JKU 14(1) (2025)

Jurnal Kedokteran Unram

https://journal.unram.ac.id/index.php/jku/submissions

A Case Report of Mediastinal Tumor: Limfoma Non-Hodgkin

Novia Andansari Putri[1*], Mc. Syaiful Ghazi[2], Rabsanjani[3]

[1] Department of Radiology, Faculty of Medicine, Mataram University/Nusa Tenggara Barat General Hospital, Mataram, Indonesia
[2] Department of Pulmonology, Faculty of Medicine, Mataram University/Nusa Tenggara Barat General Hospital, Mataram, Indonesia
[3] Medical Education Study Program, Faculty of Medicine, Mataram University/Nusa Tenggara Barat General Hospital, Mataram, Indonesia

DOI: https://doi.org/10.29303/jk.v14i1.6324

Article Info
Received : **February, 7 2025**
Revised : **March 24, 2025**
Accepted : **March 24, 2025**

Abstract: Anterior mediastinal tumors are often malignant, with lymphoma and thymoma as the primary diagnoses. Non-Hodgkin lymphoma (NHL) may also involve other mediastinal compartments. This case report describes a 39-year-old female who presented with headache and a neck lump. Imaging revealed a 68 mm anterior mediastinal mass infiltrating the ascending aorta, raising suspicion for lymphoma. A biopsy confirmed large B-cell lymphoma, and chemotherapy was recommended. Radiological and histopathological evaluations remain crucial for early diagnosis and effective management..

Keywords: Mediastinal Tumor; LNH; Chemotherapy

Citation: Putri, N. A., Gazi, M. S., Rabsanjani. (2025). A *Case Report* of Mediastinal Tumor: Limfoma Non-Hodgkin. Jurnal Kedokteran Unram, DOI: Vol. 14 (1), 49-53. DOI: https://doi.org/10.29303/jk.v14i1.6324

Introduction

This case report discusses a mediastinal tumor in a 39-year-old female patient who presented to the surgical oncology clinic with an MSCT scan of the head and neck, revealing a solid anterior mediastinal mass. The patient also exhibited multiple bilateral submandibular lymphadenopathies extending to the supraclavicular region. A biopsy confirmed the diagnosis of Non-Hodgkin lymphoma (NHL). Mediastinal tumors are neoplasms located in the mediastinal region. They may arise from anatomical structures within the mediastinum, traverse the mediastinum, or result from metastasis originating elsewhere in the body. The characteristics of mediastinal tumors are often associated with the tumor's location and the patient's age. In children, mediastinal tumors are commonly located in the posterior mediastinum and are typically of neural origin. In adults, tumors are more frequently found in the anterior mediastinum and often consist of lymphoma or thymoma. (Roden et al., 2020) A study involving 3,017 adult patients with mediastinal tumors found that 26.5% had thymoma or thymic cysts, 20.2% had neurogenic tumors, 13.8% had germ cell tumors (GCTs), and 12.7% had lymphomas. In a cohort of 718 pediatric patients, neurogenic tumors were the most common, accounting for 41.6%, followed by GCTs (13.5%), foregut cysts (13.4%), lymphomas (13.4%), and angiomas/lymphangiomas (6.1%) (Ghigna & Thomas de Montpreville, 2021).

Some individuals with mediastinal tumors are asymptomatic, and the masses are often detected incidentally during imaging studies performed for unrelated reasons. When present, symptoms typically result from tumor compression or paraneoplastic syndromes. (Ghigna & Thomas de Montpreville, 2021; Zaleska et al., 2016) Tumor location and composition are crucial in narrowing the differential diagnosis. Diagnostic modalities for mediastinal tumors include

