Austin Surgery Case Reports

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Case Report

Lymphoid Nodular Hyperplasia of the Lung: A Case Report

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Received: January 06, 2020; **Accepted:** February 04, 2020; **Published:** February 11, 2020

Abstract

Nodular lymphoid hyperplasia is a controversial entity in which its existence in the lung has been questioned. The current view is that most, if not all, of these cases represent extra nodal marginal zone cell B lymphomas disguised as reactive lesions.

Our patient is 26 years old, with no specific history who consulted for a chronic dry cough with deterioration in general condition, resulting in weight loss estimated at 12 kg in 12 months.

The clinical examination shows a stable patient with no suggestive clinical signs which led to a chest scan revealing the presence of three pulmonary nodules which are hyper metabolic with mediastinal lymphadenopathy in the Pet Scan.

Histological and immunohistochemical studies have confirmed the diagnosis of lymph node nodular hyperplasia of the lung.

We conclude that nodular lymphoid hyperplasia of the lung, although rare, exists and deserves its place in the spectrum of reactive pulmonary lesions which ranges from follicular hyperplasia to diffuse hyperplasia of lymphoid tissue associated with the bronchi (lymphoid interstitial pneumonia).

Keywords: Hyperplasia; pseudo lymphoma; Pet Scan; lung

Abbreviations

PNLH: Pulmonary Nodular Lymphoid Hyperplasia; MALT LYMPHOMA: Lymphoma of Lymphoid Tissue Associated With Mucosa; RSD: Related Sclerosing Disease

Background

Pulmonary Nodular Lymphoid Hyperplasia (PNLH) is a reactive lymphoproliferative disease. It is very rare that this means that many aspects of the disease are unknown or have not been proven. Lung nodular lymphoid hyperplasia can be symptomatic or asymptomatic, progressive or not, solitary or multiple.

Pulmonary nodular lymphoid hyperplasia has a good prognosis, and surgical excision is curative [1]. Among the neoplastic processes which presents itself as a differential diagnosis, we note the lymphoma of the marginal zone associated with the mucous membranes (MALT lymphoma). However, the differential histological diagnosis also includes non-neoplastic diseases such as sclerosis linked to immunoglobulin G4 (IGG4-RSD) and certain types of interstitial pneumonia.

Unlike PNLH, the other diseases representing differential diagnoses require systemic treatment instead of surgical excision alone. Therefore, an accurate diagnosis is crucial. The diagnosis of PNLH can be established on the clinical-radiological, histological and immunohistochemical aspects.

Presentation Case

Our patient is a young 26 year old with no particular history who presented to the consultation for a chronic dry cough in a context of deterioration of the general state translated by a loss of weight calculated by 12 kg in 1 year without signs of tuberculous impregnation (night sweats, fever, chills, productive cough ...). Additional examinations were requested with the presence of pulmonary nodules on the standard radio (Figure 1) and the thoracic scanner (two on the right and one on the left) which are hyper metabolic at PETSCAN with mediastinal adenopathy (figure 2). Surgical resection of two nodules was made.

We have received in our laboratory two lung fragments measuring respectively 3x2.5x1.5 and 5x2.5x1.5 cm and five fragments corresponding to a pleura, the biggest one is measuring 4 cm along the long axis.

When cutting the pulmonary fragments, we note the presence of a homogeneous whitish appearance at the level of one fragment and a greyish aspect at the level of the other. The histological sections analyzed show a pulmonary parenchyma which is the seat of a lymphoid infiltrate made up of small lymphocytes arranged in hyperplastic lymphoid follicles (Figure 3 and 4).

An Immunohistochemical study was carried out which showed a reaction labelling of the following antibodies; CD20, CD5 (Figure 5), BCL6 and BCL2.

The diagnosis of pulmonary lymphoid nodular hyperplasia was retained.

Discussion

Pulmonary nodular lymphoid hyperplasia (PNLH) is a reactive

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Citation: El Ochi MR, El Hammoumi M, Kessab A, Azakhmam M, Essaoudi MA, El Ktaibi A, et al. Lymphoid Nodular Hyperplasia of the Lung: A Case Report. Austin Surg Case Rep. 2020; 5(1): 1034.

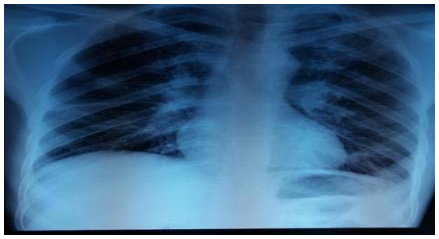

Figure 1: X-ray image of standard radio showing bilateral opacities.

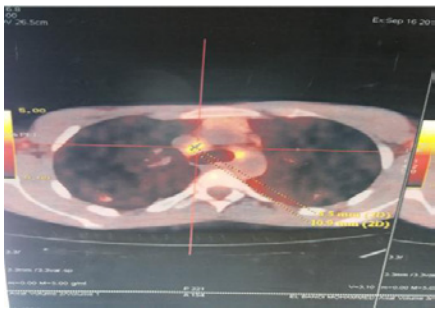

Figure 2: X-ray image of PetScan showing hypermetabolic nodules with lymphadenopathy.

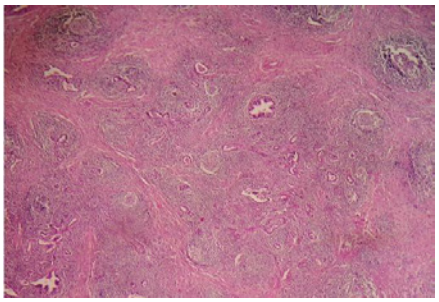

Figure 3: Morphological appearance showing a pulmonary parenchyma seat of hyperplastic lymphoid follicles on an inflammatory background Gx10.

