Case Report

# Lymphoma Presenting as *Pneumocystis Jirovecii* Pneumonia

**Vikas Marwah[1], H.S. Darling[2], S.P.S. Shergill[3] and Yadvir Garg[1]**

Department of Respiratory Medicine, Military Hospital (CTC), Pune (Maharashtra), India

## Abstract

Non-Hodgkin's lymphoma can present with various clinical manifestations, such as fever, weight loss, lymphadenopathy, hepatosplenomegaly or some opportunistic infection. However, it has seldom been reported to be present with *Pneumocystis jirovecii* pneumonia in respiratory failure as initial presentation. We report a case of non-Hodgkin's lymphoma who presented with *Pneumocystis jirovecii* pneumonia. **[Indian J Chest Dis Allied Sci 2019;61:151-152]**

**Key words:** *Pneumocystis jirovecii* pneumonia, Lymphoma, Infection.

## Introduction

*Pneumocystis jirovecii* pneumonia (PCP) commonly occurs in immunocompromised patients as an opportunistic infection. It is a severe infection with very high mortality if not suspected, timely diagnosed and aggressively treated. Here, we report a case of a 57-year-old male who was treated as a case of disseminated tuberculosis and adrenal insufficiency on replacement therapy since September 2010, and presented to us with cough, fever and dyspnoea of four weeks duration. He was diagnosed to have PCP. On treatment, his respiratory symptoms improved. However, he continued to be febrile. Further evaluation revealed retro-peritoneal lymphadenopathy on ultrasound, which on biopsy was diagnosed as high grade non-Hodgkin's lymphoma.

## Case Report

A 57-year-old male was admitted with a four weeks history of progressively worsening dyspnoea, dry cough and high grade fever. He had history of significant weight loss of 8kg over two months and night sweats. Patient had a significant past history of multiple drug reactions, disseminated tuberculosis (treated in 1988) and Addison's disease for which he was on replacement steroid therapy. He was started on empirical anti-tuberculosis treatment (ATT) in another hospital, to which he did not respond and was transferred to our centre. Examination showed tachycardia, tachypnoea, fever and arterial oxygen saturation ($SpO_2$)- 80% (on room air). He had bilateral basal crackles on auscultation of the chest. Laboratory investigations revealed: haemoglobin (Hb) 11.2, total leucouyte count (TLC) 9,600, with 89% neutriphils, platelet count of 250,000, BUN (blood urea nitrogen) 19, serum creatinine 1.0, serum bilirubin 1.4, serum glutamic-oxaloacetic transaminase/ serum glutamic-pyruvic transaminase (SGOT/SGPT) 44/57, serum latic acid dehydrogenase (S.LDH) 1547U/L. Arterial blood gas revealed Type 1 respiratory failure with respiratory alkalosis [pH- 7.455, partial pressure of oxygen ($PaO_2$) - 84.5 mmHg (fraction of inspired oxygen [$FiO_2$ 0.8]), partial pressure of carbon dioxide ($PaCO_2$) - 33.8 mmHg, bicarbonate ($HCO_3$) - 23.0 mmol/L, $PO_2/FiO_2$ - 105, alveolar-arterial oxygen tension difference ($AaDO_2$)- 52 mmHg.

Chest radiograph revealed bilateral basal infiltrates (Figure 1). Induced sputum did not show any pathogens. Chest tomogram revealed bilateral ground-glass haziness with basal predominance and interlobular septal thickening (Figure 2). Bronchoscopic examination revealed normal tracheo-bronchial tree. Bronchoalveolar lavage (BAL) showed *P. jirovecii* on Grocott's stain (Figure 3) and transbronchial lung biopsy (TBLB) was suggestive of chronic inflammation. He was treated with septran for two weeks, steroids, high flow oxygen and supportive therapy. Patient improved subjectively, with an improvement in the respiratory function and resolution of lung opacities. However, he continued to be febrile.

