JOURNAL

JOURNAL OF SOCIAL AND SCIENCE
VOLUME 5 NUMBER 9 2025
P-ISSN 2774-7018, E-ISSN 2774-700X

Extranodal Non-Hodgkin Lymphoma of Sinonasal Cavities

Made Maylisca Theresia Mulya Diprasta[1], I Nyoman Satria Pratama[2], Gde Sukris Wiranda[3]
[1]General Practitioner, Wangaya Regional General Hospital, [2]Otorhinolaryngologist, Department of Otorhinolaryngology-Head and Neck Surgery, Wangaya Regional General Hospital, [3]General Practitioner, Widya Mandala University
Email: [1]maylisca.theresia@gmail.com, [2]nymsatriapratama@gmail.com, [3]sukris.wiranda90@gmail.com

Keywords
non-Hodgkin lymphoma, sinonasal, DLBCL, epistaxis

Abstract
Sinonasal non-Hodgkin lymphoma (NHL) is a rare form of *extranodal* malignancy, comprising approximately 0.2–2% of all NHL cases, and is most often diagnosed in males aged 50 to 70 years. The most common histological subtype is diffuse large B-cell lymphoma (DLBCL). Due to nonspecific clinical symptoms—such as unilateral nasal obstruction, epistaxis, and weight loss—early diagnosis can be challenging, often leading to advanced disease at presentation. This case report aims to highlight an unusual bilateral presentation of sinonasal NHL and emphasizes the importance of early multidisciplinary management. The study presents a 55-year-old male patient with bilateral nasal obstruction and intermittent epistaxis. Radiological imaging revealed soft tissue masses in both nasal cavities with extension into adjacent sinuses. Histopathology and immunohistochemistry confirmed DLBCL, positive for CD20. The patient underwent systemic chemotherapy using the R-CHOP regimen, followed by radiotherapy. Six-month follow-up showed marked tumor regression with no signs of recurrence. This case illustrates the diagnostic complexity of bilateral sinonasal NHL and underlines the necessity for early tissue biopsy and integrated diagnostic imaging. It also demonstrates the effectiveness of standard chemo-radiotherapeutic regimens in managing rare presentations of sinonasal lymphoma. The report contributes to the limited literature on bilateral cases and reinforces the need for heightened clinical suspicion and multidisciplinary care in similar presentations.

INTRODUCTION

Sinonasal non-Hodgkin lymphoma (NHL) is a rare extranodal malignancy, accounting for only about 0.2–2% of total NHL cases (Morton et al., 2015; Lee et al., 2019). Although rare, NHL ranks second only to squamous cell carcinoma among sinonasal malignancies (Liu et al., 2018; Wang et al., 2021). The disease more commonly affects males at a 2:1 ratio, generally in the fifth to seventh decades of life (Zhang et al., 2020).

Diagnosis of sinonasal NHL is often delayed due to nonspecific clinical manifestations, such as unilateral nasal congestion, epistaxis, and rhinorrhea, which are easily mistaken for benign conditions (Ramaiya et al., 2017; Al-Quran et al., 2019). The most commonly found subtype is diffuse large B-cell lymphoma (DLBCL), which accounts for approximately 41.3% of all cases of sinonasal NHL (Toll et al., 2018; Han et al., 2020). This misdiagnosis is compounded by the rarity of sinonasal NHL, making it less likely to be considered in the differential diagnosis of nasal complaints (Wang et al., 2020; Kim et al., 2021).

Definitive diagnosis requires a tissue biopsy with histopathological examination and immunohistochemistry, supported by radiological imaging to assess the extent of the lesion (Octavia et al., 2023; Swain & Acharya, 2021; Meshram et al., 2025). Delayed diagnosis can lead to more aggressive disease progression, so clinical awareness and multidisciplinary collaboration are essential for optimal management (Berardi et al., 2020).

The case report describes a 55-year-old man with bilateral sinonasal cavity NHL who presented with some classic symptoms.

