea and dysphagia and evidence of a neck lesion. A CT scan was done which revealed a 5 cm lesion at the base of the neck originating from the left lobe of the thyroid. A thyroid biopsy was performed. Final Diagnosis Anaplastic Thyroid Carcinoma. Surgery was excluded and patient was started on a chemotherapy regimen.

* Grade Clinical \_\_\_D\_\_\_\_
* Grade Pathological \_\_\_9\_\_\_\_
* Grade Post Therapy \_\_\_\_\_\_\_

1. A patient presents with complaint of generalized acne and hirsutism. A CT scan of the abdomen and pelvis was done and revealed a large calcified left adrenal mass A chest X-ray also revealed lung mets. The patient then had a fine needle aspiration done that should adrenocortical carcinoma. The patient then went on to have chemotherapy.

* Grade Clinical \_\_9\_\_\_\_
* Grade Pathological \_\_9\_\_\_\_
* Grade Post Therapy \_\_\_\_\_\_

1. A symptom of thyroid cancer is unexplained weight gain.
   1. True
   2. False
2. Thyroid cancer incidence has been increasing since 1995 and
   1. We expect it to level off
   2. We expect it to continue to increase
   3. We expect it to decrease
   4. We cannot predict the rates
3. The 5-year survival for thyroid is quite high, close to 100%. And the rates do not fluctuate widely by race, sex, age, or stage.
   1. True
   2. False

# Quiz 2

## Scenario 1

A 39 year-old white man presented with an unremarkable medical history until 6 months prior to admission when he was found to have hypertension which was unresponsive to medical therapy. Three weeks prior to admission he developed bilateral gynecomastia and more recently, he began experiencing very severe right flank pain while on the job. Sonogram and Computerized Tomography revealed an adrenal mass which also appeared to extend into the inferior vena cava at the level of the right adrenal gland just below the hepatic vein. An FNA was positive for carcinoma. No enlarged lymph nodes or other abnormalities were identified. Resection was performed.

**Pathology:**

Gross: The resected specimen consisted of the right adrenal gland and right kidney. A 10 cm tumor was found in the adrenal gland which weighed 250 grams. The vast majority of the adrenal gland was replaced by the neoplasm which appeared to be confined within the adrenal capsule. No invasion into the adjacent kidney was seen.

Microscopic: The resected neoplasm was confined to the adrenal gland. At the edges, infiltration through the capsule of the adrenal gland was noted. Invasion into the inferior vena cava seen grossly was confirmed histologically. Cytologically, the vast majority of the cells were polygonal with eosinophilic cytoplasm, a moderate degree of nuclear pleomorphism, prominent nucleoli, and vesicular chromatin pattern. In the most active areas, 35 mitoses were counted in 50 high powered fields. In an attempt to confirm the adrenal cortical origin of this neoplasm, a battery of immunohistochemical stains was performed. Intense staining for Synaptophysin was appreciated. Vimentin stain was also positive. Immunohistochemical stains for AE1/AE3 (cytokeratin), CAM 5.2, Epithelial Membrane Antigen, and Chromogranin were negative.

Final diagnosis: High grade adrenal cortical carcinoma with inferior vena cava and adrenal vein invasion (10 cm, 250 gm)

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Grade | | | | | | | | | | |
| Clinical Grade | | 9 | | Pathological Grade | | H | | Post-therapy Grade | |  |
|  | | | | | | | | | | |
| AJCC Staging | | | | | | | | | | |
| AJCC Chapter: 76 | | | | | | | | | | |
| Data Item | Value | | Data Item | | Value | | Data Item | | Value | |
| Clinical T | cT4 | | Pathologic T | | pT4 | | Post-therapy T | |  | |
| Clinical T Suffix |  | | Pathologic T Suffix | |  | | Post-therapy T Suffix | |  | |
| Clinical N | cN0 | | Pathologic N | | pNX | | Post-therapy N | |  | |
| Clinical N Suffix |  | | Pathologic N Suffix | |  | | Post-therapy N Suffix | |  | |
| Clinical M | cM0 | | Pathologic M | | cM0 | | Post-therapy M | |  | |
| Clinical Stage | 3 | | Pathological Stage Group | | 3 | | Post-therapy Stage Group | |  | |

