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MALT Lymphoma And Tuberculosis Coexistence In Lung: A Case Report And Review Of The Literature

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Abstract: *Mucosa-associated lymphoid tissue (MALT) lymphoma is a low-grade extranodal B-cell lymphoma. Pulmonary MALT lymphoma (pMALToma) is a rare but most frequent primary pulmonary lymphoma. Non-Hodgkin's lymphoma (NHL) may precede chronic inflammatory disease and be associated with immunodeficiency. Tuberculosis, in other ways, is a chronic infectious disease whose expression and reactivation are known to be facilitated by cell-mediated immune deficiency. Coexistence of NHL and tuberculosis in the same organ is relatively rare. We present a case report of a 50-year-old woman with a diagnosis of pulmonary MALT lymphoma based on bronchoscopic biopsy. The patient did not improve with chemotherapy, and chest CT control showed left upper lobe consolidation with an appearance associated with diffuse pulmonary nodules and micronodules. Tuberculosis was confirmed by CT-guided biopsy. Simultaneous anti-tuberculosis treatment and chemotherapy were started, and the patient's clinical symptoms improved.*

Keywords: *Pulmonary non-Hodgkin lymphoma, pulmonary MALT lymphoma, tuberculosis, CT scan*

1. Introduction:

NHL typically presents as extranodal structures of the chest, usually as secondary involvement but occasionally as primary disease [1]. Diffuse large B-cell lymphoma is the most common subtype of NHL, accounting for 25-30% of all lymphomas [2]. MALT lymphoma is another subtype that usually affects the lungs [3].

The development of some pMALTomes is associated with chronic inflammation caused by autoimmune diseases or infectious diseases [4]. An increased risk of lymphoma after tuberculosis has been suggested. However, the coexistence of lymphoma and tuberculosis in the same organ is rare, leading to misdiagnosis and treatment difficulties [5].

2. Case presentation:

We report the case of a 50-year-old patient without any previous history who presented with dyspnea, cough and mild fever for five weeks. Chest CT showed right middle lobe consolidation with air bronchi. The patient was treated with multiple antibiotics without any improvement. A bronchoscopic biopsy was performed, and microscopic examination revealed a mucosa-associated lymphoid tissue lymphoma.

Cervical-thoracic-abdominal-pelvic CT showed middle lobe consolidation without mediastinal lymph nodes (Figure 1). PET scan objectifies the hypermetabolized midlobe (Figure 2). The patient received chemotherapy but did not improve. Chest CT control showed the appearance of left upper lobe consolidation associated with diffuse pulmonary nodules and micronodules (Figure 3). PET scan showed 1 hypermetabolic mediastinal lymph node and 1 hypermetabolic left upper lobe (lingula) (Figure 4). A CT-guided biopsy was performed and epithelioid and giant cell granulomas centered on caseous necrosis were objectified. Concomitant anti-TB treatment and chemotherapy were initiated, and the patient showed significant improvement following therapy.

