

Coexistence of Papillary Thyroid Carcinoma Metastasis and Tuberculous Cervical Lymphadenitis Within the Same Lymph Nodes: A Rare Diagnostic Challenge and Literature Review

Fadoua El Mourabit*, Lahjaouj M, Loudghiri M, Bijou W, Oukessou Y, Rouadi S, Abada R, Roubal M and Mahtar M

Department of Otolaryngology–Head and Neck Surgery, Ibn Rochd University Hospital, Faculty of Medicine and Pharmacy, Hassan II University of Casablanca, Casablanca, Morocco

*Corresponding author: Fadoua El Mourabit, Department of Otolaryngology–Head and Neck Surgery, Ibn Rochd University Hospital, Faculty of Medicine and Pharmacy, Hassan II University of Casablanca, Casablanca, Morocco

Received: August 31, 2026

Published: November 02, 2026

Abstract

Background: The coexistence of papillary thyroid carcinoma (PTC) and cervical tuberculous lymphadenitis is uncommon and represents a major diagnostic challenge, particularly in tuberculosis-endemic countries. The simultaneous presence of metastatic carcinoma and tuberculous granulomatous inflammation within the same cervical lymph node is exceptionally rare and may lead to diagnostic confusion, inaccurate staging, and therapeutic dilemmas.

Case presentation: We report the case of a 31-year-old Moroccan woman with no significant medical history who presented with a progressively enlarging, painless left lateral cervical mass over two months. Clinical examination revealed multiple mobile left cervical lymph nodes involving levels II–V and enlargement of the left thyroid lobe, without inflammatory skin changes or fistulization. Neck ultrasonography demonstrated a suspicious 19-mm left thyroid nodule (EU-TIRADS 4) associated with multiple pathological cervical lymph nodes, some containing microcalcifications. Fine-needle aspiration cytology of the thyroid nodule was classified as Bethesda V.

The patient underwent surgery. Intraoperatively, abundant caseous material was encountered within the cervical lymph nodes. Frozen-section examination of a lymph node suggested tuberculous lymphadenitis, whereas frozen-section analysis of the thyroid lesion confirmed papillary thyroid carcinoma. Consequently, the initial left hemithyroidectomy with isthmusectomy was completed by total thyroidectomy and left cervical lymph node dissection.

Definitive histopathological examination revealed a 2-cm papillary thyroid carcinoma with extrathyroidal extension. Thirteen cervical lymph nodes were harvested; seven contained metastatic papillary thyroid carcinoma, including three lymph nodes showing simultaneous metastatic carcinoma and tuberculous granulomatous inflammation with caseous necrosis, while the remaining six lymph nodes demonstrated isolated tuberculous lymphadenitis. The contralateral thyroid lobe was free of malignancy.

The patient subsequently received radioactive iodine ablation together with standard antituberculous therapy and remained free of recurrence during follow-up.

Conclusion: This case highlights the importance of considering concomitant tuberculosis in patients presenting with metastatic cervical lymphadenopathy, particularly in endemic regions. Histopathological examination remains essential for establishing the diagnosis because imaging and cytology may not distinguish metastatic disease from tuberculosis. Awareness of this rare coexistence is crucial to avoid diagnostic pitfalls and to ensure appropriate multidisciplinary management.

Keywords: Papillary thyroid carcinoma; Tuberculous lymphadenitis; Cervical lymph node; Coexistence; Thyroid cancer; Case report

Introduction

Papillary Thyroid Carcinoma (PTC) is the most common endocrine malignancy, accounting for approximately 80–85% of all thyroid cancers. It is generally characterized by an indolent clinical course and an excellent prognosis, with a 10-year disease-specific survival exceeding 95%. Nevertheless, cervical lymph node metastases are observed in 20–50% of patients at diagnosis and constitute the most frequent pattern of disease dissemination. Although nodal metastases have limited impact on overall survival in young patients, they are associated with an increased risk of locoregional recurrence and may influence the extent of surgical treatment and postoperative management [1–4].

