ORIGINAL RESEARCH PAPER
Volume - 14 | Issue - 05 | May - 2025 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

A RARE CASE OF CO-EXISTING PAPILLARY THYROID CARCINOMA AND PULMONARY TUBERCULOSIS IN A 60-YEAR-OLD MALE

Respiratory Medicine

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ABSTRACT

Introduction: Co-existence of malignancy and Tuberculosis is not uncommon given the immunocompromised status of patients and bone marrow suppression induced by chemotherapy. More commonly seen in hematological malignancies, TB can also be seen co existing with solid organ malignancies rarely. **Case Report:** We report a rare and diagnostically challenging case of a 60-year-old male presenting with respiratory symptoms and a neck mass, who was found to have both papillary carcinoma of the thyroid and active pulmonary tuberculosis. The patient was initially suspected to have pulmonary metastasis, but lung biopsy revealed pulmonary tuberculosis, prompting a change in management strategy. **Conclusion:** This case highlights the importance of comprehensive clinical evaluation and the role of histopathology in distinguishing between metastatic lesions and infectious processes, particularly in regions endemic for tuberculosis.

KEYWORDS

Papillary Thyroid Carcinoma, Pulmonary Tuberculosis, Coexistence, Biopsy, Neck Mass

INTRODUCTION

The synchronous occurrence of tuberculosis and malignancy is uncommon but well-documented. In tuberculosis-endemic regions, reactivation of latent TB can occur in immunocompromised states such as malignancy. Papillary thyroid carcinoma (PTC) is the most common type of thyroid cancer, with a generally favorable prognosis. Tuberculosis, on the other hand, is a chronic granulomatous infection and remains a public health burden. The coexistence of both conditions presents diagnostic and therapeutic challenges, especially when imaging findings mimic metastasis. This case report discusses such a rare coexistence, with emphasis on diagnostic pitfalls and the importance of tissue diagnosis.

Case Report

A 60-year-old male farmer presented with a two-month history of productive cough and one month of progressive dyspnea (mMRC grade II). He also reported a painless swelling on the right side of his neck, which he noticed while shaving. The swelling had progressively increased in size in the course of a month. He denied fever, weight loss, or appetite changes.

Past history included chronic bronchitis-like symptoms occurring seasonally over the past few years, but no prior diagnosis of tuberculosis. The patient was a former smoker with a 25-year history of beedi smoking of 1 to 2 packs per day, quit 10 years prior.

Neck examination revealed a single 2×2cms swelling in the anterolateral region of neck on right side, in the thyroid fossa. All borders were well defined. The swelling moves with deglutition but not with protrusion of tongue. Skin over the swelling appears smooth. The swelling is not tender, no local rise of temperature. Trachea central in position, left lobe of the thyroid enlarged, no nodules, firm in consistency. Multiple cervical lymph nodes palpable on both the sides of the neck in the Right - sub mandibular (Ib), upper (II) and middle (III) and lower jugular (IV). Left - upper (II) and middle jugular(III) levels. The largest amongst these was a 2×1 cm node in the level Ib on the right side. Respiratory examination revealed diffuse expiratory rhonchi bilaterally on auscultation.

ESR was slightly elevated otherwise blood investigations were unremarkable. Sputum for Ziehl Neelsen(ZN) staining was negative for acid fast bacilli. Chest X-ray showed patchy inhomogeneous opacities in the left upper zone. Patient underwent ultrasonography of the neck that revealed 2 suspicious nodules in the isthmus and right lobe of thyroid. The nodules were solid, hyperechoic, with lobulated margins with a TIRADS score or 6 - moderately suspicious for malignancy. USG neck also showed multiple enlarged lymph nodes on both sides of the neck with few nodes showing partial necrosis, loss of fatty hilum and peripheral vascularity.

Figure 1 – Chest X ray Showing Patchy Inhomogeneous Opacities in Left Upper Lobe

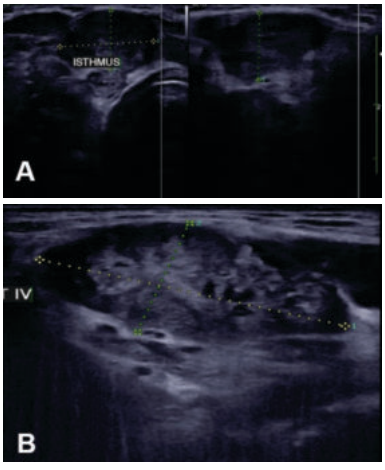

Figure 2 - USG of Neck Showing 2 Suspicious Nodules - Isthmus of Thyroid(A) and Right Lobe of Thyroid (B)

Fine Needle Aspiration Cytology (FNAC) from the right thyroid lobe showed thyroid follicular cells with pleomorphic nucleus, granular cytoplasm arranged in a papillary and microfollicular pattern confirming the diagnosis of papillary carcinoma of thyroid(PTC); cervical lymph node FNAC supported metastasis. CECT of neck and

thorax was done to study the extent of the tumor and to look for metastasis.

