**Diffuse Infiltrative Lung Diseases Revealing Cavum Cancer: A case Report**

**ABSTRACT**

Diffuse infiltrative lung diseases (ILDs) are a heterogeneous group of pulmonary pathologies,

primarily characterized by involvement of the pulmonary interstitium. Diffuse infiltrative lung

disease can be caused by inflammatory, infectious, drug-induced, toxic, or neoplastic factors.

Undifferentiated carcinoma of the cavum (UCNT), although rare, can be responsible for ILDs,

particularly in endemic areas and in cases of Epstein-Barr virus infection.

The clinical case presented describes a 68-year-old patient with a history of dizziness and

smoking who developed progressive respiratory symptoms accompanied by ENT signs. Clinical

examination and imaging studies revealed diffuse infiltrative lung disease with no identified

infectious cause. A diagnosis of undifferentiated carcinoma of the cavum was made following a

biopsy of a nasopharyngeal mass. Treatment included radiotherapy and chemotherapy, which

led to regression of the lung lesions.

The discussion highlights the complexity of diagnosing PID of neoplastic origin, emphasizing the

importance of a multidisciplinary approach and early management. Early detection of

underlying causes, particularly in severe forms, is essential for a favorable prognosis.

**Keywords: Pulmonary Infiltrates, Cavum Cancer, Pulmonary Fibrosis, Lung Metastases, Histopathology**

**INTRODUCTION :**

Diffuse infiltrative lung diseases (ILDs) constitute a heterogeneous group of pulmonary

pathologies characterized by diffuse involvement of the lung parenchyma, primarily affecting the

interstitium but also involving the alveoli and distal airways. They represent a major diagnostic

and therapeutic challenge due to their etiological diversity and often unpredictable course. DILs

can result from multiple causes, including inflammatory, infectious, drug-induced, toxic, and

neoplastic processes. Accurate identification of the underlying etiology is essential to guide

therapeutic management and improve patient prognosis.

In this context, neoplastic forms of DILs constitute a unique entity. Direct tumor infiltration,

paraneoplastic inflammatory reactions, and complications related to oncological treatments

can all contribute to the development of interstitial lung disease. Among these etiologies,

undifferentiated carcinoma of the cavum (UCNT) is a rare but not exceptional tumor, particularly

in certain regions where it is endemic and frequently associated with Epstein-Barr virus

infection. This cancer, often diagnosed late due to non-specific initial symptoms, may be

accompanied by pulmonary manifestations that can be attributed either to tumor dissemination

or to a secondary systemic inflammatory response.

The clinical case presented illustrates a complex diagnostic situation in which a patient being

treated for chronic vertigo developed progressive respiratory symptoms, associated with a

deterioration in general condition and systemic manifestations suggestive of an underlying

inflammatory process. The discovery of ILD on chest CT led to a thorough investigation,

revealing an undifferentiated carcinoma of the cavum. This case highlights the importance of a

multidisciplinary approach integrating pulmonology, oncology, and immunology to establish an

accurate diagnosis and optimize therapeutic management.

The objective of this article is therefore to discuss the relationship between ILD and neoplastic

pathologies, highlighting the pathophysiological mechanisms involved and the diagnostic

strategies to distinguish the various potential causes of ILD in the context of cancer. A better

understanding of these interactions is essential to avoid diagnostic delays and improve the care

of patients facing these complex pathologies.

**CASE REPORT :**

This was a 68-year-old patient with a 10-year history of rotary vertigo under anti-vertigo

medication (acetylleucine), who had been treated for COVID-19 infection 6 months earlier. The

patient's history of toxicity included chronic active smoking estimated at 55 pack-years and

chronic alcoholism, which he had stopped 22 years earlier. The patient's history dates back

three months. He presented with exertional dyspnea (NYHA stage II), a dry cough, and episodes

of mild hemoptysis, without chest pain or desaturation. He also reported chronic rhinorrhea,

episodes of epistaxis, bilateral hearing loss, subjective dry mouth, and Raynaud's phenomenon,

well described in its three phases: ischemic phase (white phase), cyanotic phase (blue phase),

and recovery phase (red phase), with no associated joint involvement. All this is taking place in a

context of deterioration in the general condition, marked by a weight loss of 18 kg in six months

and night sweats.

On clinical examination, the patient was in good general condition, eupneic at 18 cycles per

minute, and had digital clubbing. Palpation of the lymph nodes revealed a 0.8 cm long-axis

adenopathy located in the left carotid region. Pulmonary auscultation revealed bilateral

wheezing. Capillaroscopy also revealed, as part of Raynaud's phenomenon, a mild nonspecific

microangiopathy.

A chest X-ray demonstrated an interstitial syndrome. A high-resolution thin-slice chest CT scan

showed bilateral, symmetrical, nonsystematic diffuse opacities, suggesting nonspecific

micronodules, as well as septal thickening, consistent with diffuse infiltrative pneumonia.

