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Case Report

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# Non-Hodgkin Lymphoma Presenting as Tonsillitis

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## Abstract

Non-Hodgkin Lymphoma most often presents as primarily nodal disease. The head and neck is one of the most common affected sites with diffuse involvement of the deep cervical lymph nodes, the posterior cervical triangle and the mediastinal, hilar and axillary nodes.

We report a rare case of a 50 year-old male with HIV and presenting only with odynophagia for at least one month prior to the development of a cervical swelling. Clinical examination revealed a tonsillar enlargement, suspicious of tonsillitis. Neck CT scan revealed bilateral tonsillar enlargement and cervical lymphadenopathy. A staging CT scan revealed diffuse lymphadenopathy and extranodal disease in the lung, spleen and peritoneum. Pharyngeal biopsy and immunohistochemistry revealed a Diffuse Large B-cell Lymphoma, Non-Hodgkin Lymphoma.

We will resume the clinical and imaging relevant findings necessary to exclude the other possible differential diagnosis.

## Keywords

Non-hodgkin lymphoma, Tonsil, Diffuse large B-cell lymphoma, Lung, Splenomegaly, CT

## List of Abbreviations

HL: Hodgkin Lymphoma; NHL: Non-Hodgkin Lymphoma; CRP: C-Reactive Protein; HIV: Human Immunodeficiency Virus; CT: Computed Tomography; CD: Cluster of Determination; DLBCL: Diffuse Large B-cell Lymphoma

## Introduction

Lymphomas are tumors of the lymphoid tissues and can be divided into Hodgkin Lymphoma (HL), (presence of Reed-Sternberg cells) and Non-Hodgkin Lymphomas (NHL), (without Reed-Sternberg cells), that corresponds to 85% of the cases [1]. The classic clinical presentation is with a painless nodal enlargement. Less commonly, they can present primarily as an extra-nodal disease and affect different areas such as the head and neck. We present a case of a NHL presenting as a tonsillitis.

# Case Report

## History and examination

A 50 year-old male patient, with odynophagia for at least one month, followed by a left painful cervical swelling , was referred to the emergency department by his physician due to a suspicion of tonsillitis. . On physical examination, there was a left tonsil enlargement, with exudate suspicious of a tonsillar abscess, associated with left cervical tender swelling Relevant blood studies revealed anemia (Hemoglobin of 11.7 g/dL), CRP (C-reactive protein) of 72 mg/L and Human Immunodeficiency Virus 1 (HIV-1) positivity. A Computed Tomography (CT) scan of the neck was requested.

## Imaging findings

Neck CT scan revealed a suspicious mildly enhancing homogeneous solid lesion in the left palatine tonsil, and a similar smaller mass on the right tonsil, both of them causing a decrease in the airway calibre (Figure 1). No tonsillar abscess was identified. There were also bilateral lymphadenopathies in the cervical lymph node levels (Figure 2).

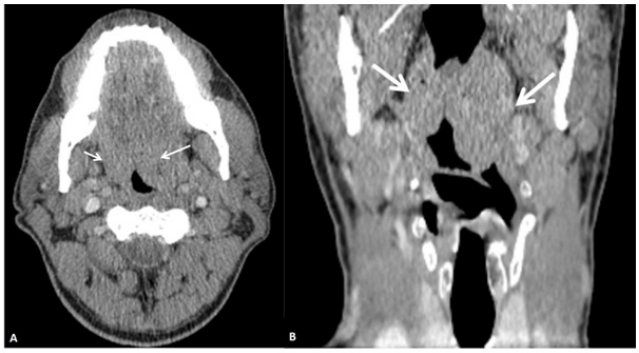

**Figure 1:** Neck CT acquisition at the axial plane (A) and reconstruction at coronal plane (B), after iodinate contrast administration, depicts a left palatine tonsil solid mass, with mild and homogeneous enhancement, and a similar smaller mass at the right palatine tonsil (arrows), with decrease of the airway caliber.

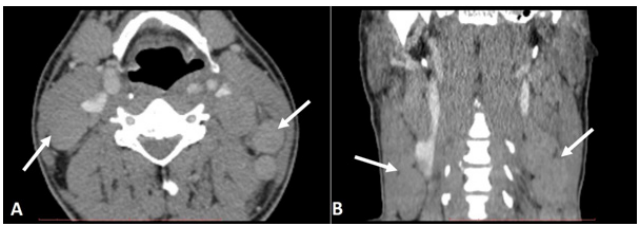

**Figure 2:** Neck CT acquisition after iodinate contrast administration at the axial plane (A) and reconstruction at the coronal plane (B), depicting several bilateral cervical lymphadenopathies (arrows).

These imaging findings raised the suspicion of lymphoproliferative disease as a diagnostic hypothesis. The patient was admitted and a staging chest, abdominal and pelvic CT scan was performed. Bilateral lymphadenopathy was found in the mediastinal, pulmonary hilum and axillary chains (Figure 3).

In the lung, there were multiple bilateral parenchymal and

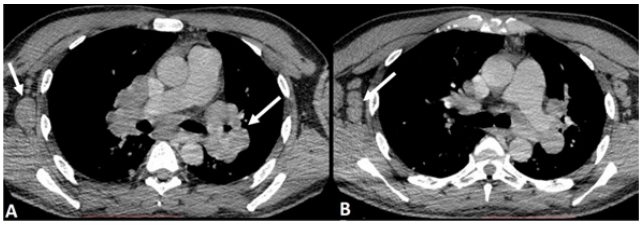

**Figure 3:** Chest CT acquisition after iodinate contrast administration at the axial plane (A, B), depicting several bilateral mediastinal, pulmonary hilar and axillary lymphadenopathies (arrows).

fissure nodules, solid, round, with smooth contours, as well as a right pleural nodule (Figure 4). Abdominal and pelvic CT scan revealed retroperitoneal lymphadenopathies and signs of peritoneal lymphomatosis. Splenomegaly was also present (Figure 5).