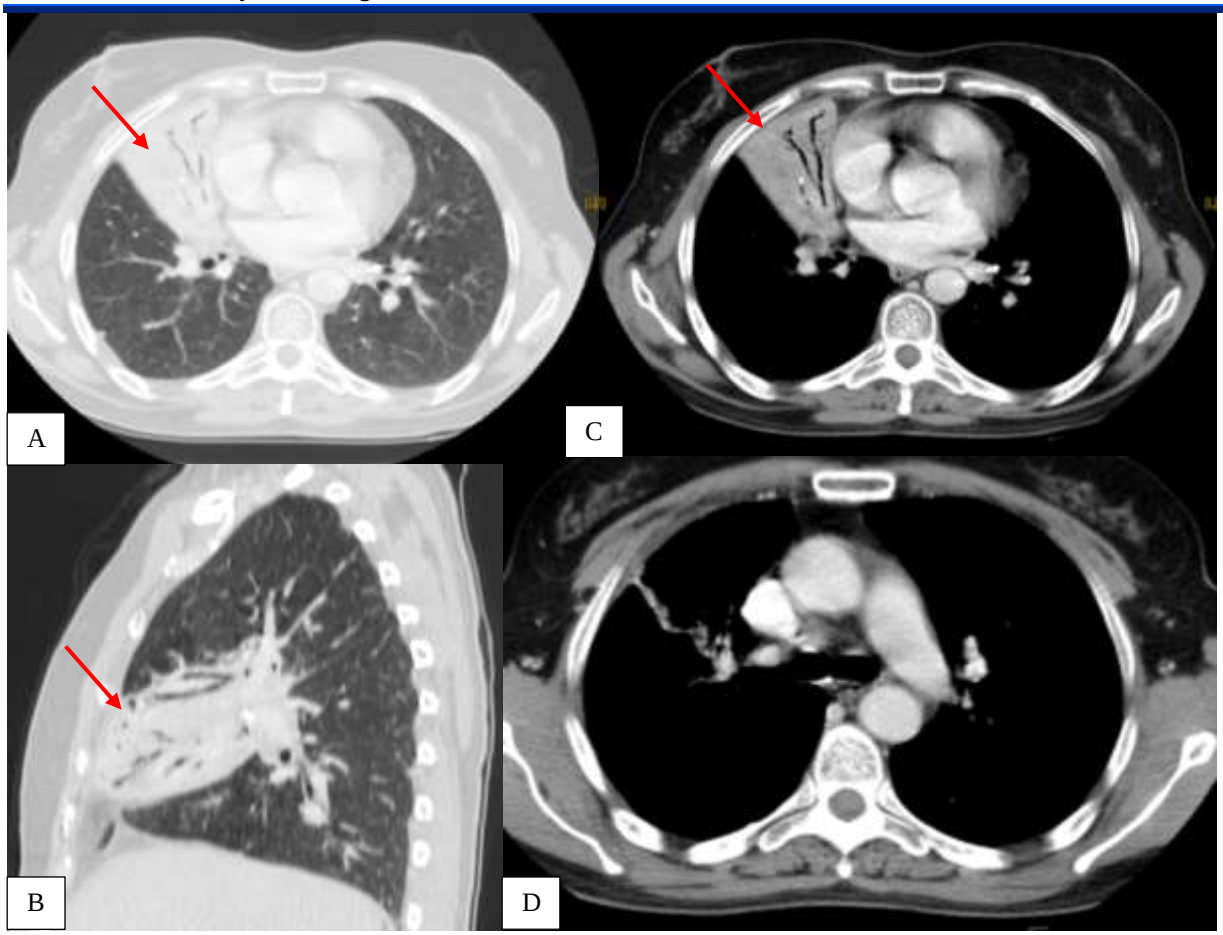

Figure 1: chest CT with contrast

Pulmonary consolidation of middle lobe (red arrow) in parenchymal window in axial (A) and sagittal planes (B), without mediastinal lymph node in mediastinal window (C, D).