Although previous studies such as Sohal et al. (2020) emphasize the rarity of primary sinonasal lymphomas and underscore the diagnostic challenges posed by vague clinical

presentations---frequently leading to delayed diagnosis and necessitating prompt biopsy and imaging for timely intervention---these are mainly case series lacking focus on bilateral involvement or outcomes following optimal management. Another study by Wongsirisuwan et al. (2025) reports generally favorable outcomes of sinonasal DLBCL after treatment, yet it concentrates on frontal sinus cases and does not examine bilateral sinonasal cavity involvement or its implications on prognosis.

The case report fills this gap by documenting a rare presentation of bilateral sinonasal NHL in a 55-year-old male, providing valuable clinical insight into its diagnosis, management, and early therapeutic response. By highlighting atypical bilateral manifestation, this study aims to heighten clinical vigilance for such rare occurrences, reinforce the importance of comprehensive diagnostic evaluation, and support evidence-based multidisciplinary treatment strategies, thereby improving early detection and patient outcomes in similarly rare sinonasal lymphoma presentations.

RESEARCH METHODS

Case report

A 55-year-old man presented with the main complaint of a blocked left nose for approximately one year, which had become more aggravated in the past week. The patient also reported a nosebleed episode occurring two days before the examination, lasting about five minutes with active bleeding. The intensity of nosebleeds had reportedly increased in the past month. Additional complaints included a decrease in olfactory function for about one month and significant weight loss over the last two months, from 75 kg to 68 kg (a decrease of 7 kg). There was no history of any meaningful past illness, and the history of violence in the family was denied.

On physical examination, the general condition of the patient was good, with a current weight of 68 kg and a height of 170 cm. Vital signs showed blood pressure of 130/100 mmHg. Examination of the local status of ENT revealed significant findings in the nose, where anterior rhinoscopy showed a mass filling the bilateral *cavum nasi*, the mucosa appeared hyperemic, with bilateral *concha* hypertrophy, presence of secretion, and a deviation of the septum to the left. No enlarged lymph nodes were found in the neck, and examination of the ears and throat was within normal limits.

Laboratory examination showed mild leukocytosis with a leukocyte count of 13.05 $x10^3/\mu L$, neutrophilia at 80.3%, and relative lymphocytopenia at 13.9%. Hemoglobin levels were within the normal limit at 13.9 g/dL. Platelet levels were normal at 272 $x10^3/\mu L$, prothrombin time 9.5'', activated partial thromboplastin time 19.5'', international normalized ratio 0.89, fasting blood sugar 96 mg/dL, ureum 43 mg/dL, creatinin 1.0mg/dL, SGOT 15 U/L, SGPT 24 U/L.Nasoendoscopic examination confirmed the presence of a mass in the *cavum nasi* with a deviation of the *septum nasi* to the left in the anterior part and bilateral inferior *concha* hypertrophy. Computed tomography (CT) of the paranasal sinuses without contrast showed opacity in the bilateral *cavum nasi*, extending to the left maxillary and left ethmoidal sinuses, attached to the medial and inferior bilateral *concha*, with a differential diagnosis of polyps, accompanied by sinusitis in several sinuses.

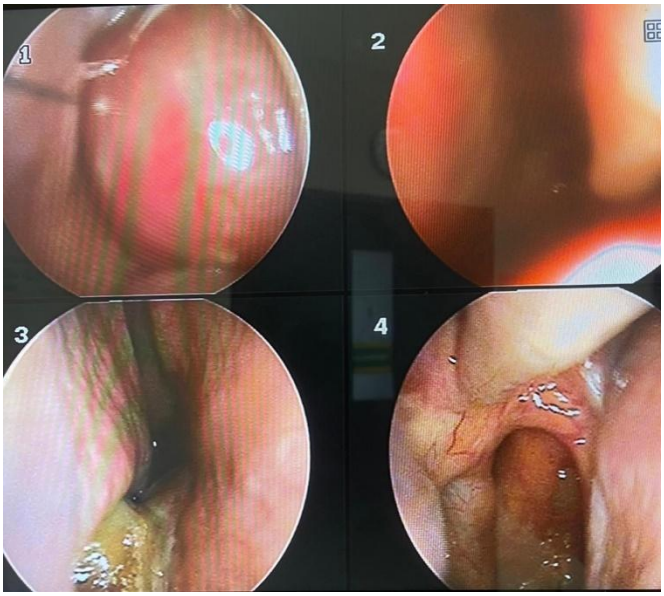

Figure 1. Patient Nasoendoscopy (18-06-2025)

