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NON-HODGKIN'S LYMPHOMA PRESENTING AS A NASION MASS WITH EXTENSIVE BONY INVOLVEMENT: A RARE CASE REPORT

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ABSTRACT **Background:** Non-Hodgkin lymphoma (NHL) commonly presents with nodal disease; however, extranodal involvement in the sinonasal region is uncommon and may mimic infective or inflammatory conditions. **Case Presentation:** We report a 50-year-old female presenting with swelling over the nasal bridge (nasion region). Imaging with high-resolution computed tomography (HRCT) of the paranasal sinuses revealed irregular lytic destruction of nasal bones and adjacent structures with an associated soft tissue component extending into the nasal cavities and fronto-ethmoidal recesses. Initial radiological impression suggested osteomyelitis. Histopathological evaluation confirmed Non-Hodgkin's lymphoma, most consistent with diffuse large B-cell lymphoma. **Conclusion:** Sinonasal NHL presenting as a nasion mass is rare and can mimic infection. Early biopsy is crucial for diagnosis and management.

KEYWORDS : Non-Hodgkin Lymphoma; Nasion Mass; Sinonasal Lymphoma; Extranodal Lymphoma; HRCT PNS

INTRODUCTION

Non-Hodgkin lymphoma (NHL) represents a heterogeneous group of lymphoid malignancies with variable clinical presentations and biological behavior (1,2). NHL is broadly classified into B-cell and T/NK-cell subtypes, with diffuse large B-cell lymphoma (DLBCL) being the most common (1,3). Approximately 25–40% of NHL cases demonstrate primary extranodal involvement, and the head and neck region is the second most common extranodal site after the gastrointestinal tract, accounting for 10–15% of all extranodal lymphomas (4,5).Within the head and neck, Waldeyer's ring including tonsils, nasopharynx, and base of tongue is the most frequent site (6). Involvement of the sinonasal tract is less common at 3–5% of all NHLs (7). Primary lymphoma of the nasal bridge or nasion with associated bony destruction is extremely rare, with only a handful of cases reported in literature (8). This region lacks significant lymphoid tissue, so lymphomas here are usually high-grade, aggressive subtypes like DLBCL or extranodal NK/T-cell lymphoma (9).Sinonasal lymphomas pose a diagnostic challenge because their early symptoms mimic benign conditions (7,10). Patients typically present with:

- Non-specific sinonasal symptoms: Progressive unilateral nasal obstruction, nasal discharge, epistaxis, facial swelling, or hyposmia (7,10)
- Sinusitis-like features: Facial pain, pressure, post-nasal drip — leading to initial treatment with antibiotics and steroids (10)
- Locally destructive features: As the disease progresses, bony erosion of the nasal septum, lateral nasal wall, or anterior skull base occurs. Involvement of the nasion causes visible deformity or "saddle nose" appearance (8,11)
- B-symptoms: Fever, night sweats, weight loss are present in <30% of localized sinonasal NHL, so absence does not rule it out (12)

This overlap with chronic rhinosinusitis, fungal infection, Wegener's granulomatosis, or midline destructive lesions often delays diagnosis by weeks to months (10,13). Imaging may show a soft tissue mass with bony erosion, but no specific features distinguish lymphoma from squamous cell carcinoma or other malignancies (11). Definitive diagnosis requires deep biopsy and immunohistochemistry (2,14). Flow cytometry, CD20, CD3, CD56, EBER-ISH, and Ki-67 help classify subtype, which is critical because NK/T-cell lymphomas of the nasal type have a very different prognosis and treatment than DLBCL (9,15).

Clinical significance: Early recognition is vital. Nasal NK/T-cell lymphomas are aggressive, associated with EBV, and respond poorly to CHOP but better to L-asparaginase-based regimens + radiotherapy (15,16). DLBCL may respond well to R-CHOP if caught early (3,16). Misdiagnosis as infection leads to disease progression, facial disfigurement, and CNS spread (10,13).

Case Presentation

A 50-year-old female presented with progressive swelling over the nasal bridge. There was no complaint of nasal obstruction, headache, epistaxis. There was no history of trauma or rhinitis or history suggestive of sinusitis. No nasal mass or nasal discharge was seen on nasal endoscopy. Clinical suspicion included infective or neoplastic etiology.

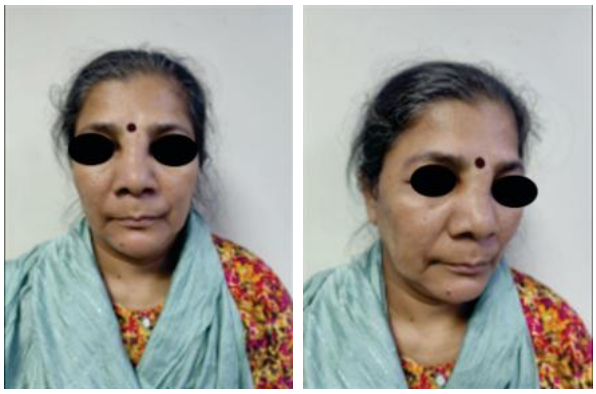

Figure 1 : Image Showing Nasion Mass with Broadening of Nasal Bridge

Differential Diagnosis

- Osteomyelitis
- Sinonasal carcinoma
- Granulomatous disease
- Dermoid cyst
- Extranodal lymphoma