Cervical tuberculous lymphadenitis is the most common form of extrapulmonary tuberculosis and remains prevalent in tuberculosis-endemic countries, including Morocco. It typically presents as chronic, painless cervical lymphadenopathy and may clinically and radiologically mimic metastatic lymph node disease. Ultrasonographic findings such as cystic degeneration, intranodal necrosis, microcalcifications, and heterogeneous echogenicity may overlap with those observed in metastatic PTC, making preoperative differentiation particularly challenging [5–8].

Fine-needle aspiration cytology (FNAC) is a cornerstone of the evaluation of thyroid nodules and suspicious cervical lymph nodes. Although the Bethesda System provides reliable risk stratification for thyroid nodules, FNAC may fail to distinguish metastatic carcinoma from granulomatous inflammation when both conditions coexist. Cytological examination of lymph nodes affected by tuberculosis may also be inconclusive, particularly in the absence of microbiological confirmation, potentially leading to delayed diagnosis or inaccurate staging of thyroid malignancy [9–12].

The simultaneous occurrence of papillary thyroid carcinoma and cervical tuberculous lymphadenitis is uncommon, whereas the histopathological coexistence of metastatic PTC and tuberculous granulomatous inflammation within the same cervical lymph node is exceptionally rare. Several hypotheses have been proposed to explain this association, including impaired local immune surveillance induced by malignancy, chronic inflammatory stimulation promoting carcinogenesis, or simple coincidence in regions with a high prevalence of tuberculosis. Because of its rarity, the biological relationship between these two entities remains uncertain [13–17].

This coexistence represents a significant diagnostic and therapeutic challenge. Enlarged cervical lymph nodes in patients with thyroid carcinoma are generally presumed to represent metastatic disease, which may result in extensive neck dissection. Conversely, attributing all lymphadenopathy to tuberculosis may underestimate the true extent of malignant disease and compromise oncological management. Histopathological examination therefore remains essential for establishing the diagnosis and guiding appropriate multidisciplinary treatment [3,7,15,18].

Herein, we report a rare case of a young woman with papillary thyroid carcinoma associated with cervical tuberculous lymphadenitis, in whom definitive histopathology demonstrated the coexistence of metastatic papillary thyroid carcinoma and tu-

berculous granulomatous inflammation within the same cervical lymph nodes. We also review the current literature and discuss the diagnostic pitfalls, pathological mechanisms, and therapeutic implications of this unusual association.

Case Presentation

A 31-year-old Moroccan woman with no significant past medical or surgical history presented to the Department of Otorhinolaryngology–Head and Neck Surgery with a progressively enlarging painless left lateral cervical mass that had evolved over two months. She denied fever, night sweats, weight loss, anorexia, chronic cough, hemoptysis, dysphagia, odynophagia, dyspnea, dysphonia, or symptoms suggestive of thyroid dysfunction. There was no personal history of tuberculosis, previous cervical irradiation, autoimmune disease, or malignancy. She also denied any known contact with individuals diagnosed with tuberculosis. Her family history was negative for thyroid carcinoma and tuberculosis.

On physical examination, the patient was afebrile and in good general condition. Head and neck examination revealed multiple firm, mobile, non-tender left cervical lymph nodes involving levels II, III, IV, and V. The overlying skin was intact, without erythema, local warmth, fluctuation, or cutaneous fistulization. Thyroid palpation disclosed mild enlargement of the left thyroid lobe without evidence of fixation to adjacent structures. No palpable abnormalities were detected in the contralateral thyroid lobe. Flexible nasopharyngolaryngoscopy demonstrated a normal nasopharynx, oropharynx, hypopharynx, and larynx with preserved bilateral vocal cord mobility. The remainder of the physical examination was unremarkable. Routine laboratory investigations, including complete blood count, renal and liver function tests, serum calcium, and thyroid function tests, were within normal limits.

Neck ultrasonography demonstrated a heterogeneous multinodular thyroid gland. A solid hypoechoic nodule measuring $19 \times 15 \times 9$ mm was identified in the left thyroid lobe. The lesion had irregular margins and was classified as EU-TIRADS 4, raising suspicion for malignancy. Multiple enlarged cervical lymph nodes were identified along the left jugular chain at levels II, III, IV, and V. These lymph nodes showed several suspicious ultrasonographic features, including loss of the fatty hilum, rounded morphology, heterogeneous echotexture, cystic degeneration, and punctate intranodal calcifications. The largest lymph node measured $25 \times 14 \times 7$ mm. Additional supraclavicular lymphadenopathy was also noted.

