

## Case Report

# Papillary Carcinoma of the Thyroid- All Lymph Nodes on Imaging are not Metastatic

Gundaram Vikram Reddy\*, KG Vishnu Kumar, Saravana Sundaram SN, Rufus Ranjitsingh Edwin and Arcot Rekha

Saveetha Medical College, India

## Abstract

Papillary carcinoma thyroid is the most common neoplasm of the thyroid gland. Dietary iodine and radiation to the head and neck in childhood play a role in etiology. Generally patient's presents with swelling in front of neck region with or without cervical lymphadenopathy, some of them may present with pressure symptoms like stridor. Ultrasound of neck done to know whether the swelling is solid or cystic and to rule out cervical lymphadenopathy. FNAC (Fine Needle Aspiration Cytology) of thyroid provides accurate diagnosis. Total thyroidectomy with Modified Radical Neck dissection (MRND) is the cornerstone of therapy. Prognosis mainly depends upon the age of onset of disease, children and young adults have good prognosis. A coexistence of cervical tuberculosis should be considered in the etiology of an enlarged lymph node for patients with papillary carcinoma thyroid. An awareness of nodes visible on imaging which are not involved in papillary carcinoma of thyroid helps to accurately stage the cancer.

**Keywords:** Papillary carcinoma thyroid; Total thyroidectomy; Modified radical neck dissection; Extrathyroid extension; Central lymph node dissection; Lateral lymph node dissection

## Introduction

The prevalence of thyroid carcinoma is increasing and represents the most common endocrine malignancy [1], accounting for 1.0% to 1.5% of all new cancers diagnosed each year, with Papillary Thyroid Carcinoma (PTC) being the most frequent subtype. The increased incidence of thyroid cancer is apparent, because of the increased detection of small cancers in the preclinical stage. Several population-based studies showed that this increase is almost entirely from high incidence of papillary thyroid carcinoma and comprises about 80% to 85% of thyroid malignancies. The incidence of papillary cancer increased from 4.8 to 14.9 per 100,000 [2]. PTC is multicentric and has intra thyroid spread and it metastasizes through lymphatics. Total thyroidectomy with modified radical neck dissection is the cornerstone of therapy. With the advent of good imaging techniques, preoperative small lymph node involvement can easily be detected. However in India subclinical tuberculosis is often associated with multiple cervical lymphadenopathy.

## Case Presentation

### Case 1

A 24 years old female presented with swelling in the anterior aspect of neck for years. Clinical examination revealed a multi nodular goiter (size 3 cm × 1 cm and 2 cm × 1 cm) in the euthyroid

state. The thyroid was hard in consistency with ill-defined borders. Ultrasound of the neck suggested presence of prominent nodes bilaterally involving left level-I and level-III lymph nodes (size 1.3 cm × 0.7 cm and 1.4 cm × 0.9 cm) with Right level-II lymph node (size 1.5 cm × 0.8 cm). These nodes were not clinically palpable. FNAC of the thyroid was suggestive of papillary carcinoma of thyroid. Contrast Enhanced Computerized Tomography (CECT) of the neck revealed the presence of multiple sub centric enhancing lymph nodes seen along the bilateral jugular chain (Figure 1A and 1B). The patient then underwent a total thyroidectomy with MRND. Frozen section of the nodal tissue revealed no nodal involvement by the tumor and the lymph nodes showed caseous granuloma consistent with tuberculosis.

The final histopathological examination revealed papillary carcinoma thyroid of classic type (usual, conventional) with uninvolved margins and no evidence of lymphovascular invasion (Figure 2).

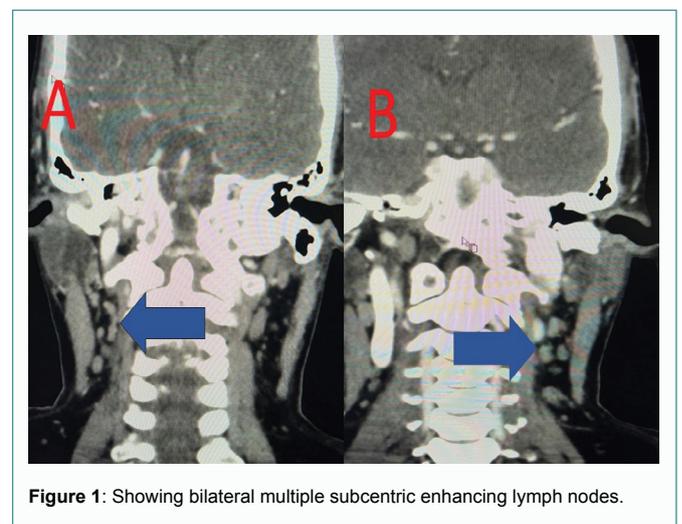


Figure 1: Showing bilateral multiple subcentric enhancing lymph nodes.

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**\*Corresponding author:** Gundaram Vikram Reddy, Saveetha Medical College, Chennai, India, E-mail: reddyvikram000@gmail.com

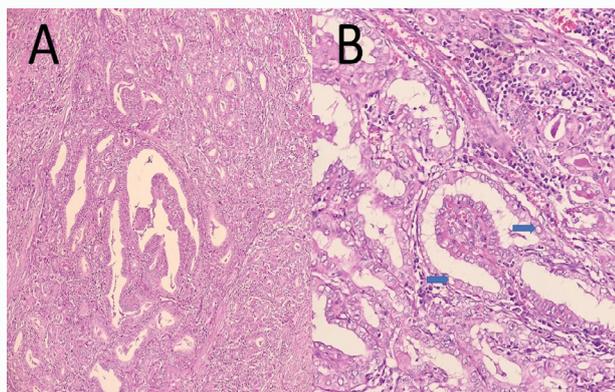


Figure 2: Showing Orphan Annie eye nuclei in histopathological slide.

