Thyroid Cancer

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INTRODUCTION

Surgery is the mainstay of treatment for almost all types of thyroid cancers. Thyroid cancer occurs in a variety of histologic forms and presents with a spectrum of disease severity. The most common type is papillary thyroid cancer, comprising 70% to 80% of all thyroid tumors. Follicular thyroid cancer is the second most common type of differentiated thyroid cancer, making up 15% to 20% of all thyroid cancers. Medullary thyroid cancer is often hereditary and constitutes 5% to 10% of all thyroid cancers. Finally, anaplastic thyroid cancer is a rare but lethal form of thyroid cancer where surgery plays a limited role. A unique set of diagnostic and treatment options exist for each type of thyroid cancer, and the surgeon must understand these nuances to offer the patient the appropriate surgical therapy to prevent recurrence or facilitate adjuvant therapy.

PAPILLARY THYROID CANCER

CASE 1 PRESENTATION

A 54-year-old man presents to the clinic after noticing a mass in his neck while shaving. On exam, the 2.5-cm nodule is located 2 fingerbreadths below the cricoid cartilage and 1 cm to the right of midline. It is firm, mobile, and nontender. There are no other masses in the neck and no lymphadenopathy. The remainder of his physical exam is unremarkable. His history is notable for acid reflux and hypertension, but he denies any history of radiation to the neck or family history positive for thyroid malignancy or other endocrine tumors. It is also important to inquire about symptoms of hyperthyroidism and compressive symptoms such as hoarseness, cough, dysphagia, or breathing problems, as these may signify rapid growth or invasion and can increase the suspicion for malignancy.

Laboratory evaluation of a new thyroid nodule should include a thyroid-stimulating hormone (TSH) level to determine if the patient has unrecognized hyperthyroidism or hypothyroidism. A suppressed TSH level can be followed up with thyroid scintigraphy to distinguish between Graves disease, a solitary toxic nodule, or toxic multinodular goiter. Ultrasound is an important tool in evaluating thyroid nodules as it is used to measure the size and determine the features of the nodule, and it can also identify additional nonpalpable nodules or lymphadenopathy in the central or lateral compartments.

Fine-needle aspiration (FNA) biopsy is the most important tool for evaluating thyroid nodules. FNA biopsy results are classified according to the Bethesda criteria, which indicate the risk of malignancy (Table 1). Even though this patient’s nodule was palpable, it is best to evaluate it with an ultrasound-guided FNA biopsy. Ultrasound guidance can confirm the nodule is actually being sampled as well as help to target the most suspicious portions of the nodule in order to maximize the accuracy of the FNA.

Aside from assisting with FNA biopsy, ultrasonography is also the best modality for imaging the thyroid and neck lymph nodes. Although highly operator-dependent, ultrasound is noninvasive and does not involve any radiation or contrast risk to the patient. Ultrasound characteristics concerning for malignancy include hypoechoogenicity, microcalcifications, irregular margins, and chaotic vascular patterns. High-resolution ultrasound can also demonstrate extracapsular invasion and lymph node involvement.

CASE 1 CONTINUED

The patient undergoes a workup of his thyroid nodule. His TSH level is within normal limits. Ultrasound evaluation demonstrates a 2.5-cm hypoechoic nodule in the mid portion of the right