Ultrasound-guided fine-needle aspiration cytology (FNAC) of the thyroid nodule was performed and classified as Bethesda category V (suspicious for papillary thyroid carcinoma). Considering the suspicious thyroid lesion associated with extensive ipsilateral cervical lymphadenopathy, surgical management was planned. Preoperative imaging suggested metastatic cervical lymph node involvement, although tuberculous lymphadenitis remained a differential diagnosis given the endemicity of tuberculosis in our region.

The patient underwent surgery under general anesthesia. Following a transverse cervical incision, exploration revealed multiple enlarged lymph nodes extending from levels II to V. Unexpectedly, incision of several lymph nodes released abundant caseous material, strongly suggestive of tuberculous

lymphadenitis. Frozen-section examination of one representative lymph node demonstrated granulomatous inflammation with central caseous necrosis, consistent with tuberculous lymphadenitis. Simultaneously, frozen-section examination of the thyroid specimen confirmed papillary thyroid carcinoma. Based on these intraoperative findings, the initial left hemithyroidectomy with isthmusectomy was immediately converted to a total thyroidectomy associated with therapeutic left lateral cervical lymph node dissection, in accordance with oncological principles.

Gross pathological examination of the thyroid specimen demonstrated a 2-cm tumor arising from the left thyroid lobe. Definitive histopathological examination confirmed classic papillary thyroid carcinoma measuring 2 cm with microscopic extrathyroidal extension. Surgical margins were free of tumor, and no vascular invasion was identified. The contralateral thyroid lobe showed no evidence of malignancy or other significant pathological abnormalities.

A total of 13 cervical lymph nodes were retrieved during neck dissection. Histopathological examination demonstrated metastatic papillary thyroid carcinoma in seven lymph nodes. Remarkably, three of these metastatic lymph nodes simultaneously harbored metastatic papillary thyroid carcinoma and epithelioid granulomatous inflammation with Langhans-type giant cells and central caseous necrosis, confirming the coexistence of metastatic thyroid carcinoma and tuberculous lymphadenitis within the same lymph nodes. The remaining six lymph nodes demonstrated isolated tuberculous lymphadenitis without metastatic involvement. The histological findings were considered diagnostic of tuberculosis.

According to the AJCC 8th edition, the tumor was classified as pT1bN1bM0 (Stage I because the patient was younger than 55 years).

Based on the 2015 American Thyroid Association (ATA) risk stratification, the patient was classified as having intermediate-risk differentiated thyroid carcinoma, owing to the presence of microscopic extrathyroidal extension and lateral cervical lymph node metastases.

The postoperative course was uneventful. No recurrent laryngeal nerve palsy, postoperative hemorrhage, surgical-site infection, chyle leak, or permanent hypocalcemia occurred. The patient was discharged on suppressive levothyroxine therapy. Following multidisciplinary discussion involving endocrinologists, otorhinolaryngologists, nuclear medicine physicians, infectious disease specialists, and pathologists, the patient underwent Radioactive Iodine (RAI) ablation.

Because cervical tuberculous lymphadenitis was confirmed histopathologically, standard multidrug antituberculous therapy was initiated with rifampicin, isoniazid, pyrazinamide, and ethambutol during the intensive phase, followed by rifampicin and isoniazid during the continuation phase, in accordance with national recommendations.

At the latest follow-up, the patient remained asymptomatic, with no evidence of locoregional recurrence or distant metastasis. Clinical examination and cervical ultrasonography showed no suspicious lymphadenopathy, and there was no clinical or radiological evidence of recurrent tuberculosis.

Discussion

Papillary Thyroid Carcinoma (PTC) accounts for approximately 85% of thyroid malignancies and is characterized by an excellent long-term prognosis despite its marked tendency for lymphatic spread. Cervical lymph node metastases are present in 20–50% of patients at initial diagnosis and may be even more frequent when occult microscopic metastases are systematically investigated. Although lymph node involvement has limited influence on disease-specific survival in young patients, it increases the risk of locoregional recurrence and influences postoperative management, including consideration of radioactive iodine ablation and long-term surveillance [19–22].