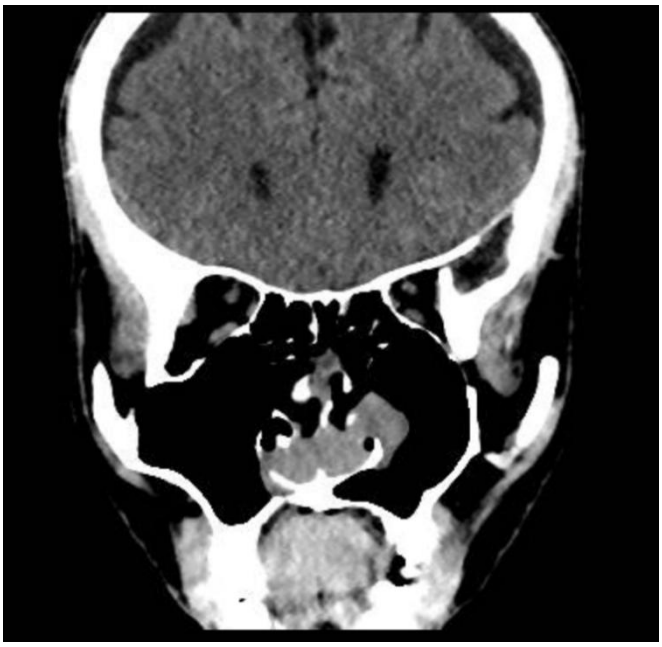

Figure 2. CT scan of the nose and paranasal sinuses without contrast 2mm slice of the coronal slice

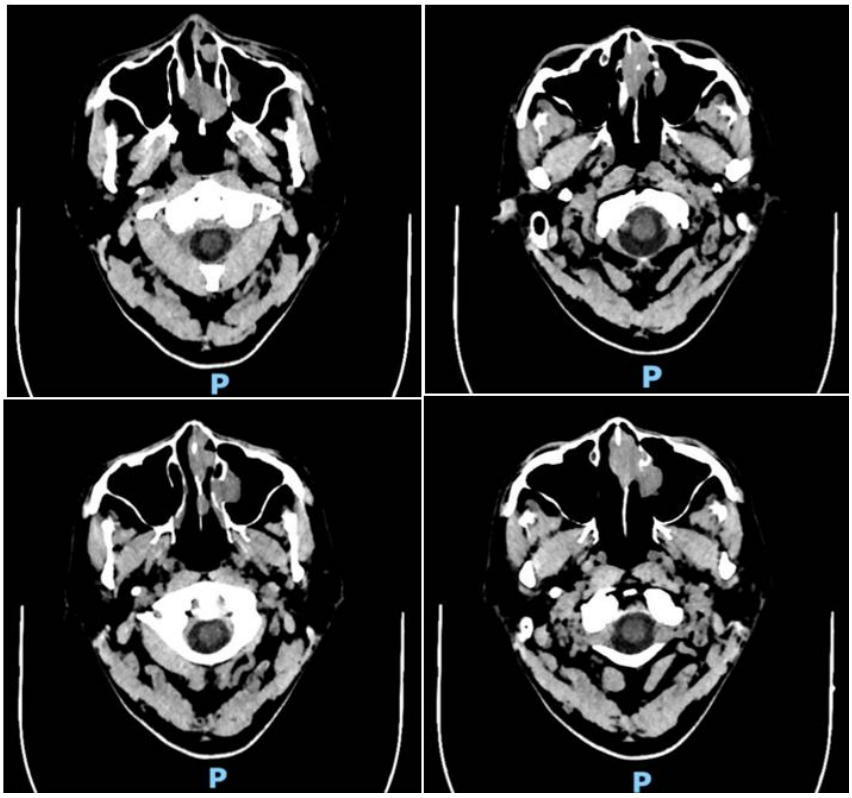

Figure 3. CT scan of the nose and paranasal sinuses without contrast 2mm axial slice