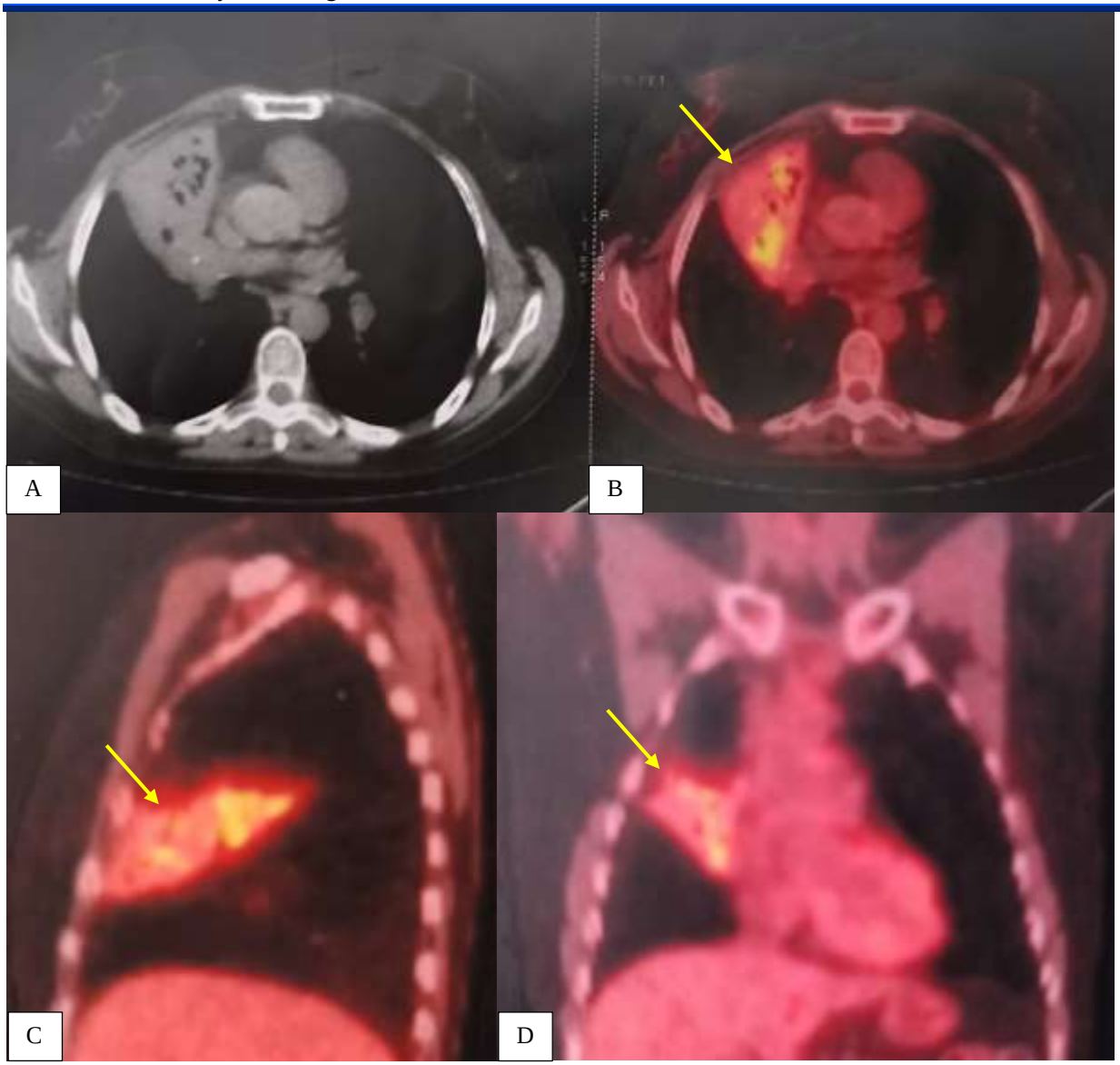

Figure 2: PET scan

PET scan in axial (A, B), sagittal (C) and coronal planes (D) objectified hypermetabolic middle lobe (yellow arrow).