Tuberculous lymphadenitis is the most frequent manifestation of extrapulmonary tuberculosis. Cervical lymph nodes are commonly involved in peripheral tuberculous lymphadenitis. Despite declining tuberculosis incidence in many developed countries, the disease remains an important consideration in North Africa, including Morocco, where cervical tuberculosis should be included in the differential diagnosis of chronic cervical lymphadenopathy [22–25].

Although both diseases frequently involve the cervical lymphatic chains, their coexistence remains uncommon. Since the first descriptions of thyroid carcinoma associated with tuberculous lymphadenitis, only isolated case reports and small case series have been published. Most reported patients had metastatic cervical lymph nodes and tuberculous lymphadenitis simultaneously but in different lymph nodes. Histologically proven coexistence of metastatic PTC and tuberculous granulomatous inflammation within the same lymph node has been reported only exceptionally, making our observation particularly noteworthy [23,26–30,42].

Our patient exhibited three pathological patterns within the same neck-dissection specimen. Among the 13 dissected lymph nodes, seven contained metastatic papillary thyroid carcinoma and six demonstrated isolated tuberculous lymphadenitis. Most importantly, three of the metastatic lymph nodes simultaneously harbored metastatic papillary carcinoma and caseating tuberculous granulomas. This complex pathological distribution emphasizes that cervical lymphadenopathy associated with thyroid carcinoma cannot always be attributed to a single pathological process. Only a limited number of similar observations have been described in the literature.

The pathophysiological mechanisms underlying this coexistence remain uncertain. The most straightforward explanation is coincidence, particularly in tuberculosis-endemic countries where latent *Mycobacterium tuberculosis* infection is common. Other hypotheses suggest that chronic granulomatous inflammation may contribute to carcinogenesis through prolonged cytokine production, oxidative stress, angiogenesis, and DNA damage, whereas malignancy-associated alterations in cellular immunity may facilitate reactivation of dormant tuberculosis within regional lymph nodes. However, these mechanisms remain speculative because of the rarity of reported cases [31–34].

The diagnostic challenge arises primarily from the substantial overlap between metastatic papillary thyroid carcinoma and tuberculous lymphadenitis. Clinically, both conditions may present as slowly enlarging, painless cervical masses. Constitutional symptoms such as fever, night sweats, weight loss, and

chronic cough may be absent in isolated cervical tuberculosis, while papillary thyroid carcinoma may remain asymptomatic even in the presence of nodal metastases. Our patient presented only with painless left cervical swelling and no systemic manifestations, illustrating the limited discriminatory value of clinical findings alone [22,24,27].

Radiological assessment also has important limitations. Ultrasonography remains the imaging modality of choice for evaluating thyroid nodules and cervical lymph nodes. Rounded morphology, loss of the fatty hilum, microcalcifications, cystic degeneration, heterogeneous echotexture, and peripheral vascularity may suggest metastatic papillary thyroid carcinoma. However, tuberculous lymphadenitis can show overlapping features because of caseous necrosis, fibrosis, and dystrophic calcification. Consequently, imaging alone may not reliably distinguish these two entities [24,28,35,36].

Fine-needle aspiration cytology remains central to preoperative assessment, but its diagnostic performance may be limited when tuberculosis and metastatic carcinoma coexist. Aspiration of a granulomatous area may fail to identify malignant epithelial cells, whereas aspiration of metastatic tissue may overlook adjacent tuberculous inflammation. Combining cytology with appropriate microbiological or immunological investigations may improve the preoperative diagnosis of cervical tuberculous lymphadenitis associated with papillary thyroid carcinoma [27,37]. In the present case, FNAC was performed only on the thyroid nodule and yielded Bethesda category V, whereas the nature of the cervical lymphadenopathy was established intraoperatively.

One of the most striking aspects of this case was the intraoperative discovery of abundant caseous material, which immediately raised suspicion for tuberculosis and was supported by frozen-section examination. Simultaneously, frozen-section analysis of the thyroid specimen confirmed papillary thyroid carcinoma, allowing the surgical strategy to be adapted during the same procedure. This finding illustrates the value of intraoperative pathological assessment when unexpected lesions are encountered.