Based on clinical and radiological findings, the patient was diagnosed with a bilateral *cavum nasi* tumor and planned for a *cavum nasi* tumor extirpation procedure. Subsequently, bilateral *cavum nasi* tumor extirpation was performed. Intraoperative findings showed a bruised, brittle, and bleeding mass attached to the bilateral *concha medius*, *septum nasi*, and bilateral inferior *concha*. Tumor specimens were sent for histopathological examination.

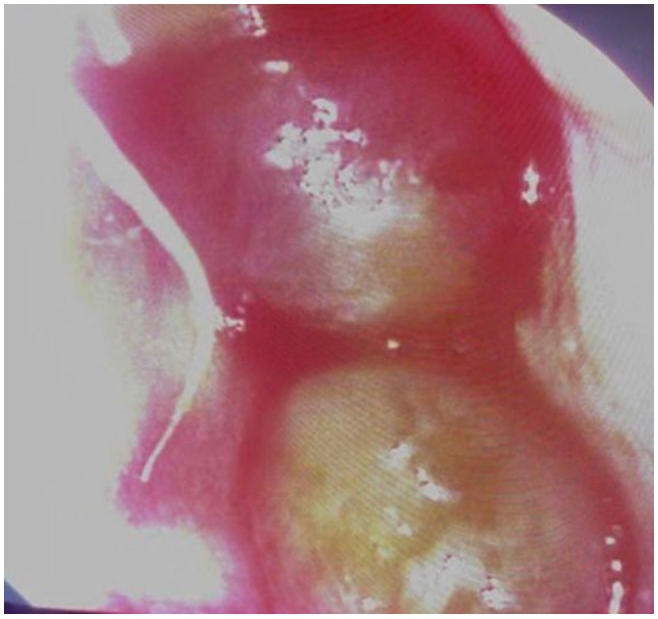

Figure 4. Intraoperative findings

The results of the histopathological examination showed a morphological picture of the proliferation of large neoplastic lymphoid cells with a diffuse pattern consistent with non-Hodgkin lymphoma (NHL), with a differential diagnosis of diffuse large B-cell lymphoma (DLBCL). Based on these findings, the final diagnosis was bilateral *cavum nasi* tumor with a differential diagnosis of DLBCL.

Postoperative patient progress showed good improvement. The patient was hospitalized for two days postoperatively and received intravenous antibiotics, corticosteroids, and analgesics. After discharge, the patient received oral therapy in the form of antibiotics, corticosteroids, and analgesics. At the time of follow-up, the patient's condition was stable, with improvement of symptoms. Endoscopic control one week postoperatively showed good wound healing with no signs of bleeding or infection. After the histopathological examination results were released, the patient was referred for a follow-up immunohistochemical examination to confirm the definitive diagnosis and to receive comprehensive management according to NHL protocols. This case illustrates the classic presentation of extranodal NHL in the *sinonasal* cavity, with manifestations of progressive nasal obstruction, recurrent *epistaxis*, and constitutional symptoms such as significant weight loss.