Email: novia.putri5@gmail.com

chest X-rays, thoracic CT scans, MRI, and biopsy. (Morikawa et al., 2020) Management of mediastinal tumors depends on the tumor type, as determined by diagnostic findings. In adults, anterior mediastinal tumors are predominantly lymphomas or thymomas. Non-Hodgkin lymphoma is a group of malignant neoplasms originating from lymphoid tissue, primarily lymph nodes. These tumors may result from chromosomal translocations, exposure to toxins, infections, or chronic inflammation. (Lewis et al., 2020; Lui & Shrager, 2025) NHL is not confined to the anterior mediastinum but may also occur in the middle and posterior mediastinal compartments. The average age of onset for NHL ranges from 28 to 35 years. (Ghigna & Thomas de Montpreville, 2021). Some individuals Blood tests, radiological imaging, and histopathological analysis are essential for establishing a definitive diagnosis. Treatment is determined based on the type, stage, histopathological features, and presenting symptoms. (Zaleska et al., 2016) This case report focuses on mediastinal tumors, with particular emphasis on Non-Hodgkin lymphoma.

Case(s) and Operation Technique

A 39-year-old female patient visited the Surgical Oncology Clinic on June 10, 2024. The patient brought results from an MSCT scan of the head and neck, which suggested a solid anterior mediastinal mass measuring approximately 68 mm (suspected lymphoma). Differential diagnoses included germ cell tumor and thymoma. There was evidence of multiple bilateral submandibular, jugular space, posterior cervical space, and supraclavicular lymphadenopathy. Upon her first visit, the patient reported complaints of pain in the head and neck and noted the presence of a neck lump.

Vital sign examination revealed a blood pressure of 115/72 mmHg, pulse rate of 93 beats per minute, respiratory rate of 20 breaths per minute, height of 154 cm, and weight of 55 kg. Physical examination confirmed multiple lymphadenopathy. An MRI scan was planned for further evaluation. On June 11, 2024, an MRI of the thorax with contrast was performed, revealing an anterior mediastinal mass with infiltration of the ascending aorta, suggestive of lymphoma, as well as multiple bilateral cervical lymphadenopathy. A chest X-ray conducted on June 22, 2024, showed findings suspicious for a mediastinal mass in the right suprahilar region.

The patient was scheduled for biopsy and thyroidectomy. Laboratory investigations conducted on Saturday, June 22, 2024, showed the following results: hemoglobin 9.3 g/dL, leukocyte count 5,493/µL, hematocrit 34%, urea 23 mg/dL, creatinine 0.8 mg/dL, SGOT 22 U/L, SGPT 13 U/L, random blood glucose 75 mg/dL, TSH 8.16 µIU/mL, and FT4 12.49 pmol/L. Due to the elevated TSH levels, the patient was diagnosed with subclinical hypothyroidism and prescribed Euthyrox 0.1 mg once daily.

On July 11, 2024, a wide excision of the thyroid tumor was performed. Histopathological results dated July 22, 2024, indicated suspicious non-Hodgkin lymphoma from the mediastinal core biopsy specimen and findings consistent with Hashimoto's thyroiditis in the thyroid specimen. Immunohistochemistry confirmed the diagnosis of non-Hodgkin lymphoma, large B-cell type.

The patient began chemotherapy on August 20, 2024, with the CHOP regimen (Cyclophosphamide 1470 mg, Doxorubicin 75 mg, Vincristine 3 mg, and Prednisone 40 mg). The second chemotherapy session was administered on September 21, 2024, with Cyclophosphamide 1470 mg, Doxorubicin 75 mg, and Vincristine 3 mg. The third session was conducted on October 10, 2024, with the same dosages. The fourth session was completed on October 26, 2024, with the same regimen.

Discussion

Re A 39-year-old female patient visited the Surgical Oncology Clinic on June 10, 2024. The patient presented with the results of an MSCT scan of the head and neck, which suggested a solid anterior mediastinal mass measuring approximately 68 mm (suspected lymphoma). Differential diagnoses included germ cell tumor and thymoma. Multiple lymphadenopathies were identified bilaterally in the submandibular, jugular space, posterior cervical space, and supraclavicular regions.