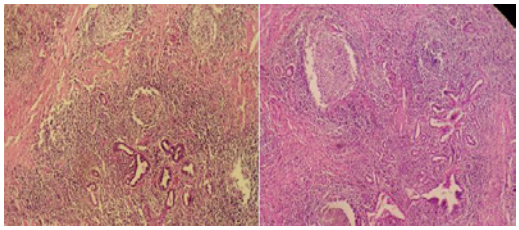

Figure 4: Morphological appearance showing a pulmonary parenchyma seat of hyperplastic lymphoid follicles on an inflammatory background Gx20.

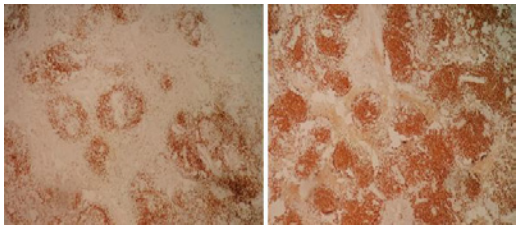

Figure 5: Immunohistochemical image showing reaction labeling for anti CD20 and anti CD5 antibodies.

lymphoproliferative disease. It was first described in 1983 by Kradin and Mark [2] and only dozens of cases have been reported since.

Before, Abbondanzo et al. [1] reviewed 14 cases of PNLH, proposed it as a pathogenic entity and suggested a treatment strategy, it was often called a pseudo lymphoma, and many authors believed it to correspond to MALT-type lymphoma [3].

Clinically, PNLH mainly affects adults, with an age which can range from 19 to 80 years (average of 65 years), and is slightly more frequent in women (male/female ratio, 3: 4) [1]. The majority of patients are asymptomatic, although sometimes nonspecific symptoms such as coughing, pleuritic chest pain or breathlessness [1], as in our case. Lung nodular lymphoid hyperplasia has been reported in smokers [4], but the association seems to be a coincidence. An association with autoimmune disease has not been found in the largest series of PNLH cases [1].

In imaging studies, PNLH presents as a solitary nodule in the peri-bronchial or sub-pleural areas, without pleural involvement. In around 29% of cases, several (up to 3) nodules are present like our case, almost always unilaterally [1] which differs in our patient (bilateral). The hilar, para-esophageal or mediastinal involvement associated with lymphadenopathy was reported in 36% of cases.

Histologically, PNLH is composed of well-defined lymphoid tissue with numerous reactive germinal centers, interfollicular lymphocytes and plasma cells. A variable degree of interstitial fibrosis is present in most cases, sometimes completely erasing pulmonary parenchyma [1].

The immunohistochemical results show a mixture of T and B cells with germinal centers expressing CD20 antigens and interfollicular lymphocytes expressing CD3, CD43, and CD5 [5]. Focal positivity of lambda and light chain kappades are also found in PNLH.

More specifically, immunophenotyping and molecular studies demonstrating a polyclonal motif on B cells and/or plasma cells help to exclude lymphoma. Immunohistochemical studies are useful for demonstrating the phenotype and distribution of normal cells.

Pulmonary nodular lymphoid hyperplasia has been known as pseudo lymphoma because of its close resemblance to MALT lymphoma. IGG4-RSD can induce a fibrous lesion forming a mass that can mimic PNLH [6,7].

The differential diagnosis is also broad, but can be narrowed according to clinical, radiological and histopathological results. For example, some types of interstitial pneumonia, such as follicular bronchiolitis and lymphocytic interstitial pneumonia, are similarly characterized by dense lymphoid infiltrate. However, in imaging, these are characterized by poorly limited diffuse nodulo-reticular opacities, rather than the good limitation is observed in MALT lymphomas; PNLH and IGG4-RSD [6]. Other lesions forming nodules with fibrosis and inflammation are to be taken into account such as the inflammatory pseudotumor and the inflammatory myofibroblastic tumor; however, in such lesions, spindle cells are generally present [8]. In the post-transplant setting, post-transplant lymphoproliferative lesions must be included in the differential diagnosis, [7] and when identifying cytological B cells or atypical cells

phenotypic, a diagnosis of lymphomatoid granulomatosis should also be evoked [1].

The treatment of choice for PNLH was surgical resection according to Abbondanzo et al. [1] who studied 14 cases of PNLH in 2000. Most of the previously studied cases had unilateral pulmonary nodules, and all the patients underwent complete surgical resection and no recurrence was observed.

However, in 2005, Kajiwara et al. [9] reported a case of PNLH with multiple nodules; only a surgical biopsy was performed and the rest of the lesions regressed spontaneously during the follow-up period. Miyoshi et al. [10] reported a case of a 50-year-old patient with nodular pulmonary multiple lesions, in whom a surgical biopsy was performed and the remaining lesions regressed spontaneously after 6 years.

Conclusion

In conclusion, PNLH is a benign lesion, forming nodules in the lungs which can represent a trap due to its characteristics which overlap with other neoplastic and non-neoplastic pulmonary diseases. An X-ray image of a well-defined single lung mass in an older, asymptomatic adult is useful in reducing the clinical differential diagnosis. In the appropriate clinic and in the radiological setting, the presence of eosinophils and vasculitis suggests IGG4-RSD rather than PNLH. It should be noted that an increased number of positive IgG4 plasma cells does not exclude the diagnosis of PNLH.

It is important to exclude MALT lymphoma before making a diagnosis of PNLH. Unlike MALT lymphoma, the lymphoid infiltrate in PNLH shows a polyclonal B cell and / or the pattern of plasma cells, and there is no cytologic atypia or phenotypic aberrations.

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