CECT neck showed a lobulated mass in the right lobe of thyroid with post contrast enhancement, causing deviation of lower trachea. It also showed multiple enlarged cervical lymph nodes in the neck at multiple levels with post contrast enhancement. Some lymph nodes also showed central hypodense areas likely necrosis. An ill-defined, heterogeneous mass lesion with spiculated margins and eccentric foci of calcification within, measuring 2.5cm x 2.4 cm was noted in the apico-posterior segment of Left upper lobe. The mass showed heterogeneous post contrast enhancement.

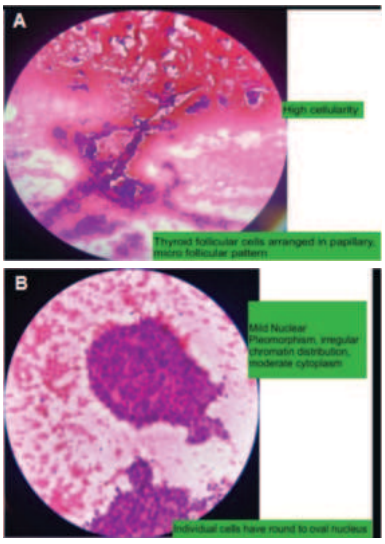

Figure 3 – FNAC From Thyroid Nodule(A) and Right Cervical Lymph Node (B)

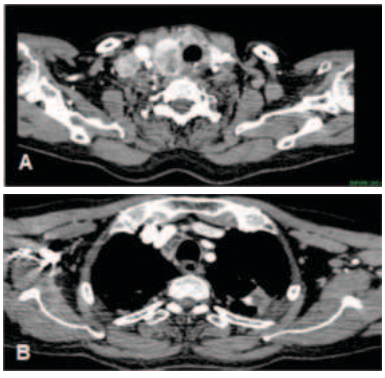

Figure 4 - CECT Neck(A) Showing a Lobulated Mass in the Right Lobe of Thyroid. CECT Upper Thorax(B) Showing a Mass with Spiculated Margins, Eccentric Foci of Calcification and Heterogeneous Enhancement in Left Upper Lobe.

A CT guided biopsy was performed on the left upper lobe. Histopathology showed granulomatous inflammation with well formed granulomas consisting of epitheloid cells, multinucleated Langhans giant cells and areas of central necrosis, consistent with Tuberculosis. Further modified ZN staining showed presence of acid fast bacilli(AFB).

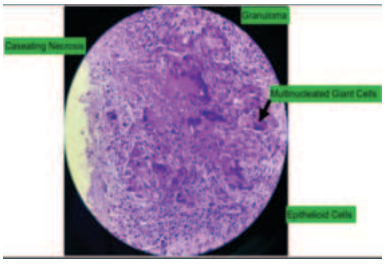

Figure 5 – Histopathology Shows Granulomatous Inflammation with Langhans Giant Cells, Epitheloid Cells and Central Caseous Necrosis

The patient was started on a multidrug regime of Isoniazid, Rifampicin, Pyrazinamide and Ethambutol, according to National Tuberculosis Elimination Program (NTEP). 2 months later, the patient was followed up, sputum sent for CB-NAAT which was negative. Following sputum negativity, he underwent total thyroidectomy and modified radical neck dissection.

DISCUSSION

This case underlines the diagnostic complexity in differentiating metastatic lung lesions from infectious processes such as TB. Initial clinical and radiological findings suggested lung metastasis from a primary thyroid malignancy. However, histopathology overturned this hypothesis, confirming tuberculosis instead.

The association between tuberculosis and malignancy is multifaceted. Malignancy and its associated immunosuppressive environment may predispose patients to reactivation of latent tuberculosis. Literature suggests up to 7–8% of patients with solid organ cancers of the head and neck may concurrently have TB, with higher incidence in hematological malignancies.

Moreover, PTC rarely presents with pulmonary metastases initially; the common sites are lungs and bones, but usually in advanced stages. In this case, clinical suspicion and imaging were suggestive of metastasis, and only tissue biopsy confirmed the true nature of the pulmonary lesion.

CONCLUSION

This case emphasizes the importance of considering tuberculosis as a differential in suspected metastatic lesions in endemic areas. It also illustrates the critical role of histopathology in guiding appropriate management, avoiding unnecessary delay or incorrect treatment. Clinicians should maintain a high index of suspicion for TB even in oncology patients presenting with pulmonary findings.

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