Histopathological examination remains the diagnostic gold standard. Classical papillary thyroid carcinoma is characterized by papillary architecture and typical nuclear features, whereas tuberculous lymphadenitis demonstrates epithelioid granulomas, Langhans-type giant cells, and central caseous necrosis. Demonstration of both processes within the same lymph node establishes true histopathological coexistence rather than simultaneous involvement of separate nodes. In our patient, three lymph nodes exhibited both metastatic carcinoma and caseating granulomatous inflammation, providing pathological confirmation of this rare association.

An important differential diagnosis is a sarcoid-like granulomatous reaction, which may occur in lymph nodes draining malignant tumors. Unlike tuberculous lymphadenitis, sarcoid-like reactions typically lack central caseous necrosis [39,40]. In the present case, the abundant intraoperative caseous material and the histological demonstration of caseating granulomas strongly supported tuberculous lymphadenitis rather than a non-infectious granulomatous reaction.

Management should address both diseases while respect-

ing oncological principles. Clinically evident lateral cervical lymph node metastases from papillary thyroid carcinoma require therapeutic compartment-oriented neck dissection, while postoperative radioactive iodine is considered according to recurrence-risk stratification. Tuberculosis should be treated with standard multidrug antituberculous therapy without unnecessary delay of oncological treatment [19,20,38]. In our patient, total thyroidectomy with therapeutic left lateral neck dissection was followed by radioactive iodine ablation, while histologically confirmed tuberculous lymphadenitis was treated concomitantly with standard antituberculous therapy. The subsequent course was favorable, with no evidence of recurrence during follow-up.

Hachicha et al. recently reported a similar patient with metastatic papillary thyroid carcinoma associated with cervical tuberculous lymphadenitis who underwent total thyroidectomy, neck dissection, radioactive iodine ablation, and antituberculous therapy, with no recurrence after two years of follow-up. The present case is distinguished by the histological demonstration of both metastatic carcinoma and tuberculous granulomatous inflammation within the same lymph nodes [41].

The principal strength of this report is the detailed pathological assessment of the neck-dissection specimen, which identified metastatic nodes, isolated tuberculous nodes, and mixed nodes containing both processes. This pattern illustrates the complexity of interpreting cervical lymphadenopathy in patients with thyroid carcinoma in tuberculosis-endemic settings. The principal limitation is the single-patient nature of the report, which precludes conclusions regarding the frequency or biological relationship of these two diseases.

This case highlights the importance of considering concomitant tuberculosis in patients with papillary thyroid carcinoma and extensive cervical lymphadenopathy. Neither imaging nor cytology alone can reliably distinguish metastatic disease from tuberculous lymphadenitis when both conditions coexist. Careful intraoperative assessment and meticulous histopathological examination are essential to establish the diagnosis and guide multidisciplinary management. The demonstration of metastatic papillary thyroid carcinoma and tuberculous granulomatous inflammation within the same cervical lymph nodes adds to the limited literature on this unusual clinicopathological association.

Conclusion

This case underscores the rare coexistence of metastatic papillary thyroid carcinoma and tuberculous lymphadenitis within the same cervical lymph nodes. In tuberculosis-endemic regions, cervical lymphadenopathy in a patient with thyroid cancer should not automatically be attributed to a single process, because metastatic disease and tuberculosis may coexist in the same patient and even within the same lymph node. Comprehensive histopathological evaluation is therefore essential for accurate diagnosis and appropriate treatment.

Declarations

Ethics and consent to participate: Not applicable.

Consent to publish: Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal upon request. Availability of data and materials: Not applicable.

Competing interests: The authors declare that they have no competing interests.

Funding: The authors received no specific funding for this work.

Authors' contributions:

F.E.M. contributed to patient care, data collection, manuscript drafting, and submission.

M.L., M.L., W.B., Y.O., S.R., R.A., M.R., and M.M. contributed to patient management, critical revision of the manuscript, and supervision.

All authors approved the final manuscript.

Acknowledgements: The authors thank the Department of Otorhinolaryngology–Head and Neck Surgery, Ibn Rochd University Hospital, for its support in the management of this case.

