



Thyroid Nodule Risk Classification

Different classification systems have been developed to predict a thyroid nodule's risk of malignancy, or cancer, based on the nodule's characteristics on ultrasound imaging. These characteristics must be carefully evaluated by the provider reviewing the ultrasound in order to correctly determine the risk of malignancy and if a biopsy, or tissue sample, is needed.

TIRADS

The most widely used classification system for thyroid nodules is named the Thyroid Imaging, Reporting and Data System (**TIRADS**). This classification system assigns "points" based on the presence of nodule characteristics. These points are added together to provide a score that determines the risk of cancer in a nodule. Your doctor will decide the best treatment course for you based on classification of the nodule(s) identified.

Ultrasound Characteristics

A combination of several ultrasound features, increases the risk of a malignant thyroid nodule. The risk of malignancy can be categorized as very low, low, intermediate, or high. A very low-risk nodule normally only warrants a biopsy when it is 2 cm in size or greater. Meanwhile, patients with low, intermediate, or high risk of malignancy will require a biopsy if their nodule is 1 cm in diameter or greater. All of the following characteristics can be visualized on ultrasound:



Please note that this information is intended for educational purposes. It does not replace consultation with your doctor, and it should not be interpreted as medical advice. We encourage you to speak to your health care provider if you have further questions or concerns regarding your medical care.

For more information scan this code or visit:

<https://thancguide.org/cancer-basics/diagnosis/imaging/thyroid-ultrasound/>

1) Composition

Thyroid nodules can be solid, cystic (fluid-filled), or have mixed cystic/solid components:

- **Solid nodules:** Greatest risk of malignancy.
- **Cystic nodules:** Benign and rarely need to be biopsied. If the cyst is large and compresses the esophagus, this can cause difficulty swallowing (dysphagia). The cyst can be biopsied and then drained to reduce its volume. Cystic nodules can recur, which may require more drainage. Recurrence can be avoided with the use of alcohol ablation, a minimally invasive procedure to destroy the nodule.
- **Mixed nodules:** Low risk of malignancy.

2) Echogenicity

Echogenicity describes the density of the nodule and consists of one of three types:

- **Hypoechoic (darker):** Highest risk of malignancy.
- **Isoechoic:** Intermediate risk of malignancy.
- **Hyperechoic (brighter):** Lowest risk of malignancy.

3) Shape

Thyroid nodule shape categories include:

- **Taller than wide:** Higher risk of malignancy.
- **Wider than tall:** Lower risk of malignancy.

4) Margins

Margins can be categorized as:

- **Smooth:** Capsule surrounding the nodule that has not been invaded by malignant thyroid tissue.
- **Ill-defined, lobulated or irregular:** Increased risk of malignancy and calls for a biopsy.

5) Echogenic Foci

Echogenic foci refer to the “bright spots” or calcifications within the nodule that can be seen on ultrasound, which indicate a higher risk of malignancy.



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