The mediastinum is a thoracic segment containing vital structures such as the heart, major blood vessels, trachea, main bronchi, esophagus, thymus, and lymphatic and nervous structures. Due to its anatomical heterogeneity, accurately determining the location of a mediastinal lesion is critical for establishing clinical suspicion and subsequently aiding in the planning of biopsy and surgical procedures. Traditionally, several compartments based on lateral chest radiography have been used. However, for diagnostic evaluation, biopsy planning, and surgical intervention, computed tomography (CT) serves as the basis for assessment. The International Thymic Malignancy Interest Group (ITMIG) has proposed a classification system dividing the mediastinum into three compartments. (A. Helck et al., 2010) The ITMIG three-compartment system identifies anterior, middle, and posterior compartments, delineated by boundaries assessed along anatomical planes. (Aprile et al., 2017)

Upon her initial visit, the patient complained of head and neck pain as well as a lump in the neck. Signs and symptoms of mediastinal tumors can vary greatly and typically provide only nonspecific clues about the underlying disease process. While more than 60% of patients present with symptoms, asymptomatic mediastinal masses are also commonly detected incidentally. Most asymptomatic patients with mediastinal masses have benign lesions, whereas symptomatic patients are more likely to have an underlying malignant process. (Ghigna & Thomas de Montpreville, 2021) The patient underwent a contrast-enhanced MRI of the thorax on June 11, 2024, which revealed an anterior mediastinal mass with infiltration of the ascending aorta, suggestive of lymphoma, as well as multiple bilateral cervical lymphadenopathies. On July 11, 2024, a wide excision of the thyroid tumor was performed. Histopathological analysis on July 22, 2024, indicated suspicious non-Hodgkin lymphoma in the mediastinal core biopsy specimen and findings consistent with Hashimoto's thyroiditis in the thyroid specimen. Immunohistochemical analysis subsequently confirmed the diagnosis of non-Hodgkin lymphoma, large B-cell type. (Wang et al., 2022) Histological analysis of biopsies and surgical specimens is fundamental for evaluating and/or confirming the clinical diagnosis, providing critical prognostic and predictive information in the field of specific thoracic pathology. Histological examination involves sequential stages based on morphological analysis, guiding the selection of tissue markers for testing. (Lui & Shrager, 2025)

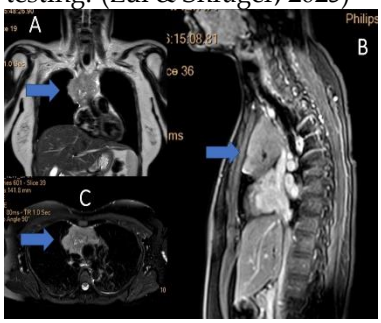

Figure 1. Thorax MRI showing anterior mediastinal tumor. A. Coronal, B. Sagittal, C. Axial sections.

Non-Hodgkin lymphoma (NHL) is a group of heterogeneous systemic diseases categorized into many classes and stages. The average age of presentation for these patients is between 28 and 35 years. This disease is not limited to the anterior mediastinum and can also occur in the middle and posterior mediastinal compartments. To date, the most common NHL subtypes in developed countries are diffuse large B-cell lymphoma (approximately 30%) and follicular lymphoma (approximately 20%). All other NHL subtypes have a frequency of less than 10%. Primary mediastinal B-cell lymphoma histologically consists of large cells expressing B-cell-related antigens, such as CD20; immunohistochemistry and/or flow cytometry are essential for diagnosis. Staging of NHL is performed according to the Lugano classification, and CT scans of the chest, abdomen, and pelvis are initial imaging procedures and often the required imaging studies. (Ghigna & Thomas de Montpreville, 2021; PDPI, 2021; Bendzsak et al., 2017)

