



FIGURE 405-13 Approach to the patient with a thyroid nodule. See text and references for details. FNA, fine-needle aspiration; LN, lymph node; PTC, papillary thyroid cancer; TSH, thyroid-stimulating hormone; US, ultrasound.

Cytology results indicative of malignancy mandate surgery, after performing preoperative sonography to evaluate the cervical lymph nodes. Nondiagnostic cytology specimens generally result from cystic lesions but may also occur in fibrous long-standing nodules. Ultrasound-guided FNA is indicated when a repeat FNA is necessary. Repeat FNA will yield a diagnostic cytology in about 50% of cases. Benign nodules should be monitored by ultrasound for growth, and repeat FNA should be considered if the nodule enlarges. The use of levothyroxine to suppress serum TSH is not effective in shrinking nodules in iodine-replete populations, and therefore, levothyroxine should not be used.

The three cytology classifications introduced by the Bethesda System are associated with different risks of malignancy (Table 405-14).

TABLE 405-14 BETHESDA CLASSIFICATION FOR THYROID CYTOLOGY

Diagnostic Category	Risk of Malignancy
Nondiagnostic or unsatisfactory	1–5%
Benign	2–4%
Atypia or follicular lesion of unknown significance (AUS/FLUS)	15–20%
Follicular neoplasm	20–30%
Suspicious for malignancy	60–75%
Malignant	97–100%

For nodules with suspicious for malignancy cytology, surgery is recommended after ultrasound assessment of cervical lymph nodes. Options to be discussed with the patient include: (1) lobectomy with intraoperative frozen section; (2) near-total thyroidectomy; and (3) mutational analysis mainly for *BRAF V600E*, which is virtually diagnostic of PTC, and bilateral rather than unilateral thyroid surgery is required.

On the other hand, the majority of nodules with AUS/FLUS and follicular neoplasm cytology results are benign; only 10–30% are malignant. The traditional approach for these patients is diagnostic lobectomy for histopathologic diagnosis. Therefore, up to 85% of patients undergo surgery for benign nodules. A high-sensitivity (~90%) novel molecular test using gene expression profiling technology may reduce the need for unnecessary surgery in these two groups. In a multicenter trial of over 265 such nodules, a negative gene expression classifier test reduced the risk of malignancy to about 6%, leading to clinical recommendations for follow-up rather than surgery.

The evaluation of a thyroid nodule is stressful for most patients. They are concerned about the possibility of thyroid cancer, whether verbalized or not. It is constructive, therefore, to review the diagnostic approach and to reassure patients when no malignancy is found. When a suspicious lesion or thyroid cancer is identified, the generally favorable prognosis and available treatment options can be reassuring.