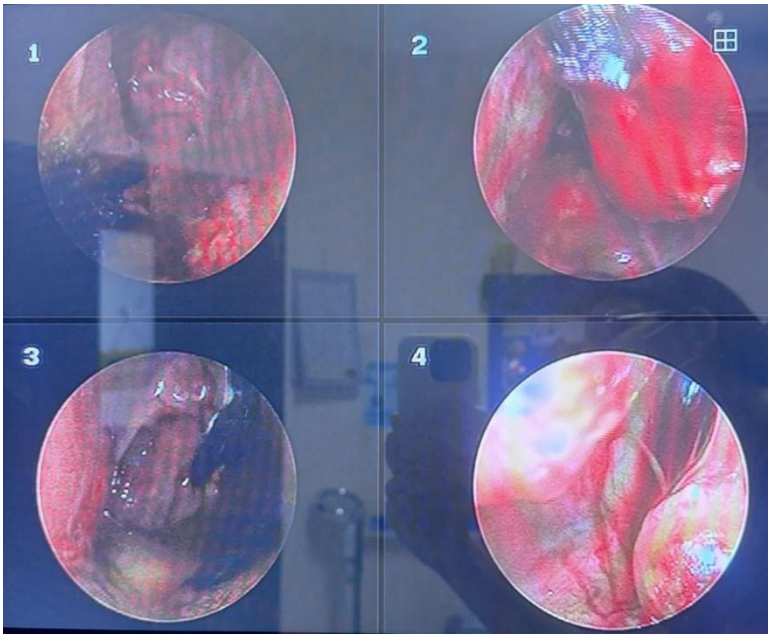

Figure 5. Bilateral nasal endoscopy 1 week postoperative

RESULTS AND DISCUSSION

Sinonasal non-Hodgkin lymphoma (NHL) is a rare but significant clinical entity, categorized as an extranodal malignancy originating in the lymphoid system (Meshram et al., 2025; Singh et al., 2020). Approximately 25-30% of NHL cases occur at extranodal locations (Singh et al., 2020; Kato et al., 2015). Among sinonasal malignancies, NHL ranks second in Asian and Latin American populations after squamous cell carcinoma, although its incidence is relatively low, only about 0.2-2% of total NHL cases (Lombard et al., 2015; Octavia et al., 2023). The most commonly affected anatomical locations in the sinonasal region are the maxillary sinuses, ethmoid sinuses, and nasal cavities, which indicate a certain predilection in their spread (Octavia et al., 2023; Swain & Acharya, 2021).

Epidemiologically, sinonasal NHL shows a clear trend. The disease is more commonly diagnosed in males than females, with a ratio of about 2:1, and generally appears in the fifth to seventh decade of life, with the average age of diagnosis ranging from 45 to 75 years (Lombard et al., 2015; Octavia et al., 2023; Swain & Acharya, 2021). The most dominant histological subtype in the Western population is diffuse large B-cell lymphoma (DLBCL), which accounts for about 41.3% of all NHL cases (Lombard et al., 2015; Octavia et al., 2023). However, there is significant geographical variation; in some Asian and South American countries, NK/T cell lymphoma is more commonly found (Octavia et al., 2023; Swain & Acharya, 2021). DLBCL tends to have a predilection for the paranasal sinuses, while NK/T cell lymphoma more often involves the nasal cavity (Swain & Acharya, 2021).

The etiology of sinonasal NHL is still not fully understood, but several risk factors have been identified that contribute to its pathogenesis. Immunodeficiency disorders, such as those seen in HIV/AIDS patients or organ transplant recipients, significantly increase the risk of NHL (Octavia et al., 2023; Singh et al., 2020). Certain viral infections, especially Epstein-Barr virus (EBV), also have a strong association with NHL development, particularly NK/T cell lymphoma (Lombard et al., 2015; Octavia et al., 2023; Singh et al., 2020). In addition, other factors such as genetic predisposition, race, family history, lifestyle (e.g. obesity and smoking habits), as well as environmental and occupational exposure to certain substances such as pesticides, are also thought to play a role in increasing the risk of NHL (Octavia et al., 2023; Singh et al., 2020). However, in this case report, the patient admitted that the family did not have a history of similar diseases.

