

## A Case of Severe Pneumopathy Infection by Pneumocystis Jiroveci in an Immunocompetent Patient

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### Case Report

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**Abstract:** Pulmonary pneumocystis (PCP) is a life-threatening opportunistic infection that can occur in non-AIDS immunocompromized patients, mainly in solid organ transplant recipients, in patients with hematological malignancy and those treated for autoimmune or inflammatory diseases. In human, PCP is caused by *Pneumocystis jirovecii*. Over the last years, advances in cancer treatments (including new drugs, high dose and intensive chemotherapy with bone marrow or stemcell transplantation) and immunomodulation resulted in an increased number of patients with impaired immunity and risk for PCP.

**Keywords:** Lymphoma, Bone marrow or hematopoietic stem, pulmonary pneumocystis, dyspnea, immunocompetent individual.

### INTRODUCTION

Pulmonary pneumocystis (PCP) remains a severe infection in immunocompromised patients. Apart from HIV infection, PCP is especially seen in patients who have undergone solid organ transplant, in hematologic malignancies mainly lymphoid, marrow transplant and long-term immunosuppressive therapy for connective tissue disease or systemic vasculitis. The human form of pulmonary pneumocystis is caused by a yeast-like fungus *Pneumocystis Jiroveci* (PJP) [1, 2]. Over the two last decades, infectious complications have been reported in many patients receiving intensive therapies for hematologic malignancies, sometimes targeted therapies, with or without allogeneic marrow graft [3].

In order to maintain a high level of suspicion of pulmonary pneumocystis outside of HIV, we report a case of *Pneumocystis Jiroveci* Pneumopathy discovered in an immunocompetent individual. Clinical, diagnostic and therapeutic features were reviewed.

### CASE REPORT

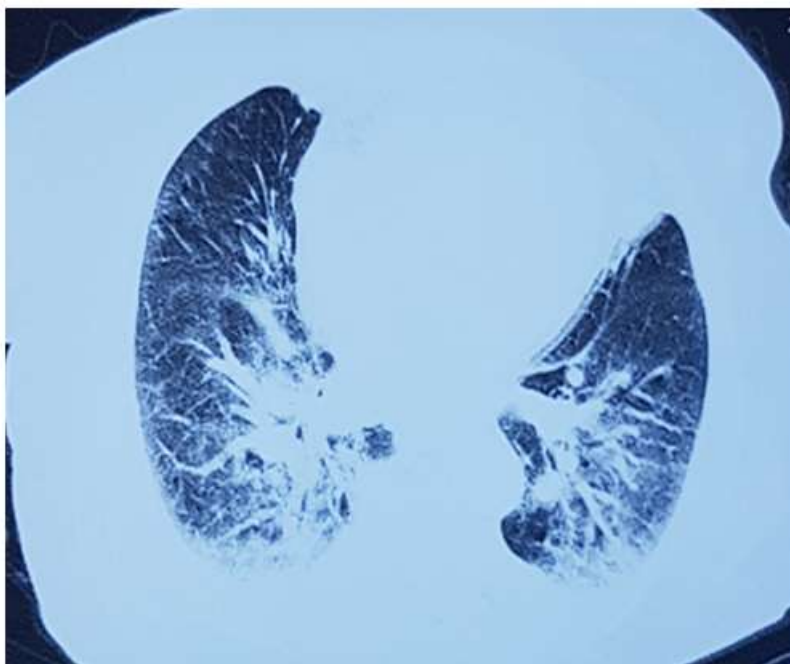
A 71-years-old woman admitted to the hospital with complaints of an infectious syndrome made of acute fever, dyspnea stage II of NYHA and inflammatory rachialgia.

In her previous history, she reported one-year history of HBP on Amlodipine 5mg a day, osteoporosis with moderate compaction of the vertebral body L1- L2 and L5 under bisphosphonate and Immunological autoimmune thrombocytopenia treated with long-course corticosteroid therapy. The patient had also a lymphocytic lymphoma classified as stage III

according to the Cotswold modification of the Ann Arbor staging system. In all, 8 cycles of R-CHOP (rituximab 375 mg/m<sup>2</sup>, cyclophosphamide 750 mg/m<sup>2</sup>, doxorubicin 50 mg/m<sup>2</sup>, vincristine 1.4 mg/m<sup>2</sup> and prednisone 40 mg/m<sup>2</sup>) every 3 weeks were administered. The patient was declared in complete remission a year ago.

The CBC finds a hemoglobin concentration at 10.8 g/ dl microcytic normochromic, a leukocytosis with neutrophils predominance at 22.000/m<sup>3</sup>, a CRP at 127mg/l. Her blood cultures were negative.

A chest X-ray showed a bilateral interstitial syndrome. A CT scan of the chest showed the occurrence of bilateral ground glass scattered lung opacities having probably an infectious origin (Figure-1).



**Fig-1: Radiological Image Before To Treatment**

Intravenous Fluoroquinolone antibiotic treatment was initiated with septic workup : cytobacteriological examination of sputum and AFB negative research. As respiratory symptoms and radiographic images worsened, the patient was switched to intravenous (IV) trimethoprim-sulfamethoxazole

(TMP-SMX). The PCP was highly suspected even the patient was immunocompetent but with high risk of PCP: Hematopathy background, long and anti-CD20 treatment (despite non-detection of PJP in the breath sample) with very good clinical and radiological improvement (Figure-2).



**Fig-2: Radiological Image after Treatment**

## DISCUSSION

Although the use of prophylactic medication has reduced the incidence of pneumocystis jiroveci pneumonia, it still occurs in cancer patients and is associated with a high morbidity and mortality.

Patients with hematological malignancies are at high risk for PCP because of chemotherapy and steroid induced immunosuppression [4].

Despite highly active prophylactic regimens, most cases occur in patients who are not receiving any prophylactic treatment even though the risk factors are well described. PCR techniques have been used for PCP diagnosis but these highly sensitive methods may not be able to discriminate between airway colonization and infection [5].

Prophylaxis should be widely recommended for patients receiving prolonged steroid therapy or other immunosuppressive drugs.

A low CD4+T cell count (less than 200/ul) may be a useful marker to identify high risk patients who should not discontinue prophylaxis.

Because PCP is very severe in cancer patients, higher risk patients must be identified and long-term prophylaxis should be maintained as long as immunosuppression persists [6].

## CONCLUSIONS

Pneumocystis pneumonia should be considered in cancer patients receiving immunosuppressive drugs and presenting with increasing dyspnoea. It is important to identify a high risk population among patients undergoing chemotherapy because of the significant morbidity and mortality and in order to administer effective prophylactic agents

## Conflicts of interest

The authors declare no conflicts of interest.

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