### Case 2

A 25 years old female presented with a swelling in the anterior aspect of the neck for 2 weeks. On examination a swelling (size 4 cm × 3 cm) was palpable on the anterior aspect of the neck on the left side. Left upper jugular node of size 1 cm × 1 cm, firm in consistency, was palpable. Ultrasound of the neck showed well defined heterogeneous lesions. FNAC of the lymph node suggests the presence of multinucleated Langhans giant cells and hurthle cells. CECT of the neck reports revealed presence of cavitory lesions, consolidation, and tree in bud nodules in the left lung suggestive of tuberculous etiology. Then the patient underwent a total thyroidectomy and the frozen section of lymph nodes showed tuberculosis caseating granulomas (Figure 3).

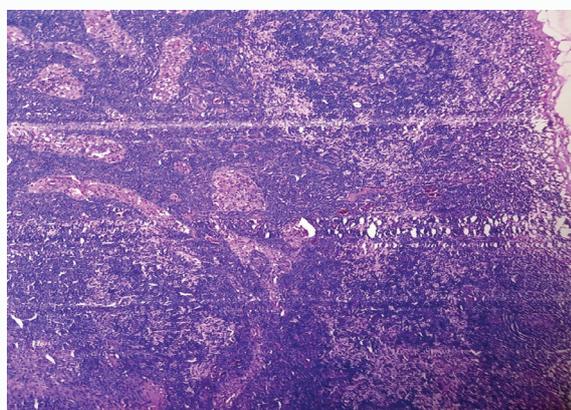


Figure 3: Shows Lymph node showing tuberculous caseating granuloma.

### Discussion

Cancers of the thyroid are becoming the most rapidly increasing cancers in recent decades. Among females it is the 5<sup>th</sup> most commonly encountered cancer [3]. These common tumors tend to be biologically indolent and have an excellent prognosis (survival rates of >95% at 25 years). Papillary carcinoma is found to occur at any age. Most tumors are diagnosed in patients in the third to fifth decades of life [4]. Women are affected more than men. Papillary Carcinoma of Thyroid (PTC) presents as an asymptomatic (painless) thyroid mass with or without enlargement of regional (cervical) lymph nodes.

Hoarseness and dysphagia occur in approximately 20% of cases, signaling recurrent laryngeal nerve involvement with vocal cord paralysis or tracheal compression. The examination usually reveals a painless mass that has irregular borders. In papillary carcinoma of thyroid 40% of small tumors and 70% of large tumors have cervical lymphadenopathy of which 27% reported in the lateral aspect of the neck in the ipsilateral thyroid lobe. Mostly PTC metastasis occurs in the central compartment first, then to the lateral compartment [5,6], although it has the properties of skip metastasis [7].

Cervical lymph node metastasis was the main risk factor for a higher recurrence in PTC patients and also influences the survival of patients [8-11]. Study showed reoperation for PTC recurrence was relatively difficult and might significantly increase the surgical complications which would affect patient's quality of life [12]. The combination of the USG/CT/FNAC/intraoperative biopsy could achieve a very high sensitivity and specificity in preoperative assessing cervical lymph node metastasis. Male patients age ≤ 45 years old, tumor size >1 cm, and USG features as micro Calcification Require Prophylactic CLND (Central Lymph Node Dissection) should be performed. Lateral Lymph Node Dissection (LLND) should be more actively performed in patients with the number of CLNM >3 (Central Lymph Node Metastasis). Extent of LLND should include levels II, III, IV and V. For tumors located in the upper 1/3 of the lobe, LLNM and skip metastasis likely occurred, so lateral lymph nodes should be noticed when lymph node status was preoperatively evaluated by imaging.

A high index of suspicion is needed for diagnosis of tuberculous lymphadenitis, which is known to mimic a number of pathological conditions as tubercular lymphadenopathy is one of the most common extrapulmonary manifestations of tuberculosis, as 63% to 75% cervical lymphadenopathy is mainly due to tuberculosis. A co-existence of cervical tuberculosis should be considered in the etiology of an enlarged lymph node for patients with papillary carcinoma thyroid. An awareness of nodes visible on imaging which are not involved in papillary carcinoma of thyroid, helps to accurately stage the carcinoma, which includes Stage I- Any T<sub>1</sub>,N<sub>0</sub>,M<sub>0</sub>, Stage II- AnyT<sub>2or3</sub>,N<sub>0</sub>,M<sub>0</sub>, Stage III-T<sub>4</sub>,N<sub>0</sub>,M<sub>0</sub> or any T, N<sub>1</sub>,M<sub>0</sub>, Stage IV- Any T, any N, M<sub>1</sub>. From above without nodal involvement papillary carcinoma thyroid falls in stage I and II. Nodal involvement upgrades the tumour staging to stage III. Patients with stage I and II can be treated with simple thyroidectomy but patients in stage III need modified radical neck dissection in addition to total thyroidectomy. Patients with cervical tuberculosis along with papillary carcinoma thyroid without nodal metastasis should fall in stage II but lack of accurate diagnosis disease is staged as stage III.

### Conclusion

Papillary carcinoma thyroid with nodal involvement requires lymph node clearance. Non-invasive assessment of the risk of lymph node metastasis in patients with papillary thyroid carcinoma is of great value for the treatment option selection. The coexistence of Tb and other lymphadenitis erroneously can upstage the papillary carcinoma of thyroid on imaging.

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