NHL is classified under the World Health Organization (WHO) system, which is a revision of the Revised European-American Classification of Lymphoid Neoplasms (REAL). This classification groups NHL based on cell origin (B cells, T cells, or NK cells) as well as morphological, immunophenotypical, and genetic characteristics (Octavia et al., 2023; Singh et al., 2020). For sinonasal locations, NHL can include a variety of subtypes. In the oral cavity, Waldeyer ring, and pharynx, small B-cell lymphoma (such as B-cell marginal zone lymphoma, mantle cell lymphoma, follicular lymphoma, and extranodal plasmocytoma), DLBCL, as well as nasal type extranodal NK/T cell lymphoma (as a secondary expansion) can be found. In the nasal cavity and paranasal sinuses, possible subtypes include small B-cell lymphoma (lymphocytic lymphoma, follicular lymphoma, mantle cell lymphoma, B-cell marginal zone lymphoma, Burkitt's lymphoma), and nasal type NK/T cell lymphoma (Singh et al., 2020). DLBCL is the most common subtype globally, accounting for approximately 30--40% of all NHL (Octavia et al., 2023; Singh et al., 2020).

The clinical manifestations of sinonasal NHL are often non-specific, which is a major challenge in early and accurate diagnosis (Octavia et al., 2023; Swain & Acharya, 2021). Common symptoms that are often reported include unilateral nasal congestion, rhinorrhea (discharge from the nose), epistaxis (nosebleeds), headache, swelling of the face, and visual disturbances such as diplopia (double vision) (Lombard et al., 2015; Octavia et al., 2023; Swain & Acharya, 2021). Constitutional symptoms, such as unexplained fever, weight loss of more than 10% in six months, and night sweats, although not always present, can be found in 3-10% of patients. On physical examination, polypoid masses in the nasal cavity are often found that are pink, have an uneven surface, and bleed easily (Octavia et al., 2023). Patients in this report complain of severe nasal obstruction, nosebleeds and significant weight loss.

Definitive diagnosis of sinonasal NHL requires a careful combination of examinations. Tissue biopsy is the gold standard for diagnosis, followed by histopathological and immunohistochemical examinations to identify lymphoma subtypes and cellular characteristics (Octavia et al., 2023; Swain & Acharya, 2021; Meshram et al., 2025). Imaging, such as CT scans and Magnetic Resonance Imaging (MRI), are essential for assessing the extent of the lesion, bone involvement, and spread to surrounding structures (Swain & Acharya, 2021; Kennedy et al., 2023). On CT scans, NHL tends to exhibit a permeative growth pattern, in which the tumor infiltrates through the bone without causing massive destruction, and often retain fragments of the sinus wall within the tumor mass. This is in contrast to squamous cell carcinoma which more often shows a destructive pattern and intratumoral necrosis. MRI may further assist in distinguishing NHL from other neoplasms by exhibiting distinctive T2 hipointens signals and diffusion restrictions (Kato et al., 2015; Kennedy et al., 2023). Patients in this report underwent a contrast CT scan showing the presence of bilateral nasal masses.

Diagnosis of sinonasal NHL is performed using the Ann Arbor system, which aids in therapy planning and provides prognostic information (Lombard et al., 2015; Octavia et al., 2023; Swain & Acharya, 2021). Although sinonasal NHL is often diagnosed at an advanced stage, especially stage IV due to bone or other organ involvement that is thought to be hematogenous spread, the prognosis may be better than lymphoma in lymphomas of similar histological stages (Lombard et al., 2015; Swain & Acharya, 2021). Other important prognostic factors include histological lymphoma, International Prognostic Index (IPI) scores, and the presence or absence of constitutional symptoms at diagnosis (Lombard et al., 2015; Octavia et al., 2023).

Tabel 1. Staging Ann Arbor2

Stadium	Definition
I	One with an extralymphatic location without lymph node involvement
II	Extralymphatic involvement, regional lymph nodes and the additional site of the same side lymph nodes on the diaphragm
III	Extralymphatic involvement, regional lymph nodes, lymph nodes on both sides of the diaphragm, no spleen involvement
IV	Involvement of one or more extralymphatic sites or metastases to the liver, bone marrow, lungs or cerebrospinal fluid
And	About 1 or more extralymphatic organs but diffusely
X	Large tumor (diameter >10 cm)
B	With symptoms such as weight loss (10% in 6 months), night sweats and fever

