

Endocrine Disease

Assumptions

The student understands the anatomy, blood supply, and physiology of the thyroid, parathyroid, and adrenal glands.

Goal

The student will be able to describe the diagnosis and management of a patient with benign and malignant endocrine surgical conditions.

Objectives

By the end of the core surgical clerkship, the student will be able to:

1. Discuss the importance of the patient history of endocrine disorders including an assessment of patient risk factors for thyroid cancer or familial endocrine neoplastic syndromes.
2. Discuss key physical exam findings for common endocrine surgical problems including thyroid nodules, hyperthyroidism, and hyperfunctioning adrenal disorders.
3. Discuss the following office procedures, including the diagnostic and therapeutic indications:
 - a. Neck ultrasound
 - b. Ultrasound guided thyroid nodule fine needle aspiration biopsy
4. Describe the appropriate diagnostic work up for hyperthyroidism, thyroid nodule, hyperparathyroidism, adrenal mass, and functional neuroendocrine tumor.
5. Describe the appropriate preoperative medical management of pheochromocytoma in preparation for surgery.
6. Describe the key imaging findings for thyroid nodules suspicious for thyroid cancer.
7. Describe clinical and pathologic staging for well differentiated thyroid cancer.
8. Describe key components of the multiple endocrine neoplasia syndromes.

Problems

For each of the follow problems, answer the following questions:

- What pertinent patient and family history should be obtained?
 - What physical exam findings should be elicited?
 - What is the differential diagnosis?
 - What diagnostic tests should be obtained?
 - What therapy or treatment is indicated?
1. Patient # 1 – A 26-year-old woman presents with complaint of weight loss, tremor, palpitations, and heat intolerance.
 2. Patient # 2 – A 42-year-old woman presents for evaluation of a thyroid nodule found on physical examination by her primary care physician.
 3. Patient # 3 – A 32-year-old man presents with hypercalcemia discovered by the emergency department on evaluation of nephrolithiasis.
 4. Patient # 4 – A 53-year-old man presents for evaluation of an adrenal mass discovered incidentally on a CT scan to assess for trauma after a motor vehicle accident.
 5. Patient # 5 – A 60-year-old man presents for evaluation of dizziness and palpitations after periods of fasting which improve with oral intake.

Skills

1. Conduct a focused history and physical examination related to endocrine problems including neck examination with palpation of cervical lymph nodes.
2. Demonstrate ability to interpret laboratory findings of thyroid function testing, hyperparathyroidism, adrenal and neuroendocrine hormonal evaluation.
3. Demonstrate the ability to interpret imaging modalities of the thyroid, parathyroid, adrenal, and pancreas glands including ultrasound, computed tomography, and sestamibi.
4. Describe the technique of ultrasound guided fine needle aspiration biopsy.

Teaching Hints

1. Develop a library of thyroid nodule ultrasound images to review sonographic risk profiles.
2. Demonstrate ultrasound guided fine needle aspiration biopsy.
3. Discuss the cytopathologic results of thyroid nodule aspiration biopsy and the malignancy risk of each category.
4. Emphasize the importance of age in the staging of well differentiated thyroid cancer.
5. Demonstrate appropriate communication skills for delivering difficult news.
6. Emphasize the surgical indications and when to consult a surgeon for evaluation of endocrine conditions.

Prevention

Discuss the role of thyroid radiation in development of thyroid cancer and encourage thyroid lead shield protection for any activities with ionizing radiation exposure.

Special Considerations

1. Management of hyperthyroidism or thyroid nodules in pregnancy.
2. Management of lymphoma of the thyroid gland.
3. Appropriate order of management of manifestations for patients with multiple endocrine neoplasms.