CT PNS (P + C) was done. Key findings included:

- Irregular lytic destruction involving:
  - Bilateral nasal bones
  - Nasal processes of frontal bones
  - Anterior portion of left lamina papyracea
- Associated extra-osseous soft tissue component extending into:
  - Nasal cavities
  - Bilateral fronto-ethmoidal recesses
  - Over the nasal bridge
- Mild deviation of nasal septum
- Minimal mucosal thickening in maxillary and ethmoid sinuses
- Prominent adenoids

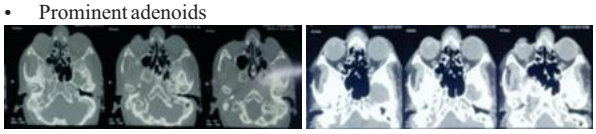

Figure 2: Radiology Suggestive of Lytic Lesion with No Extension into Nasal Cavity

Initial radiological impression suggested osteomyelitis with recommendation for histopathological correlation.

Trucut Biopsy of the lesion was performed. Histopathological examination revealed features consistent with diffuse large B-cell lymphoma. Immunohistochemistry showed CD20 positivity and CD3 negativity.

The patient was initiated on R-CHOP chemotherapy regimen (Rituximab, Cyclophosphamide, Doxorubicin, Vincristine, Prednisolone).

DISCUSSION

Extranodal lymphomas of the sinonasal region are uncommon and account for a small proportion of head and neck malignancies **(17,18)**. Among these, diffuse large B-cell lymphoma (DLBCL) is the most frequently encountered subtype in Western populations, whereas NK/T-cell lymphomas are more prevalent in East Asia **(19,20)**. The present case highlights several important diagnostic and clinical considerations.

1. Rare Anatomical Presentation

Involvement of the nasion with extension across adjacent bony structures is exceedingly rare (21). Most sinonasal lymphomas arise within the nasal cavity or maxillary sinus. Bone involvement, when present, is usually secondary to tumor infiltration rather than primary osseous origin (22).

2. Mimicry of Infective Pathology

One of the key challenges in this case was the initial radiological impression of osteomyelitis. This is a well-documented diagnostic pitfall (23). Lymphomas, particularly aggressive subtypes like DLBCL, can produce lytic bone lesions with associated soft tissue masses, closely resembling infection on imaging (22,23).

Previous studies have emphasized that sinonasal lymphomas often present with:

- Bone destruction rather than remodeling (24)
- Homogeneous soft tissue masses (24)
- Minimal necrosis compared to carcinomas (25)

These features overlap significantly with chronic infections, leading to delayed diagnosis (23,25).

3. Importance of Imaging Characteristics

Computed tomography plays a crucial role in assessing bony involvement (24). In this case, HRCT demonstrated:

- Irregular lytic lesions
- Multicompartmental extension
- Extra-osseous soft tissue spread

Such findings should raise suspicion for malignancy, particularly when the pattern of destruction is aggressive and crosses anatomical boundaries (24,26).

Magnetic resonance imaging (MRI), although not performed here, is known to provide superior soft tissue characterization and can help differentiate lymphoma from other malignancies based on signal intensity and diffusion characteristics (26).

4. Role of Histopathology

Definitive diagnosis of lymphoma requires histopathological examination with immunohistochemistry (18,27). CD20 positivity confirms B-cell lineage, while absence of T-cell markers (e.g., CD3) supports the diagnosis of DLBCL (27).

Early biopsy is critical, especially in cases where imaging findings are inconclusive or suggest infection but do not respond to conventional therapy (23,27).

5. Therapeutic Implications

DLBCL is an aggressive but potentially curable lymphoma. The standard treatment regimen, R-CHOP, has significantly improved survival outcomes (28). Early diagnosis is therefore essential to initiate timely therapy and prevent disease progression.

6. Literature Correlation

Several published reports have documented atypical presentations of sinonasal lymphoma mimicking benign or infective conditions (21,23). These cases consistently highlight the need for:

- High clinical suspicion
- Early tissue diagnosis
- Multidisciplinary approach

CONCLUSION

Non-Hodgkin lymphoma presenting as a nasion mass is exceptionally rare and often misleading. Because this region has little lymphoid tissue, clinicians typically suspect infection first. The condition can closely mimic osteomyelitis, with symptoms like swelling, tenderness, and radiologic evidence of bone destruction, leading to initial treatment with antibiotics and delayed diagnosis.

A key concern is that lymphomas may show aggressive lytic bone changes with a homogeneous soft tissue mass and spread across anatomical boundaries—features that can overlap with infection but should raise suspicion for malignancy, especially when there is poor response to therapy.

This highlights the importance of clinicoradiological correlation and early biopsy. Definitive diagnosis requires histopathology and immunohistochemistry, which guide appropriate treatment. Early identification is crucial, as subtypes like DLBCL are potentially curable with timely chemotherapy, whereas delayed diagnosis can result in progression, deformity, and systemic spread.

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