

Thyroid Nodules

Thyroid nodules are prevalent; up to 60% of patients have them and they increase with age. Your job will be to determine “is this a cancer or not?”

The physical exam can be revealing: a **fixed, hard nodule** with **nontender lymph nodes** is suspicious for malignancy, while a soft, mobile nodule with pain is suggestive of something else. Risk factors are listed to the right.

The diagnosis is best made with labs and imaging. There are several tools at our disposal.

The **Fine Needle Aspiration (FNA)** is the **best test** to assess a thyroid nodule; it's a biopsy. However, it should be near the end of the diagnostic tree.

The risk of a functioning nodule (that is, any nodule that secretes T4) being cancer is quite low. So the **first test** that should be obtained after a nodule is discovered is a **TSH**. If the **TSH is low** (which means the nodule is secreting T4), it should be followed with a **RAIU** scan. If indeed the nodule lights up “hot,” this confirms suspicion of a hyperfunctioning nodule. It can be treated as hyperthyroidism – medications to suppress, radioactive iodine ablation or surgery to cure. But if the nodule is “cold,” then the T4 was coming from somewhere else. Here, the nodule is NOT hyperfunctioning; it needs to be biopsied with an FNA. Whenever a biopsy is being considered, an **ultrasound should be done first**.

The risk of malignancy is much higher if the TSH was high or normal on that original TSH test. A RAIU isn't indicated as it's unlikely to reveal a hot nodule. Instead, the next step is **ultrasound**. If the lesion is **small** (< 1cm for solid, < 2cm for cystic) and has non-malignant features, it can be followed with repeat ultrasound months later. If the lesion is **large** or has malignant features, it should be biopsied with the FNA.

Risk of malignancy is dependent both on the **size** and the **risk** of the nodule and patient. FNA is indicated if a **solid hypoechoic nodule** is > 1cm. FNA can be deferred if the nodule is lower risk; as an example a 2cm may be the cut-off for a cystic lesion. FNA can be prescribed for a smaller lesion if the patient is high risk (see risk factors above); as an example a 5mm nodule in someone with radiation to the head and neck.

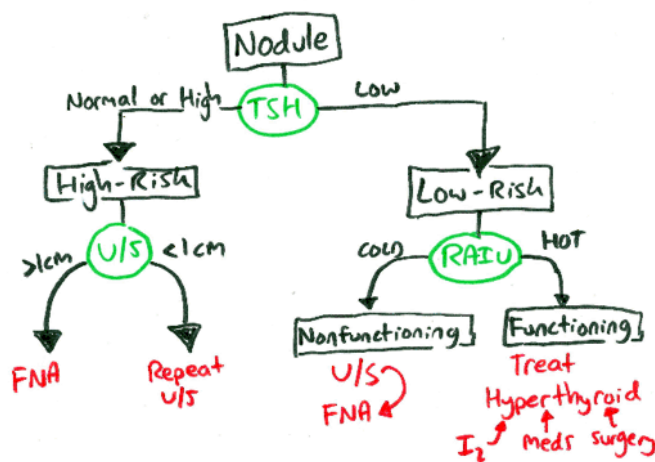
If the FNA shows a **malignancy** the thyroid must be removed (**surgery**). Deciding between hemi and total thyroidectomy is beyond the scope of this course. If the FNA reveals **benign tissue**, then the nodule should be followed with **ultrasound** and re-biopsied if it changes in size. If the FNA is **inconclusive**, the FNA should be repeated.

Pre Test Risk of Malignancy

| <u>History</u> | <u>Physical</u> |
|------------------------------------|-----------------------|
| Radiation to head and neck | Fixed, hard, firm |
| Personal History of Thyroid Cancer | Nontender Lymph Nodes |
| Hoarseness | Painless |
| Age < 20 | |
| Age > 60 | |

Tests for Thyroid Nodules

| <u>Test</u> | <u>Use</u> |
|-------------|-------------------|
| TSH | First test always |
| RAIU | If TSH depressed |
| U/S | Prior to FNA |
| FNA | Best Test |

FNA results

| <u>FNA Results</u> | <u>Action</u> |
|--------------------|------------------------|
| Malignancy | Prompt Surgery |
| Benign | Repeat U/S 6-12 months |
| Inconclusive | Repeat FNA immediately |

CancersNeed-to-know

| | |
|-------------------|--|
| Papillary | Most common thyroid cancer, associated with XRT Orphan-Annie Nuclei and Psammoma Bodies Papillary Architecture (FNA), h/o Head and Neck Ca Positive Prognosis (Slow Growing) → Resection |
| Follicular | Tumor difficult to diagnose on biopsy, looks normal Spreads hematogenously, tx resection & I₂ ablation |
| Medullary | C-Cells producing Calcitonin = Hypo-Ca Part of MEN2a and MEN2b genetics |
| Anaplastic | Found in elderly patients Grows locally and quickly Dismal Prognosis correlated with degree of Anaplasia |