He was further evaluated to look for other causes of pyrexia of unknown origin (PUO) and possible immunocompromised state. CD4 counts were also low

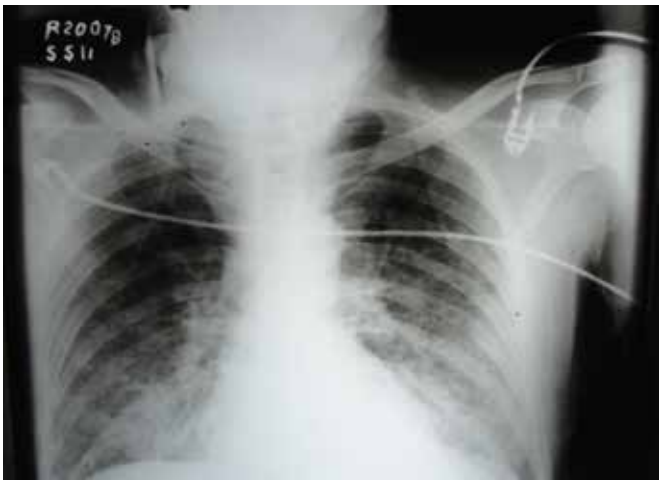

**Figure 1. Chest radiograph (postero-anterior view) depicting reticulo-nodular opacities in both mid and lower zones.**

**[Received: April 29; accepted: May 22, 2019]**

**Correspondence and reprint requests:** Dr Vikas Marwah, Classified Specialist (Respiratory Medicine), Trained in Pulmonary, Critical Care and Sleep Medicine and Associate Professor, Department of Respiratory Medicine, Military Hospital (CTC), Pune-411 040 (Maharashtra), India; E- mail: docvikasmarwah@gmail.com

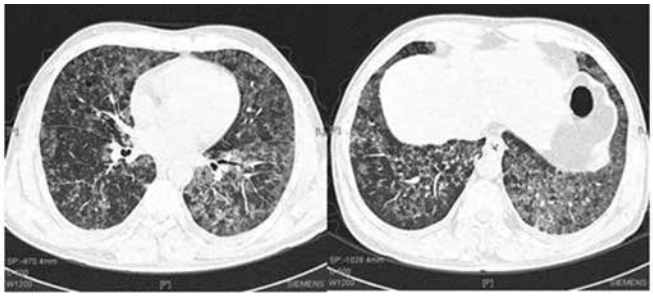

**Figure 2. Chest tomogram showing ground-glass haziness in both lower lobes with interlobular septal thickening.**

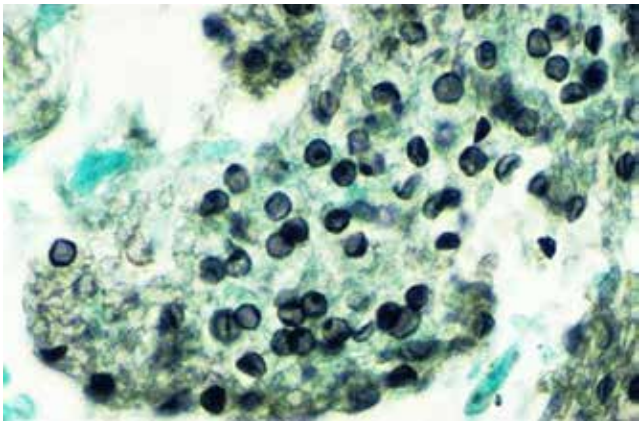

**Figure 3. Bronchoalveolar lavage showing crescentic, oval shaped and some cup- and saucer-shaped cysts of *P. jirovecii* on Grocott's stain.**

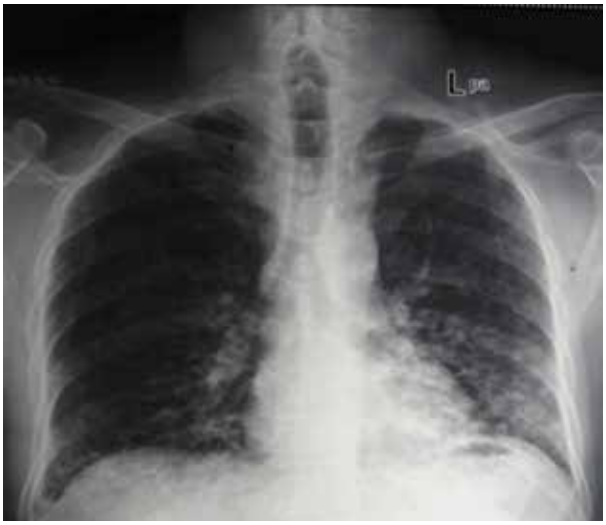

**Figure 4. Chest radiograph (postero-anterior view) showing significant clearance of opacities in both the mid and lower zones after treatment.**