## Scenario 2

**History:**

A 66 year old gentleman who presented with a left thyroid mass. The patient was evaluated at an outside facility. A fine needle aspiration of the thyroid mass was positive for carcinoma. On physical exam the patient had a palpable prominent left thyroid area mass and prominent lymphadenopathy. The patient underwent MRI scan which revealed a large thyroid mass. In addition, there was a large level 2 mass compressing the internal jugular vein. There also appeared to be lymphadenopathy in the jugular chain in level III and IV. The patient was scheduled for a left thyroidectomy with ipsilateral modified neck dissection

**Pathology:**

Gross: The specimen consisted of left thyroid weighing 42.34 grams and measuring 6.1 x 5.2 x 2.0 cm. The external surface appears shiny with attached perithyroidal fat. There is no evidence of gross extension of tumor to the thyroid capsule. On cut section, there is a 4.5 cm poorly circumscribed indurated lesion with infiltrating borders and foci of hemorrhage and necrosis. The rest of the thyroid is orange-yellow, fleshy with no evidence of nodules noted.

Microscopic: The tumor includes the histological features of medullary carcinoma, which include nests or chords of cells penetrating dense pink stroma with a lobular, trabecular or even solid growth pattern. The tumor can be seen to abut normal thyroid microscopically. There is focal staining of the stroma with Congo red. There is moderate cytoplasmic staining for Calcitonin. Staining for CEA is intensely positive in all tumor cells.

Final diagnosis: Moderately differentiated medullary carcinoma of the thyroid gland, 4.5 cm, with extension to capsular margins of resection. Focal angiolymphatic invasion was identified. Four of 20 level III and level IV lymph nodes positive for metastasis.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Grade | | | | | | | | | | |
| Clinical Grade | | 9 | | Pathological Grade | | B | | Post-therapy Grade | |  |
|  | | | | | | | | | | |
| AJCC Staging | | | | | | | | | | |
| AJCC Chapter: 74 | | | | | | | | | | |
| Data Item | Value | | Data Item | | Value | | Data Item | | Value | |
| Clinical T | cTX | | Pathologic T | | pT3a | | Post-therapy T | |  | |
| Clinical T Suffix |  | | Pathologic T Suffix | |  | | Post-therapy T Suffix | |  | |
| Clinical N | cN1b | | Pathologic N | | pN1b | | Post-therapy N | |  | |
| Clinical N Suffix |  | | Pathologic N Suffix | |  | | Post-therapy N Suffix | |  | |
| Clinical M | cM0 | | Pathologic M | | cM0 | | Post-therapy M | |  | |
| Clinical Stage | 99 | | Pathological Stage Group | | 4A | | Post-therapy Stage Group | |  | |

## Grade Codes

The same grade codes may be used for clinical, pathological, and post-therapy grade

## Adrenal Grade

| **Code** | **Description** |
| --- | --- |
| L | LG: Low grade (≤20 mitoses per 50 HPF) |
| H | HG: High grade (>20 mitosis per 50 HPF) |
| M | TP53 or CTNNB Mutation |
| A | Well differentiated |
| B | Moderately differentiated |
| C | Poorly differentiated |
| D | Undifferentiated, anaplastic |
| 9 | Grade cannot be assessed (GX); Unknown |

## Thyroid Grade

| **Code** | **Description** |
| --- | --- |
| A | Well differentiated |
| B | Moderately differentiated |
| C | Poorly differentiated |
| D | Undifferentiated, anaplastic |
| 9 | Grade cannot be assessed; Unknown |