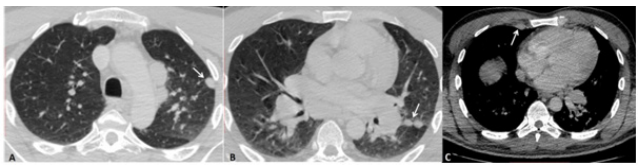

**Figure 4:** Chest CT acquisition at the axial plane (A, B), reveals the presence of pulmonary nodules in the apico-posterior segment of the left upper lobe and in the left major fissure (arrows). There was also a right anterior pleural nodule with enhancement (C, arrow).

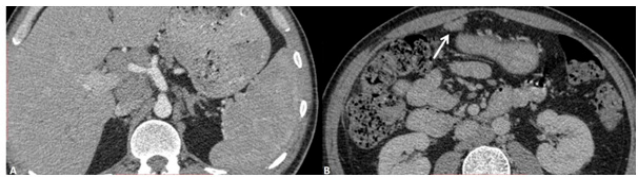

**Figure 5:** Chest CT acquisition at the axial plane (A, B), reveals the presence of pulmonary nodules in the apico-posterior segment of the left upper lobe and in the left major fissure (arrows). There was also a right anterior pleural nodule with enhancement (C, arrow).

The patient was referred to an otorhinolaryngologist and a pharyngeal excisional biopsy under local anesthesia was performed, with histopathological features suggestive of Non-Hodgkin Lymphoma. Immunohistochemistry revealed that the lymphoid tumor stained positively to cluster of determination (CD) 20, CD-45 and BCL-2, the B-cell markers, and were negative to CD-30. The final diagnosis proved to be a Diffuse Large B-cell Lymphoma (DLBCL).

# Discussion

The lymphomas are a group of tumors of the lymphoid tissues and can be divided into Hodgkin Lymphoma (presence of Reed-Sternberg cells) and Non-Hodgkin Lymphoma (without Reed-Sternberg cells), the latter corresponding to 85% of the cases. NHL are divided into two categories according to their origin in B-cells or T-cells/Natural Killer cells (World Health Organization classification). Each category contains two subdivisions: precursor neoplasms and mature differentiated neoplasms, with DLBCL being one of the mature B-cell neoplasms subtypes [1,2]. Viral infections or

immunodeficiency, such as in our case, are known risk factors, as well as genetic abnormalities or environmental factors.

NHL most often presents as primarily nodal disease, with diffuse involvement of the deep cervical lymph nodes, the posterior cervical triangle and the mediastinal, hilar and axillary nodes. At the abdominal and pelvic level, NHL often affects the mesentery [3].

The classic clinical presentation is with painless nodal enlargement. The presence of fever, night sweats and weight loss are associated with worse prognosis. In our case, the main symptom was odynophagia due to the involvement of the Waldeyer ring structures by extranodal disease. In cases of extra-nodal involvement, which can affect any organ, it may be difficult to determine if the involvement is primary or secondary, especially if nodal and extranodal disease coexist at the time of diagnosis. Ten to 20% of all cases of primary extranodal NHL are on the head and neck (being the second most common site of extranodal disease). Waldeyer ring structures are the most frequently affected, however, they account for only 1% of all NHL cases, and 65-75% of them are DLBCL [4].

The involvement of the tonsils by NHL can be unilateral or bilateral, presenting with homogeneous density and mild enhancement, features that were found in our patient. However, some may present as low-density lesions with peripheral rim enhancement, similar to an abscess. The CT findings are non-specific, being also impossible to differentiate from squamous cell carcinomas [4].

Secondary extranodal involvement in NHL cases can affect multiple organs. In the lung, the CT findings are also non-specific. Parenchymal nodules can be identified, as depicted in our case, or eventually consolidations with or without cavitations, as well as pleural nodules, masses or pleural effusions [5]. Our patient also had splenomegaly, which is considered extranodal involvement in cases of NHL, and the spleen is usually enlarged in 10-40% of cases, either homogeneously or heterogeneously [6]. Peritoneal lymphomatosis, as seen in our case, is a rare manifestation and is most commonly seen with NHL [7].

Histopathological determination and flow cytometry immunophenotyping are essential to the diagnosis [6]. NHL stain positive for CD-20, CD-45 and BCL-2; B-Cell lymphomas usually are negative to CD-30 and CD-3.

The treatment varies accordingly to several factors, namely de tumor stage and histology, patient age or presence of symptoms. The main stay are chemotherapy regimens as a single drug or in combination. The prognosis is also dependent on the stage of the disease [8].

## Final diagnosis

Non-hodgkin lymphoma - Diffuse large B-cell lymphoma.

## Differential diagnosis list

- Hodgkin lymphoma
- Kaposi sarcoma
- Tonsillar Squamous cell carcinoma
- Tonsillar abscess

## Conclusion

Bilateral tonsillar enlargement, when accompanied by bilateral cervical lymphadenopathies in a patient with HIV, should raise the possibility of a lymphoproliferative disease. Radiologists should be aware of the CT imaging findings that can support the diagnosis. However, imaging does not preclude the need of final histopathological and immunophenotyping analysis.

## Conflict of Interest Statement

No financial, commercial or other relationships that might be perceived by the academic community as representing a potential conflict of interest.

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