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REVIEWER'S REPORT

Manuscript No.: IJAR-57292

Title: Thyroid tuberculosis mimicking malignancy: A diagnostic trap in the presence of cervical lymphadenopathy A case report,

Recommendation:
Accept after minor revision

Rating	Excel.	Good	Fair	Poor
Originality		✓,		
Techn. Quality		✓,		
Clarity	✓,			
Significance	✓,			

Reviewer Name: Dr. Bilqees Hamza

Detailed Reviewer's Report

The research article titled "Thyroid Tuberculosis Mimicking Malignancy: A Diagnostic Trap in the Presence of Cervical Lymphadenopathy - A Case Report" presents a rare and clinically significant diagnostic challenge within the field of endocrinology and infectious diseases. The author establishes that primary thyroid tuberculosis (TT) is an exceptionally uncommon manifestation of *Mycobacterium tuberculosis*, even in endemic regions, largely due to the thyroid gland's inherent resistance to infection—attributed to its high iodine content, rich vascularity, and bactericidal properties of thyroid hormones. The core of the paper investigates a specific case where the clinical presentation—a painless thyroid mass accompanied by lateral cervical lymphadenopathy—closely mirrors the classic indicators of thyroid malignancy. The narrative successfully argues that this "diagnostic trap" can lead to unnecessary radical surgical interventions if clinicians do not maintain a high index of suspicion for granulomatous diseases during the differential diagnosis of neck masses.

The narrative begins by framing the rarity of the condition, noting that thyroid involvement accounts for only 0.1% to 0.4% of all tuberculosis cases. The author expertly evaluates the diagnostic path of a 37-year-old patient who presented with a right lateral cervical adenopathy evolving over four months. A significant strength of this case report is the detailed description of the "silent" nature of the infection; the patient exhibited no systemic signs of tuberculosis, such as fever, night sweats, or weight loss, and maintained normal thyroid function. This absence of constitutional symptoms is presented as a primary factor in the diagnostic confusion, as it steers the clinical focus toward oncological rather than infectious

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etiologies. The author handled this clinical ambiguity with precision, highlighting how the physical examination and initial ultrasound findings were highly suggestive of a malignant process with nodal metastasis.

A primary focus of the research involves the evaluation of diagnostic tools, particularly Fine Needle Aspiration Cytology (FNAC). The author explores the limitations of FNAC in the context of thyroid tuberculosis, noting that while it is a standard first-line procedure for thyroid nodules, it often yields non-specific results in TT, such as "inconclusive" or "suggestive of a cold nodule." In this specific case, the definitive diagnosis was only achieved post-operatively through histological examination of the right hemithyroidectomy and adenectomy specimens. The finding of "epithelioid and giant cell granulomas with caseous necrosis" is identified as the gold standard for diagnosis. The author's evaluation of the histological features underscores the importance of pathology in distinguishing between papillary thyroid carcinoma and tubercular granulomas, particularly when the latter presents with extensive necrosis that can mimic the cystic degeneration of a tumor.

The discussion then moves to the treatment and outcome of the patient, which provides a testament to the efficacy of medical management once an accurate diagnosis is established. The author evaluates the standard antituberculous drug regimen, noting that a six-to-nine-month course led to a good clinical outcome with the resolution of symptoms. The study highlights that unlike malignancy, which requires extensive surgery and potential radioactive iodine therapy, thyroid tuberculosis is primarily a medical disease where surgery should ideally be limited to biopsy or the management of complications like abscesses. The narrative effectively argues that if the diagnosis had been suspected pre-operatively—perhaps through PCR testing of the aspiration fluid—the patient might have avoided the hemithyroidectomy, thereby preserving thyroid tissue.

Furthermore, the paper addresses the global epidemiological context, reminding readers that despite its rarity, TT must remain on the radar for clinicians practicing in areas with high tuberculosis prevalence or among immunocompromised populations. The author explores the different routes of infection—primary (extremely rare) versus secondary (hematogenous or lymphatic spread from a distant focus)—and notes that in this case, the lack of other detectable sites of infection makes it a rare primary presentation. The narrative concludes that the association of a thyroid mass with cervical lymphadenopathy is not pathognomonic for cancer. By documenting this "diagnostic trap," the author provides a vital contribution to medical literature, encouraging a more nuanced approach to cervical masses that includes infectious diseases in the differential, even when the clinical "red flags" for malignancy are present.

In summary, this article offers a robust and well-documented inquiry into a sophisticated clinical scenario. It successfully bridges the gap between infectious disease protocols and surgical oncology. The

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author's ability to link the histological findings with the clinical failure of initial diagnostic assumptions makes this a significant contribution to the field of clinical medicine. It is an essential read for urologists, endocrinologists, and general surgeons, providing a clear reminder that in the presence of a "diagnostic trap," the most common oncological suspicions can sometimes mask a treatable infectious reality.

Recommendations

- The author should consider incorporating a section on "Molecular Diagnostics," specifically evaluating the utility of the GeneXpert MTB/RIF assay on FNAC samples as a potential method for pre-operative diagnosis in suspected cases of thyroid tuberculosis.
- To improve the academic depth of the review, it is recommended that the author include a table summarizing similar case reports from the last decade to compare the frequency of pCR-like medical resolution versus surgical intervention.
- The paper would benefit from a dedicated discussion on the "Ultrasound Features" of thyroid tuberculosis, exploring whether certain patterns—such as the presence of internal calcifications or specific vascularity profiles—could help differentiate TT from malignancy in a non-invasive manner.
- It is suggested that the author include high-resolution images of the histological slides showing the caseous necrosis and the Ziehl-Neelsen stain to provide a definitive visual guide for pathologists encountering similar cases.
- Future research should explore the "Long-term Thyroid Function" of patients who undergo surgical resection for TT, investigating if these patients have a higher incidence of subclinical hypothyroidism compared to those treated with antituberculous therapy alone.

Recommendation: Recommend for publication with minor revision.