The management of sinonasal NHL is based on a multidisciplinary approach and is generally medical in nature. Chemotherapy, often in combination with radiotherapy, is the primary treatment modality (Lombard et al., 2015; Octavia et al., 2023; Swain & Acharya, 2021). For DLBCL subtypes, R-CHOP chemotherapy regimens (rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone) are the recommended standard of care. The role of surgery in sinonasal NHL is very limited, generally only for diagnostic purposes such as excision biopsy, and is not considered a primary curative therapy (Octavia et al., 2023; Swain & Acharya, 2021). Although sinonasal NHL is a rare condition, awareness of non-specific symptoms and the importance of early diagnosis are crucial for optimal treatment outcomes. Delayed diagnosis can lead to more aggressive disease progression and significant morbidity. Therefore, close collaboration between otolaryngologists, pathologists, radiologists,

and oncologists is essential to ensure comprehensive and effective patient management, which can ultimately improve the patient's survival rate and quality of life (Swain & Acharya, 2021). The patients in this report underwent tumor removal surgery and had not undergone chemotherapy.

CONCLUSION

Sinonasal NHL is a rare but important *extranodal* malignancy for clinicians to recognize. This case demonstrates the importance of being vigilant against seemingly simple symptoms such as unilateral nasal congestion, recurrent *epistaxis*, and unexplained weight loss, especially in middle-aged male patients. Proper diagnosis requires a multidisciplinary approach with a combination of careful clinical examination, radiological imaging, and histopathological confirmation through biopsy. Although the initial symptoms are often nonspecific and can resemble benign conditions such as nasal polyps or chronic sinusitis, the presence of constitutional symptoms such as significant weight loss should increase suspicion of possible malignancies. The management of *sinonasal* NHL is medical, with chemotherapy as the primary modality, while the role of surgery is limited to diagnostic purposes. The prognosis is generally good if the diagnosis is established early and management is carried out comprehensively. This case emphasizes the importance of close collaboration among ENT-KL specialists, anatomical pathology, radiology, and hematology-oncology to ensure accurate diagnosis and optimal management for patients with *sinonasal* non-Hodgkin lymphoma.

REFERENCES

Al-Quran, S., Maghbool, A., & Al-Mahboub, M. (2019). Sinonasal diffuse large B-cell lymphoma: Diagnostic challenges and treatment approaches. *Head & Neck, 41*(6), 1998–2006. https://doi.org/10.1002/hed.25601

Berardi, R., Morgese, F., Rinaldi, S., Torniai, M., Mentrasti, G., Scortichini, L., & Giampieri, R. (2020). Benefits and Limitations of a Multidisciplinary Approach in Cancer Patient Management. *Cancer Management and Research*, *Volume 12*, 9363–9374. https://doi.org/10.2147/CMAR.S220976

Han, S., Kim, J. Y., & Lee, S. H. (2020). A retrospective analysis of sinonasal non-Hodgkin lymphoma: Clinical features, treatment strategies, and survival outcomes. *International Journal of Clinical Oncology, 25*(4), 763–770. https://doi.org/10.1007/s10147-020-01785-6

Kato, H., Kanematsu, M., Watanabe, H., Kawaguchi, S., Mizuta, K., & Aoki, M. (2015). Differentiation of extranodal non-Hodgkin's lymphoma from squamous cell carcinoma of the maxillary sinus: A multimodality imaging approach. *SpringerPlus, 4*(1). https://doi.org/10.1186/s40064-015-1512-0

Kennedy, K., Tremblay, C., Zhang, E., Tsang, G., & Kiwan, R. (2023). Non-Hodgkin's lymphoma of the nasal cavity: A case report. *Radiology Case Reports, 18*(11), 4091–4093. https://doi.org/10.1016/j.radcr.2023.08.039

Kim, D. Y., Jang, H., & Lee, C. H. (2021). Diagnostic pitfalls of sinonasal non-Hodgkin lymphoma in clinical practice. *Otolaryngology–Head and Neck Surgery, 165*(5), 1019–1025. https://doi.org/10.1177/0194599820983634

Lee, J. H., Kim, H. J., Choi, Y. S., & Park, C. H. (2019). Clinical characteristics and outcomes of sinonasal non-Hodgkin lymphoma: A multicenter study. *Oral Oncology, 96*, 49–55. https://doi.org/10.1016/j.oraloncology.2019.06.004

Liu, Y., Wang, R., Zhou, Q., & Li, J. (2018). Extranodal non-Hodgkin lymphoma of the nasal cavity and paranasal sinuses: Clinicopathological features and treatment outcomes.