Bronchoscopy revealed first-degree diffuse inflammation with no other visible abnormalities.

Bronchoalveolar lavage revealed lymphocytic fluid with mild neutrophilia (macrophage at

64.7%, neutrophilic polymorphonuclear cells at 7.6%, eosinophilic polymorphonuclear cells at

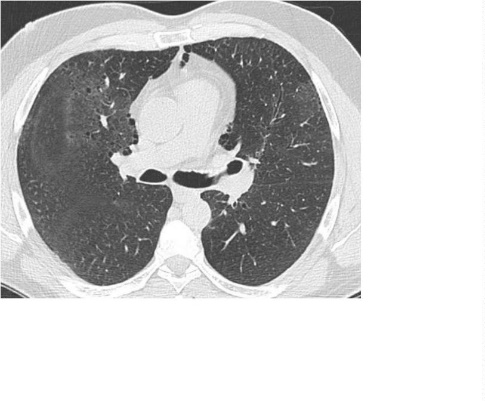
4 %, lymphocytes at 23.7%), with no signs of hemorrhage, neoplastic cells, or identified

pathogens.



**Fig: 1**

Chest X-ray showing interstitial syndrome



**Fig 2:**

Chest CT scan showing diffuse infiltrative lung disease

The immunological workup was positive for antinuclear antibodies at 160 (threshold <80) with

nucleolar appearance + granular cytoplasmic fluorescence, anti-DNA antibodies were positive,

anti-RNP/Sm antibodies were positive, anti-SSA antibodies were positive, and recombinant anti-

Ro52 antibodies were strongly positive.

Given the ENT signs (hearing loss, epistaxis, posterior rhinorrhea, vertigo, and cervical

lymphadenopathy) and general signs (asthenia, weight loss, and night sweats), an ENT

examination with rhinocavoscopy was performed, revealing free and normal-appearing nasal

cavities, and a mass was visualized in the nasal cavity at the expense of the superior wall

extending to the choanae. Biopsy of this mass confirmed an undifferentiated carcinoma of the

nasal cavity, UCNT type.

A cervicothoracoabdominopelvic CT scan described this mass as a thickening of the

posterolateral wall of the nasopharynx, more marked on the left, filling the tubal orifices,

isodense, heterogeneously enhanced after injection of contrast agent, delineating areas of

necrosis. This thickening measured 34 mm in maximum thickness. Laterally, it extended

towards the prestylian space and encompassed the left internal carotid artery over 180°, which

nevertheless remained permeable. Posteriorly and to the left, it extended towards the

hypoglossal canal, which was widened compared to the contralateral side, with doubt about an

extension towards the posterior cerebral fossa. Posteriorly and superiorly, it was in intimate

contact with the clivus responsible for cortical lysis. Anteriorly, it extends towards the choanae

and fills the posterior part of the nasal fossae and comes into contact with the middle meatus

with loss of the separating border. Anteriorly and to the left, it extends towards the

pterygopalatine cleft. Laterally on the left and right, it extends towards the prestylian spaces.

Inferiorly, it extends towards the posterolateral walls of the oropharynx. This description was

compatible with a locally advanced nasopharyngeal tumor process that measured 34 mm in

maximum thickness, without other lesions of secondary appearance.

This carcinoma of the cavum was classified in our patient as T4NxM0 following extension to the

clivus with cortical lysis, a widened hypoglossal canal with suspected neurological involvement,

the prestylian space and pterygopalatine cleft with significant lateral extension, the posterior

cerebral fossa suspected with possible intracranial involvement, and the oropharynx and nasal

cavities affected with extension to the upper airways.

The patient was discussed with oncologists and then underwent oncological management with

35 sessions of radiotherapy, as well as concomitant cisplatin-based chemotherapy. The

progression was marked by a regression of radiological signs in favor of diffuse infiltrative

pneumonitis.

**DISCUSSION :**

Diffuse parenchymal lung diseases or interstitial lung diseases (ILDs) embrace a large number

of conditions, with a wide range of causes, clinical manifestations, and imaging and

pathological features, as well as variable outcomes. It is a group of heterogeneous pulmonary

pathologies, where interstitial involvement is predominant. The pulmonary alveolar walls are

infiltrated by various combinations of inflammatory cells, fibrosis, and proliferation of certain

cells that make up the normal alveolar wall (1).

The overall prevalence of ILD is estimated to be up to 76.0 cases per 100,000 people in Europe

and 74.3 cases per 100,000 in the United States. Sarcoidosis, connective-tissue disease (CTD)–

associated ILDs, and IPF are the most common fibrotic ILDs, with an estimated prevalence of

30.2, 12.1, and 8.2 cases per 100,000, respectively (2).