References

- Haugen BR, Alexander EK, Bible KC, et al. 2015 American Thyroid Association Management Guidelines for Adult Patients with Thyroid Nodules and Differentiated Thyroid Cancer. *Thyroid*, 2016; 26(1): 1–133.
- Cabanillas ME, McFadden DG, Durante C. Thyroid cancer. *Lancet*, 2016; 388: 2783–2795.
- Filetti S, Durante C, Hartl D, et al. Thyroid cancer: ESMO Clinical Practice Guideline for diagnosis, treatment and follow-up. *Ann Oncol*, 2019; 30: 1856–1883.
- Randolph GW, Duh QY, Heller KS, et al. The prognostic significance of nodal metastases from papillary thyroid carcinoma. *Thyroid*, 2012; 22: 1144–1152.
- World Health Organization. Global Tuberculosis Report. Geneva: WHO, 2024.
- Fontanilla JM, Barnes A, von Reyn CF. Current diagnosis and management of peripheral tuberculous lymphadenitis. *Clin Infect Dis*, 2011; 53: 555–562.
- Lee YS, Lim H, Chang HS, Park CS. Papillary thyroid carcinoma associated with cervical tuberculous lymphadenitis. *World J Surg*, 2015; 39: 697–704.
- Polesel J, et al. Cervical tuberculous lymphadenitis: diagnostic challenges. *Acta Otorhinolaryngol Ital*, 2018; 38: 123–129.
- Cibas ES, Ali SZ. The Bethesda System for Reporting Thyroid Cytopathology. *Thyroid*, 2017; 27: 1341–1346.
- Baloch ZW, LiVolsi VA. Fine-needle aspiration of the thyroid: today and tomorrow. *Best Pract Res Clin Endocrinol Metab*, 2008; 22: 929–939.
- Handa U, Mundi I, Mohan S. Nodal tuberculosis revisited: a review. *J Infect Dev Ctries*, 2012; 6: 6–12.
- Pyo JS, Sohn JH, Kang G. Diagnostic accuracy of fine-needle aspiration for tuberculous lymphadenitis: systematic review and meta-analysis. *Diagn Cytopathol*, 2016; 44: 146–151.
- Mondal A, Patra DK. Epithelioid granuloma with papillary thyroid carcinoma: a rare coexistence. *Indian J Pathol Microbiol*, 1995; 38: 97–99.
- Kumar N, et al. Coexisting papillary thyroid carcinoma and tuberculous cervical lymphadenitis. *BMJ Case Rep*, 2013.
- Kim JH, et al. Simultaneous papillary thyroid carcinoma and cervical tuberculous lymphadenitis. *Head Neck*. 2010;32:1735–1739.
- Pandey A, et al. Coexistence of tuberculosis and metastatic papillary carcinoma in cervical lymph nodes. *J Cancer Res Ther*, 2015; 11: 1038.
- Jain A, et al. Coexisting tuberculosis and metastatic papillary thyroid carcinoma in cervical lymph nodes: case report and literature review. *Int J Surg Case Rep*, 2020; 72: 596–600.
- Amin MB, Edge SB, Greene FL, et al. *AJCC Cancer Staging Manual*. 8th ed. Springer, 2017.
- Haugen BR, Alexander EK, Bible KC, Doherty GM, Mandel SJ, Nikiforov YE, et al. 2015 American Thyroid Association Management Guidelines for Adult Patients with Thyroid Nodules and Differentiated Thyroid Cancer. *Thyroid*, 2016; 26(1): 1–133.
- Cabanillas ME, McFadden DG, Durante C. Thyroid cancer. *Lancet*, 2016; 388(10061): 2783–2795.
- Randolph GW, Duh QY, Heller KS, LiVolsi VA, Mandel SJ, Steward DL, et al. The prognostic significance of nodal metastases from papillary thyroid carcinoma can be stratified based on the size and number of metastatic lymph nodes, as well as the presence of extranodal extension. *Thyroid*, 2012; 22(11): 1144–1152.
- Fontanilla JM, Barnes A, von Reyn CF. Current diagnosis and management of peripheral tuberculous lymphadenitis. *Clin Infect Dis*, 2011; 53(6): 555–562.