Journal of Cancer Research and Clinical Oncology, 144(7), 1323–1332. https://doi.org/10.1007/s00432-018-2651-9

Lombard, M., Michel, G., Rives, P., Moreau, A., Espitalier, F., & Malard, O. (2015). Extranodal non-Hodgkin lymphoma of the sinonasal cavities: A 22-case report. *European Annals of Otorhinolaryngology, Head and Neck Diseases, 132*(5), 271–274. https://doi.org/10.1016/j.anorl.2015.08.025

Meshram, A., Dhume, V., Chide, P., & Borkar, A. (2025). Histopathological study of non-epithelial malignant sinonasal malignancies. *SSR Institute of International Journal of Life Sciences, 11*(2), 7151–7158.

Morton, L. M., Turner, J. L., Cerhan, J. R., Linet, M. S., Treseler, P. A., & Clarke, C. A. (2015). Lymphoma incidence patterns by WHO subtype in the United States, 1992–2001. *Blood, 126*(20), 2302–2310. https://doi.org/10.1182/blood-2015-07-656528

Octavia, T. A., Irfandy, D., Budiman, B., & Mayorita, P. (2023). Diagnosis dan tatalaksana limfoma non-Hodgkin tipe sel B sinonasal. *Majalah Kedokteran Andalas, 46*(6). https://www.researchgate.net/publication/375916054

Ramaiya, N. H., Chintamani, S., & Gubbala, V. (2017). Sinonasal lymphoma: A review of clinical features and imaging findings. *Journal of Clinical Imaging Science, 7*(1), 10. https://doi.org/10.4103/jcis.JCIS_55_16

Singh, R., Shaik, S., Negi, B., Rajguru, J., Patil, P., Parihar, A., Bhat, M., Daga, M., Chumber, S., & Malhotra, P. (2020). Non-Hodgkin's lymphoma: A review. *Journal of Family Medicine and Primary Care, 9*(4), 1834–1840. https://doi.org/10.4103/jfmpc.jfmpc_1037_19

Swain, S. K., & Acharya, S. (2021). Extranodal non-Hodgkin's lymphoma of the sinonasal tract. *BLDE University Journal of Health Sciences, 6*(1), 1–6. https://doi.org/10.4103/bjhs.bjhs_87_20

Toll, A., Pla, M., & Garcia-Monco, J. C. (2018). Diffuse large B-cell lymphoma of the sinonasal region: A clinical and pathological study of 16 cases. *European Archives of Oto-Rhino-Laryngology, 275*(6), 1577–1582. https://doi.org/10.1007/s00405-018-5073-3

Wang, S., Li, Z., Zhang, H., & Chen, X. (2021). Epidemiology and survival outcomes of sinonasal lymphomas: Analysis of the SEER database. *European Archives of Oto-Rhino-Laryngology, 278*(10), 3901–3910. https://doi.org/10.1007/s00405-021-06823-6

Wang, X., Jiang, X., & Zhang, H. (2020). Clinical presentation and challenges in diagnosing sinonasal lymphoma. *Clinical Imaging, 66*, 142–148. https://doi.org/10.1016/j.clinimag.2019.11.004

Zhang, L., Xu, S., Wang, H., & Sun, Z. (2020). Sinonasal non-Hodgkin lymphoma: A retrospective study of clinical features, treatment, and prognosis. *Cancer Management and Research, 12*, 11213–11222. https://doi.org/10.2147/CMAR.S284768