

USG Detected Papillary Thyroid Cancer in a Teenage Girl

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Abstract

A 19 years old teenage girl was presented with left neck swelling without any pain or dysphagia for 3-4 months. Ultrasound scan of neck was performed and shows TIRADS-IV, suggesting differential diagnosis of Papillary thyroid carcinoma. Patient under went for USG guided FNAC. Pathology report confirmed diagnosis of Papillary thyroid cancer.

Keywords

Papillary thyroid cancer; USG; FNAC; TIRADS.

Introduction

Thyroid cancer affects thyroid gland, which is a butterfly-shaped organ in the neck. The hormones that thyroid gland produces help regulate several of your bodily functions. These include your blood pressure, heart rate and metabolism.

Papillary thyroid cancer (PTC), which is the most common type of thyroid cancer, makes up about 80-85% of all cases of thyroid cancer, which is arising from follicular cells of the thyroid gland. Generally, most PTCs have an indolent course and an excellent prognosis, with a 20-year cause-specific mortality rate of less than 1% [1]. Most common in women (female – to – male ratio is 3:1) and younger adults (20-55

years), though it can occur at any age. It's often discovered incidentally during exams for other reasons or as a lump or nodule in the thyroid. Thyroid ultrasound is the best, economic, and most common method for evaluating the thyroid lesions. Thyroid ultrasound can determine if papillary thyroid cancer is likely. USG can be used to check the number and size of thyroid lesions and can even reveal what the blood supply looks like to these lesions. Additionally, USG scan is excellent to look for thyroid cancer that has spread to lymph nodes in the neck.

Case-Report

19-year-old teenage girl visited to our clinic with chief complain of left side neck swelling for 3-4 months. There is no any pain or tender, dysphagia, hoarseness of voice. Vitals were normal. Bowels and bladder habits were normal, she denied tobacco and alcohol uses. No any past medical history. No family history. On examination, palpable non-tender lump noted at left side of neck. On the basis of Physical findings physician ordered for Ultrasonography, and USG was done and findings showed hypoechoic ill-defined solid lesion size approx. 14x21x29mm with irregular wall and few micro calcifications and minimal vascularity (Figure 2-C), these all findings consistent to TIRADS-IV, which is suspicious of thyroid cancer. FNAC was advised and report shown as presence of atypical follicular epithelial arranged in clusters, monolayered sheeths, micro follicles, and singly scattered mixed with lymphocytes. Some of the cells show marked nuclear enlargement as well as intra nuclear groves (Figure-3), powdery chromatin and irregular nuclear membranes, hence impressed were made as Papillary thyroid Carcinoma. Other laboratory test findings were within normal limit. (Figure-1): shows Normal Thyroid glands and isthmus.

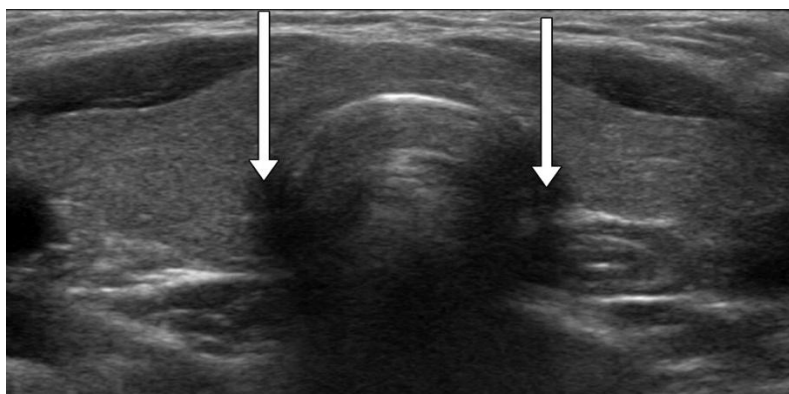


Figure 1: USG shows: Normal thyroid gland & isthmus.

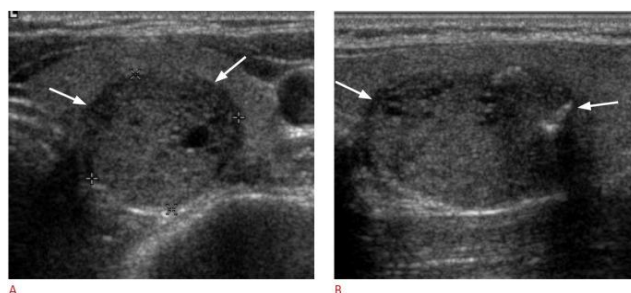


Figure 2: A&B: A- Transverse and B- longitudinal USG shows- well defined hypoechoic solid lesion with few microcalcification in left thyroid gland.

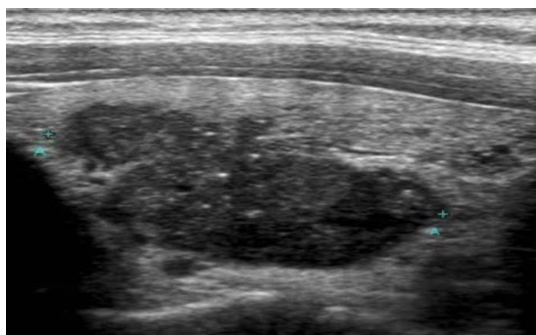


Figure 2 C: Shows ill-defined irregular margin with multiple micro calcifications in left thyroid gland.

