

Background

The thyroid gland is located just in front of the neck right below the larynx and is part of the endocrine system.¹ Thyroid cancer begins when healthy cells change and grow out of control. As tumors form they can either be cancerous or benign (non-cancerous). Thyroid cancer has been increasing due to the fact that new technology allows visualization of small thyroid cancer. Thyroid cancer is the third fastest rising cancer in the United States.² Thyroid cancer is the most common type of endocrine-related cancer, estimated at 64,330 new cases in 2016.³

Methods of Imaging

Several imaging tests are available today to help diagnose and treat thyroid cancer. Some of these tests include X-ray, computed tomography (CT), radioiodine scan, ultrasound (US) (See Figures 1 and 2), magnetic resonance imaging (MRI), or a positron emission tomography exam (PET)⁴ (See Table #1).



Figure #1

Transverse gray-scale of predominantly solid thyroid nodule.⁷

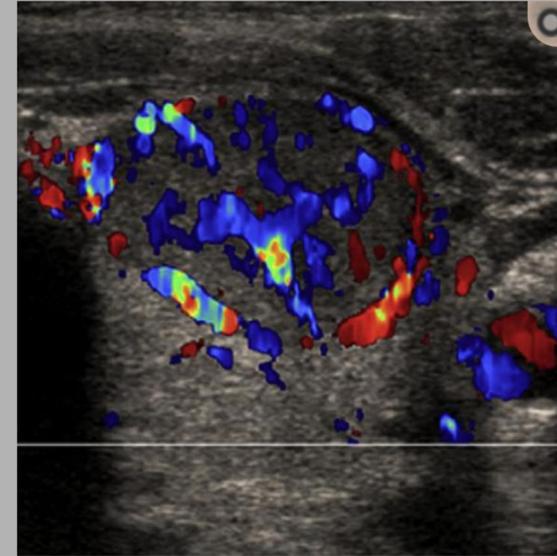
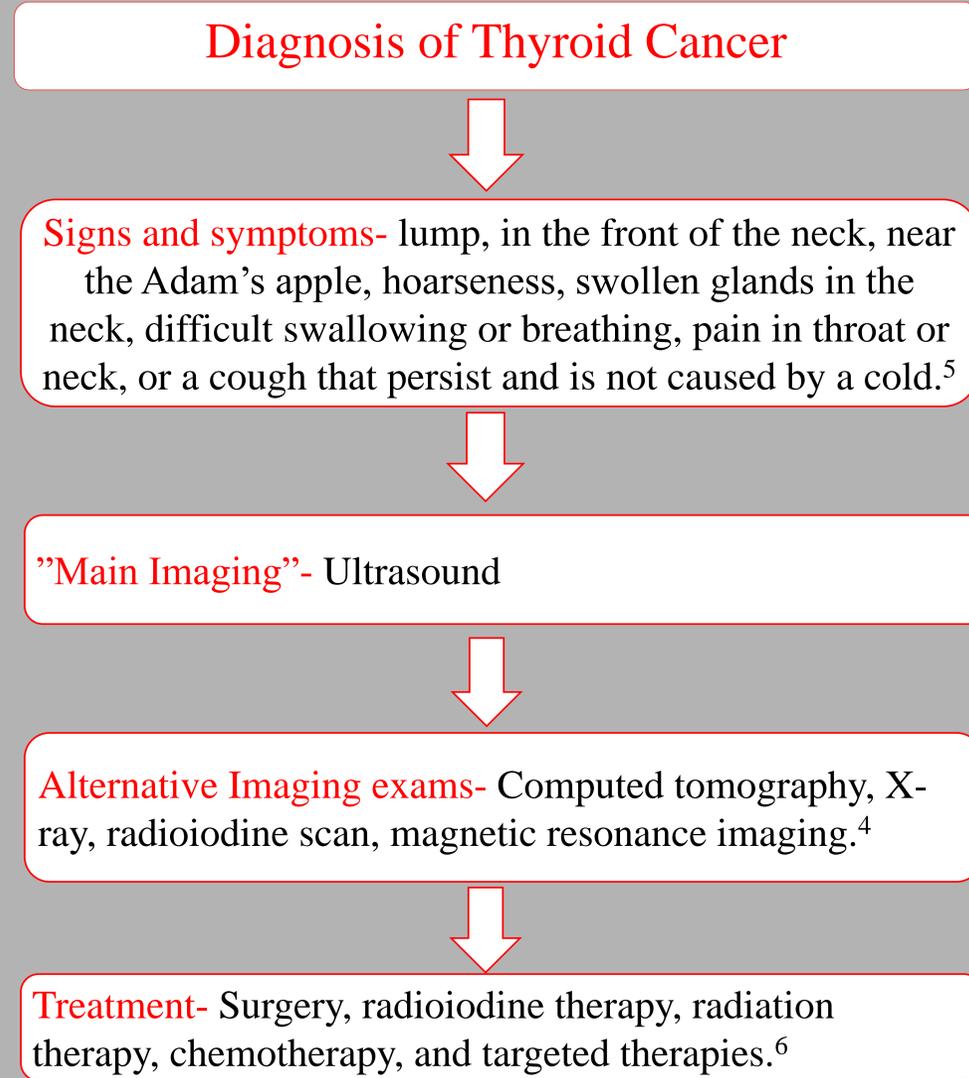


Figure #2

Addition of color Doppler mode shows marked internal vascularity, indication increased likelihood that nodule is malignant. This was a papillary carcinoma.⁷

Table #1- Diagnosis of Thyroid Cancer



Primary Imaging

Ultrasound (US) is known to be the first imaging test done when it comes to a noticeable thyroid nodule. US creates images by using an instrument called a transducer to place on the thyroid to then create sound waves that pick up echoes as they reflect off of the thyroid. The echoes are then transferred onto a computer in black and white.

Findings in Imaging

Ultrasound helps determine if a thyroid nodule is solid or filled with fluid while Radioiodine Scans help determine if there is a lump and if it has spread. A Chest x-ray may be used to see if cancer has spread to the lungs. Computed Tomography will determine the location and size of the cancer. Lastly, Magnetic resonance imaging looks through soft tissue like the thyroid gland.⁴

References

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