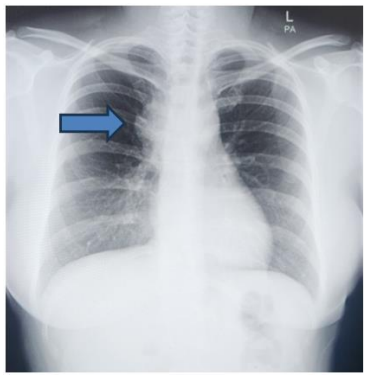

Figure 2. Ro Thorax PA showing mediastinal mass on the dextra parahillary

The patient is classified as stage IIIA according to the Lugano classification of Hodgkin and Non-Hodgkin lymphoma, as it involves lymph nodes or lymphoid structures on both sides of the diaphragm without systemic symptoms. Treatment for lymphoma consists of chemotherapy alone or in combination with radiotherapy. Radiotherapy alone is not recommended. The toxicity of radiotherapy can lead to serious long-term complications, such as secondary cancers in the irradiated areas, including breast or lung cancer. Additionally, patients who receive chemotherapy may later develop breast or lung cancer, melanoma, or acute myeloid leukemia. (Sapkota & Shaikh, 2023) Treatment for non-Hodgkin lymphoma varies depending on the histology, but it often involves therapies such as CHOP (cyclophosphamide, doxorubicin, vincristine, and prednisone), with or without rituximab (Rituxan; R-CHOP), a monoclonal antibody specific to CD20-positive B lymphocytes. (Jilani & Siddiqui, 2022; Parihar et al., 2020) Other drugs such as bendamustine (Bendeka), an alkylating agent, and lenalidomide (Revlimid) are also used in the treatment of non-Hodgkin lymphoma. (Sapkota & Shaikh, 2023) The patient has received CHOP chemotherapy and has completed four cycles, with the most recent chemotherapy on October 26, 2024.

This case report provides a comprehensive clinical narrative, integrating multimodal imaging, histopathological analysis, and immunohistochemistry to confirm a diagnosis of non-Hodgkin lymphoma. This is a notable strength as it underlines a multidisciplinary approach and detailed documentation of clinical and surgical findings. Nevertheless, the study is constrained by its single-patient design, which restricts the

generalisability of the findings and may not capture the variability seen in a broader patient population. While the report outlines diagnostic and therapeutic strategies, it lacks long-term follow-up data that could better elucidate treatment outcomes and potential late complications, such as secondary malignancies or treatment-related toxicities. Furthermore, the reliance on conventional diagnostic tools without incorporating newer molecular or genetic profiling techniques may limit the depth of insight into the tumour's biology. The advantages of detailed, integrative clinical reporting are counterbalanced by the inherent limitations of case reports, including limited sample size and potential selection bias, which may affect the external validity of the conclusions.

Conclusion

Some cases of mediastinal tumors do not present symptoms, so mediastinal masses are often detected incidentally. In patients with asymptomatic masses, benign lesions are typically found, while those presenting with symptoms are more likely to have an underlying malignant process. Epidemiologically, adult patients typically present with anterior mediastinal tumors, such as lymphoma or thymoma. Therefore, the location of the tumor is crucial for narrowing down the diagnosis and assisting in the planning of biopsy and surgical procedures. Non-Hodgkin lymphoma (NHL) is not confined to the anterior mediastinum and can also occur in the middle and posterior mediastinal compartments. Staging of NHL is performed according to the Lugano classification, and CT scans of the chest, abdomen, and pelvis are often required imaging studies. Treatment for lymphoma consists of chemotherapy alone or in combination with radiotherapy. Radiotherapy alone is not recommended due to the potential long-term toxicities, which can lead to serious complications such as secondary cancers in the irradiated areas.

References

A. Helck, Bamberg, F., Sommer, W. H., Wessely, M., Becker, C., D.A. Clevert, M. Notohamiprodjo, Reiser, M., & Nikolaou, K. (2010). Optimized contrast volume for dynamic CT angiography in renal transplant patients using a multiphase CT protocol. *European Journal of Radiology*, *80*(3), 692–698. https://doi.org/10.1016/j.ejrad.2010.10.010

Aprile, G., Negri, F., Giuliani, F., Elisa De Carlo, Melisi, D., Simionato, F., Silvestris, N., Brunetti, O., Leone, F., Marino, D., Santini, D., Emanuela Dell'Aquila, Tea Zeppola, Puzzoni, M., & Scartozzi, M. (2017). Second-line chemotherapy for advanced pancreatic cancer: Which is the best option? *Critical Reviews in Oncology Hematology*, *115*, 1–12. https://doi.org/10.1016/j.critrevonc.2017.03.025