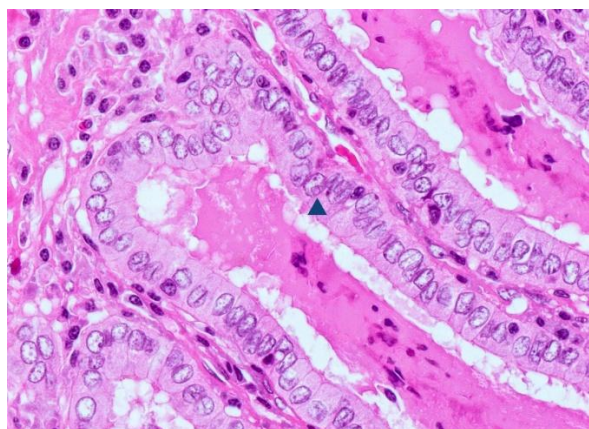


Figure 3: Marked nuclear enlargement.

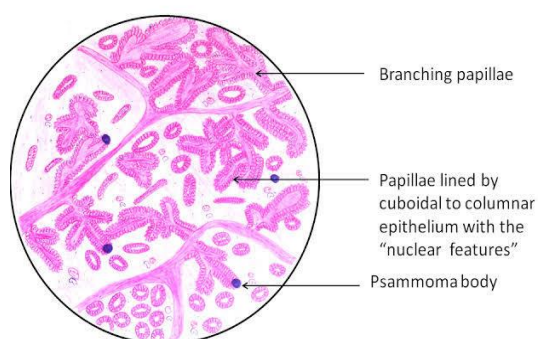


Figure 4: Psammoma body.

Discussion

Ultrasonography (US) is routinely used to evaluate thyroid nodules and detection of lesions is very high. Papillary thyroid carcinoma (PTC) has an excellent prognosis and 90% of patients survived >10 years.

Papillary carcinoma of the thyroid is the most common malignancy arising from follicular cells of the thyroid gland. Generally, most PTCs have an indolent course and an excellent prognosis, however, some PTCs with certain characteristics are likely to recur, have distant metastasis, and cause death. Various factors have been reported to influence the prognosis of PTCs, including advanced age > 45 years, female sex, large tumor size, advanced stage, multiplicity, extrathyroidal extension, and the presence of lymph node metastasis or distant metastasis at the time of diagnosis [2-6]. Papillary carcinoma has a tendency to metastasize early to local lymph nodes of patients having nodal involvement.

Thyroid gland cancer can be extra parathyroid (isthmus) or intra parathyroid glands. Some studies have reported that despite the relatively low incidence of PTCs originating in the isthmus [7-9]. High-resolution ultrasound examination is becoming widely accepted as the technique of choice for staging PTC, focusing on assessing the primary tumor, extracapsular extension, and regional lymph node involvement and is recommended by the guidelines established by the American Thyroid Association [10]. The most common thyroid malignancy, include hypo echogenicity, spiculated/micro lobulated margins, microcalcifications, and a nonparallel orientation. However, many PTC variants have been identified, some of which differ from the classic type of PTC in terms of biological behavior and clinical outcomes. The histopathological variants of PTC associated with more unfavorable outcomes are the tall cell variant (TCV), the columnar cell variant, and the hobnail variant. Psammoma bodies are common in PTC and they are usually seen within the papillary structures (Figure 4) or in the tumor stroma but not in the tumoral follicles. Psammoma bodies represent focal infarction and dead tip of papillae, which is calcified. Recently, the revised American Thyroid Association guidelines classified PTC variants according to their biological behavior as described in the literature [11] in (Table 1).

Patients with papillary thyroid cancer have an elevated risk for a secondary primary cancer, e.g. breast, urinary tract, digestive system, haematolymphoid and skin cancers, and the risk persists for decades after the initial PTC diagnosis [12,13].

Treatment is individualized according to clinical, imaging, including high-resolution ultrasound, and cytological assessment in order to control disease and avoid over-treatment [14]. Ultrasound-guided percutaneous thermal ablation is an emerging option in selected cases. Central neck dissection central or lateral neck dissection is reserved for patients with clinically or radiologically involved lymph nodes. Radioactive iodine is reserved for large tumors, extrathyroidal extension or nodal/distant metastases. Follow-up includes monitoring of serum thyroglobulin (Tg) and anti-Tg antibodies, as well as neck ultrasound.

Aggressive	Less Favorable	Favorable
Tall cell variant Columnar cell variant Hobnail variant	Solid variant Diffuse sclerosing variant	Follicular (encapsulated) variant Cribriform –molecular variant Warthin – like variant

Table 1: Classification of papillary thyroid carcinoma variants according to biological behavior in the 2015 American Thyroid Association guideline.

Conclusion

In conclusion, although Papillary thyroid carcinoma is common, however it's rarely finds in teenage < 30 years old, which has absented of symptoms except neck swelling. Therefore, careful ultrasound evaluation should be performed on a mass that originates in the Thyroid lobes and isthmus. Subtle hypoechogenicity and the presence of calcification could be clues whether ultrasound-guided FNA should be performed or not even in cases in which ultrasound has revealed a circumscribed mass with a wider-than-tall shape.

Conflict of interest statement

The authors declare that absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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