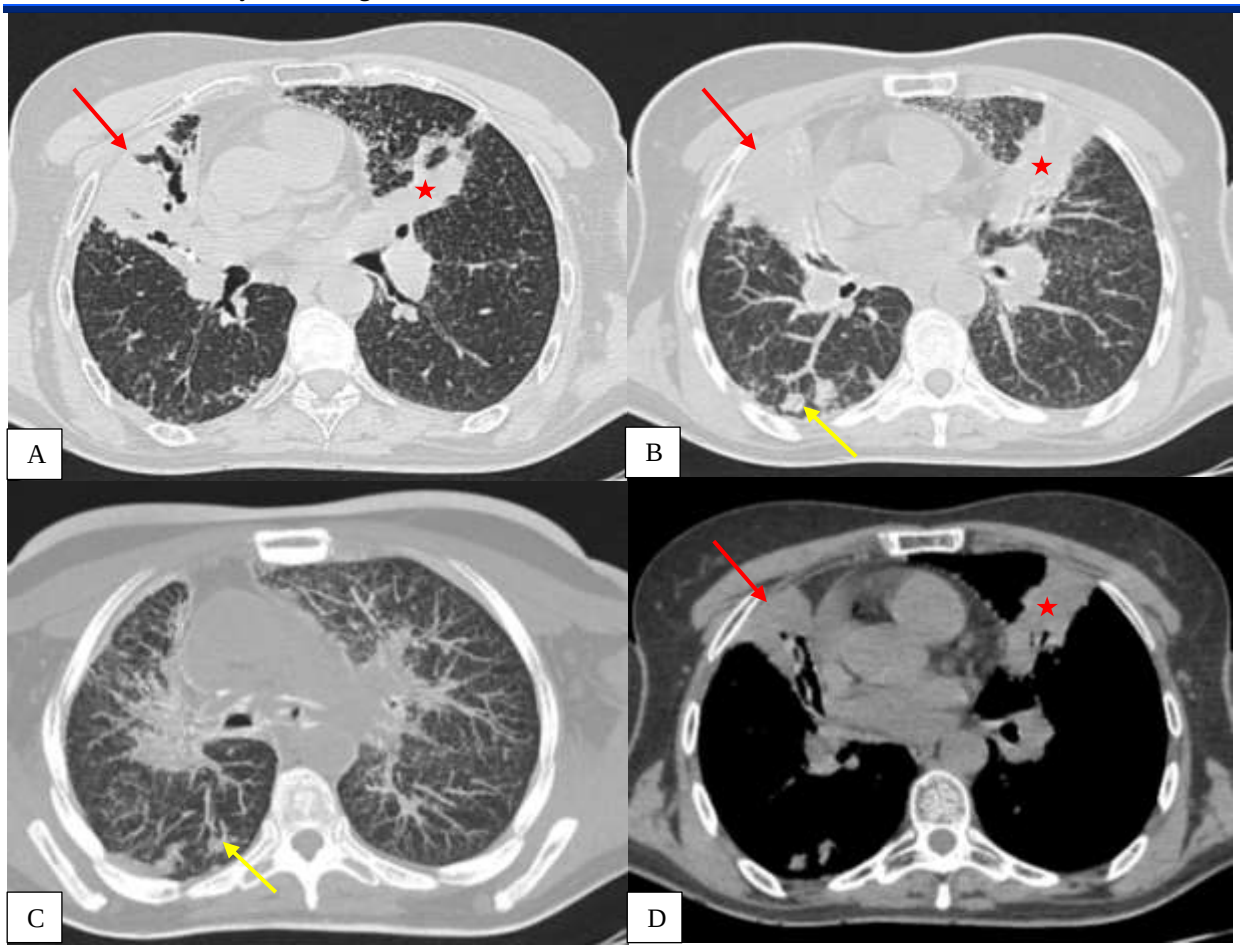

Figure 3: chest CT control without contrast

The chest CT control in axial parenchymal window (A, B, C) and mediastinal window (D) showed the persistence of middle lobe lesion (red arrow) and the appearance of left upper lobe consolidation (red star) associated with diffuse pulmonary nodules and micronodules (yellow arrow).

Figure 4: PET scan control

PET scan showed hypermetabolic of the left upper lobe (A: red star) and hypermetabolic mediastinal lymph node (B: yellow arrow).

in lymph nodes a rare disease.

The median age at diagnosis for pMALToma is 50-60 years [4].

Signs and symptoms are unspecific, with one-third of patients clinically asymptomatic at the diagnosis. Sometimes patients may have cough, dyspnea, chest pain, or hemoptysis. Fever and weight loss may occur in aggressive disease forms [6].

The radiological manifestations can be divided into five categories [7]. The first category includes mass and nodular type. These manifest as single or multiple nodules and masses in the pulmonary interstitium adjacent to the bronchi or subpleural areas, with airborne focal bronchial signs greater than 1 cm. The second is the alveolar type; it presents as ill-defined patchy exudative lesions or consolidated masses [6]. In the bronchovascular-lymphangitis type, the lesions appear as small reticular nodular structures, or diffuse fine or coarse reticular formation, or ground-glass changes with deformation of the bronchovascular bundles. The military type manifests as multiple nodules smaller than 3mm, which are distributed linearly and diffusely along the bronchi. Finally, hybrid types combine two or more of the four types [7].

PET/CT may be helpful in the diagnostic approach in some patients, although it is an underutilized imaging modality [6]. It can cover the entire body and reveal the presence or absence of lesions in other parts of the body. Therefore, it has certain benefits in distinguishing between primary and secondary pulmonary lymphomas. However, PET imaging is not specific and other lung injuries such as lung cancer, inflammation, and tuberculosis can also produce radioactivity concentrations [7].

A definitive diagnosis of pMALToma can be made by histology after bronchial biopsy or radiologically guided transthoracic biopsy. However, tissue samples are sometimes insufficient for diagnosis, especially in patients with atypical CT findings. So, some patients are diagnosed according to the results of surgical biopsy. In addition, results of immunohistochemical staining are essential for an accurate diagnosis [4].

Due to the low prevalence of cancer, there are no prospective randomized controlled trials of pMALToma therapy. Consequently, the optimal treatment modality remains to be determined. Successful treatment usually involves radiotherapy or surgical resection for local disease control, based on expert opinion and case reports. Systemic chemotherapy has been used for a wide range of tumors [6].

Chronic inflammatory disease may precede NHL and be associated with immunodeficiency. Furthermore, tuberculosis is a chronic infectious disease whose development and reactivation are facilitated by cell-mediated immune deficiency. Very rarely, NHL and tuberculosis co-exist in the same organ [8].

Whether the onset of active tuberculosis is facilitated by weakened immunity due to malignant growth or whether chronic latent tuberculosis is the causative agent of malignant lymphoma is unclear. An increased risk of NHL has been reported in persons with a history of tuberculosis [9].

However, there is no experimental evidence to support latent tuberculosis alone as a cause of NHL. In contrast, patients with NHL have a much higher incidence of tuberculosis than the general population [10].

The coexistence of tuberculosis and pulmonary lymphoma is a rare disorder that complicates diagnosis and treatment. In areas with a high incidence of tuberculosis, airway specimen testing is recommended for patients with lung lesions. Lymphoma chemotherapy can induce tuberculosis progression, and treating tuberculosis first can delay the treatment of lymphoma. Therefore, for patients with comorbidities, active combination of anti-tuberculosis drugs and chemotherapy is recommended [5].

4. Conclusion:

In conclusion, it is rare for lymphoma and tuberculosis to exist in the same organ at the same time, which easily leads to the dilemma of delaying diagnosis and treatment.

The possibility of co-existing patients with tuberculosis and malignancy, or vice versa, should always be considered, especially when the expected remission does not follow the proper treatment.

5. References

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