Bendzsak, A., Waddell, T. K., Yasufuku, K., Keshavjee, S., de Perrot, M., Cypel, M., Pierre, A. F., & Darling, G. E. (2017). Invasive Mediastinal Staging Guideline Concordance. *The Annals of Thoracic Surgery*, *103*(6), 1736–1741. https://doi.org/10.1016/j.athoracsur.2016.12.010

Ghigna, M.-R., & Thomas de Montpreville, V. (2021). Mediastinal tumours and pseudo-tumours: a comprehensive review with emphasis on multidisciplinary approach. *European Respiratory Review*, *30*(162), 200309. https://doi.org/10.1183/16000617.0309-2020

Hennessy, B. T., Hanrahan, E. O., & Daly, P. A. (2004). Non-Hodgkin lymphoma: an update. *The Lancet Oncology*, *5*(6), 341–353. https://doi.org/10.1016/S1470-2045(04)01490-1

Jilani, T. N., & Siddiqui, A. H. (2022). *Mediastinal Cancer*. PubMed; StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK513231/

Lewis, W. D., Lilly, S., & Jones, K. L. (2020). Lymphoma: Diagnosis and Treatment. *American Family Physician*, *101*(1), 34–41. https://pubmed.ncbi.nlm.nih.gov/31894937/

Lui, N. S., & Shrager, J. B. (2025). *Primary Benign and Malignant Neoplasms of the Mediastinum*. McGraw Hill Medical. https://accessmedicine.mhmedical.com/content.aspx?bookid=3242&sectionid=270518120

Morikawa, K., Tatsuno, S., & Misumi, S. (2020). Rapid growth of a mature mediastinal teratoma in a middle-aged woman: A case report. *Radiology Case Reports*, *15*(10), 1870–1874. https://doi.org/10.1016/j.radcr.2020.07.054

Parihar, A., Singh, R., Shaik, S., Negi, B., Rajguru, J., Patil, P., & Sharma, U. (2020). Non-Hodgkin's lymphoma: A review. *Journal of Family Medicine and Primary Care*, *9*(4), 1834. https://doi.org/10.4103/jfmpc.jfmpc_1037_19

PDPI. (2021). *Panduan umum praktek klinis penyakit paru dan pernapasan*. Perhimpunan Dokter Paru Indonesia.

Roden, A. C., Fang, W., Shen, Y., Carter, B. W., White, D. B., Jenkins, S. M., Spears, G. M., Molina, J. R., Klang, E., Segni, M. D., Ackman, J. B., Sanchez, E. Z., Girard, N., Shumeri, E., Revel, M.-P., Chassagnon, G., Rubinowitz, A., Dicks, D., Detterbeck, F., & Ko, J. P. (2020). Distribution of Mediastinal Lesions Across Multi-Institutional,

International, Radiology Databases. *Journal of Thoracic Oncology*, *15*(4), 568–579. https://doi.org/10.1016/j.jtho.2019.12.108

Sapkota, S., & Shaikh, H. (2023, February 24). *Non-Hodgkin Lymphoma*. PubMed; StatPearls Publishing. https://www.ncbi.nlm.nih.gov/books/NBK559328/

Wang, Y., Chen, M., Ni, C., Tong, J., Chen, P., Zhang, Y., & Yang, G. (2022). Case Report: Primary Mediastinal Large B-Cell Lymphoma Invasion of Extranodal Thyroid Tissue Mimicking Tuberculosis and Confounded by Similar Ultrasonic Appearance. *Frontiers in Oncology*, *12*. https://doi.org/10.3389/fonc.2022.879295

Zaleska, J., Skorka, K., Zajac, M., Agnieszka Karczmarczyk, Karp, M., Tomczak, W., Hus, M., Wlasiuk, P., & Giannopoulos, K. (2016). Specific cytotoxic T-cell immune responses against autoantigens recognized by chronic lymphocytic leukaemia cells. *British Journal of Haematology*, *174*(4), 582–590. https://doi.org/10.1111/bjh.14098