- World Health Organization. Global Tuberculosis Report 2024. Geneva: World Health Organization, 2024.
- Hizawa K, Okamura K, Sato K, Kuroda T, Yoshinari M, Ikenoue H. Tuberculous thyroiditis and miliary tuberculosis manifested postpartum in a patient with thyroid carcinoma. *Endocrinol Jpn*, 1990; 37(4): 571–576.
- Meng L, Hu S, Huang L, Xu C. Papillary thyroid cancer coexisting with thyroid tuberculosis: a case report. *Oncol Lett*, 2014; 7(5): 1563–1565.
- Andrabi SM, Bhat MH, Farhana B, Saba S, Andrabi RS, Shah PA. Tuberculous cervical lymphadenitis masquerading as metastasis from papillary thyroid carcinoma. *Int J Endocrinol Metab*, 2012; 10(3): 569–572.
- Choi EC, Moon WJ, Lim YC. Tuberculous cervical lymphadenitis mimicking metastatic lymph nodes from papillary thyroid carcinoma. *Br J Radiol*, 2009; 82: e208–e211.
- Kim SM, Jun HH, Chang HJ, et al. Tuberculosis cervical lymphadenopathy mimics lateral neck metastasis from papillary thyroid carcinoma. *ANZ J Surg*, 2016; 86(6): 495–498.
- Ito T, Saito H, Kishine N, Takeda T, Mizushima K. Pre-operatively diagnosed case with co-existence of papillary thyroid carcinoma and cervical tuberculous lymphadenitis. *Int J Surg Case Rep*, 2015; 15: 74–77.
- Yu MG, Atun JM. Tuberculous lymphadenitis mimicking nodal metastasis in papillary thyroid carcinoma. *Case Rep Med*, 2016; 2016: 5623104.
- Malik AA, Sheikh JA, Ehtesham NZ, Hira S, Hasnain SE. Can Mycobacterium tuberculosis infection lead to cancer? Call for a paradigm shift in understanding TB and cancer. *Int J Med Microbiol*, 2022; 312(5): 151558.
- Luczynski P, Poulin P, Romanowski K, Johnston JC. Tuberculosis and risk of cancer: a systematic review and meta-analysis. *PLoS One*, 2022; 17(12): e0278661.
- Leung CY, Huang HL, Rahman MM, et al. Cancer incidence attributable to tuberculosis in 2015: global, regional, and national estimates. *BMC Cancer*, 2020; 20: 412.
- Cibas ES, Ali SZ. The 2017 Bethesda System for Reporting Thyroid Cytopathology. *Thyroid*, 2017; 27(11): 1341–1346.
- Hu A, Tian J, Deng X, et al. The diagnosis and management of small and indeterminate lymph nodes in papillary thyroid cancer: preoperatively and intraoperatively. *Front Endocrinol (Lausanne)*, 2024; 15: 1484838.
- Choi YJ, Yun JS, Kook SH, et al. Clinical and imaging findings of cervical tuberculous lymphadenitis. *Acta Radiol*, 2015; 56(5): 560–566.
- Pyo JS, Sohn JH, Kang G. Diagnostic accuracy of fine-needle aspiration cytology in tuberculous lymphadenitis: a systematic review and meta-analysis. *Diagn Cytopathol*, 2016; 44(2): 146–151.
- Filetti S, Durante C, Hartl D, et al. Thyroid cancer: ESMO Clinical Practice Guideline for diagnosis, treatment and follow-up. *Ann Oncol*, 2019; 30(12): 1856–1883.
- James DG. A clinicopathological classification of granulomatous disorders. *Postgrad Med J*, 2000; 76: 457–465.
- Brincker H. Sarcoid reactions in malignant tumours. *Cancer Treat Rev*, 1986; 13(3): 147–156.
- Hachicha A, Chouchane H, Sghaier Y, Ben Rjeb S, Turki S. Cervical Lymphadenitis Tuberculosis Coexistent with Metastatic Papillary Thyroid Carcinoma. *Ear Nose Throat J*, 2024. doi: 10.1177/01455613241287004.
- Lin HY, Hu HC. Cervical tuberculosis combined with papillary thyroid carcinoma with lateral neck metastasis. *Ear Nose Throat J*, 2023; 102(4): NP192–NP194.