Interstitial lung diseases can result from various causes such as inflammatory, infectious, drug-

induced, toxic or neoplastic processes. Among the neoplastic etiologies, undifferentiated

carcinoma of the cavum (UCNT) can be (as shown in our case report) a rare but significant cause

of pulmonary involvement, particularly in endemic regions and in patients with Epstein-Barr

virus (EBV) infection. Pulmonary infiltration in this setting can result indirectly from a

paraneoplastic systemic inflammatory response. The clinical case presented illustrates this

diagnostic complexity, with a patient presenting respiratory symptoms associated with an

alteration of the general condition and ENT signs suggestive of nasopharyngeal pathology.

Respiratory symptoms such as dyspnea, dry cough, and hemoptysis, although nonspecific,

raised concerns about interstitial lung disease. Chest CT revealed diffuse infiltrative lung

disease, a radiological pattern often observed in ILD, but not specific to a specific etiology. The

diagnostic approach required a thorough investigation, including bronchoscopy and

bronchoalveolar lavage, which ruled out an infectious origin or other acute pulmonary

pathology. The immunological assessment detected antinuclear antibodies and autoimmune markers, suggesting a systemic condition such as a connective tissue disease or a paraneoplastic syndrome. Many factors can trigger auto-immunity and autoimmune diseases, and neoplasms are one of them. Neoplasms represent a type of abnormal and excessive tissue or cell growth and can have a benign (benign tumor) or malignant (cancer) form (3).

However, ENT signs, including hearing loss, epistaxis, rhinorrhea, and cervical

lymphadenopathy, have been crucial in the discovery of undifferentiated carcinoma of the

cavum, also known as nasopharyngeal carcinoma (NPC). This type of cancer, often diagnosed

late due to nonspecific symptoms, may be accompanied by respiratory manifestations

secondary to local tumor extension or lymph node metastases. The tumor extension observed

on CT, with involvement of the clivus, hypoglossal canal, posterior cerebral fossa, and upper

airways, is consistent with TNM stage T4, indicating locally advanced cancer. These features

echo the literature, where local extension of cavum tumors can be marked by bone and nerve

invasion, thus complicating the prognosis.

For decades, nasopharyngeal carcinoma (NPC) has been endemic in indigenous populations in

East and Southeast Asia, the Arctic, North Africa, and the Middle East (4). It’s incidence among

males is double or triple that among females in most populations (5). In high-risk populations, in

contrast, NPC incidence exhibits a single peak at approximately ages 45–59 years, followed by a

plateau or a modest decline (6).

The International Agency for Research on Cancer (IARC) classifies tobacco smoking and poor

oral health as an established cause of NPC (7). Also, EBV infection and its ubiquitous presence

in NPC strongly indicates its involvement in NPC pathogenesis (8)

Definitive diagnosis is made by endoscopic-guided biopsy of the primary nasopharyngeal

tumour. Radiotherapy (RT) is the mainstay of treatment and is an essential component of

curative-intent treatment of non-disseminated NPC (9).

The treatment of this type of cancer is mainly based on a combination of radiotherapy and

concomitant chemotherapy. Concurrent chemoradiotherapy (CRT) is recommended for patients

with advanced local or regional NPC. Radiotherapy, particularly intensity-modulated

radiotherapy (IMRT), is the cornerstone of treatment for locally advanced carcinomas of the

cavum. For chemotherapy the most commonly used regimen is cisplatin 100 mg/m2 every 3

weeks with concomitant RT (11). Cisplatin-based chemotherapy has shown a significant benefit

in terms of survival and local control (10), as shown by the case of the patient who benefited

from regression of lung lesions after treatment. The multimodal approach is essential to improve

the prognosis and limit the local and systemic complications associated with this pathology.

The management of PID of neoplastic origin, particularly cavum carcinomas / nasopharyngeal

carcinoma, requires a rigorous diagnostic approach, integrating clinical, radiological,

histological and immunological elements. A multidisciplinary approach including pulmonology,

oncology, and radiotherapy is crucial to optimize management and improve therapeutic

outcomes. Early recognition of pulmonary infiltration in cavum carcinoma, although rare,

remains essential to avoid diagnostic delays and to ensure management adapted to the severity

of the disease.

**CONCLUSION :**

Interstitial lung diseases (ILDs) require precise identification of its cause, whether

inflammatory, infectious, toxic, or neoplastic. Diagnosis is based on imaging tests, and

treatment depends on the underlying etiology. When associated with neoplasia, management

combines tumor treatment and advanced respiratory management. Early detection and

appropriate management are crucial to improve prognosis, particularly in severe forms where

lung transplantation may be necessary. This case illustrates the importance of a comprehensive

evaluation in the face of diffuse infiltrative lung disease associated with ENT symptoms, to avoid

overlooking an underlying neoplastic etiology. Multidisciplinary collaboration is essential for

optimal care of these patients.

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**Consent**

As per international standards or university standards, patient(s) written consent has been collected and preserved by the author(s).

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