(55 cells/mm$^3$), serum LDH- 749 units/L. Ultrasound of the abdomen showed retroperitoneal lymphadenopathy and whole body positron emission tomography – computed tomography (PET-CT) showed fluorodeoxy-glucose (FDG) avid lymphadenopathy in mediastinal and abdominal groups with splenomegaly. Retroperitoneal lymphadenopathy was subjected to laparoscopic excisional biopsy which showed high grade peripheral T-cell lymphoma-NOS (not otherwise specified). He was started on chemotherapy and the patient responded well, fever subsided and he gained weight.

## Discussion

*Pneumocystis jirovecii* pneumonia is an opportunistic infection. It occurs in immunocompromised states where there is decreased cell-mediated immunity and is very rapidly fatal if not timely detected and aggressively treated.[1] However, it is also rarely reported to occur in patients with no known risk factors.[2] In the absence of known risk factors causing immunocompromised states, *e.g*, acquired immunodeficiency syndrome (AIDS), uncontrolled diabetes, advanced malignancy, high dose, long-term steroids, advanced renal failure or post transplant patients, it is unusual to suspect PCP infection. Our patient was an old treated case of pulmonary tuberculosis and Addison's disease and on low dose replacement steroids. However, he presented with prolonged fever, cough, weight loss, dyspnoea and severe respiratory failure. On further evaluation a diagnosis of PCP was made and he was treated accordingly. But in view of the persistence of the fever, further evaluation revealed it to be non-Hodgkin's lymphoma.

Lymphoma presenting as PCP is not known. Although PCP complicating a lymphoma is well known.[3] There has been only one debated report in the literature where a patient presented with oral candidiasis and *Pneumocystis carinii* pneumonia as first manifestation of immune dysfunction. On necropsy, the histopathology of lymph nodes and spleen, he was found to have histiocytic medullary reticulocytosis which was considered to be lymphoma by the authors.[4] Another report has been published where human T-cell leukaemia virus-type 1 (HTLV)-1 infection related adult T-cell leukaemia lymphoma patient initially presented as hypercalcaemia and granulomatous *Pneumocystis jirovecii* pneumonia.[5]

*To the best of our knowledge*, this as the first case report where lymphoma presented as *Pneumocystis jirovecii* pneumoniaand was diagnosed ante-mortally and treated successfully. Hence, every patient with *Pneumocystis jirovecii* pneumonia should be evaluated for underlying immunocompromised state.

## References

1. Masur H, Michelis MA, Greene JB, Onorato I, Stouwe RA, Holzman RS, *et al*. An outbreak of community-acquired *Pneumocystis carinii* pneumonia: initial manifestation of cellular immune dysfuction. *N Engl J Med* 1981;305:1431–8.
2. Jacobs JL, Libby DM, Winters RA, Gelmont DM, Fried ED, Hartman BJ, *et al*. A cluster of *Pneumocystis carinii* pneumonia in adults without predisposing illnesses. *N Engl J Med* 1991;324:246–50.
3. Kawamora T, Sando Y, Tajima S, Hosono T, Sato M, Maeno Y, *et al*. Pulmonary intravascular lymphoma complicated with *Pneumocystis carinii* pneumonia. *Japanese J Clin Oncol* 2001;31:333–6.
4. Hill LS, Dean PR. *Pneumocystis carinii* pneumonia as presenting feature of lymphoma. *Br Med J* 1981;283:527–8.
5. Shahnaz S, Reich D, Valencia DA, Kucinska S, Tulczynska J, Fleischman J. HTLV-1-associated ATLL presenting as granulomatous PJP and hypercalcemia. *J Gen Intern Med* 2007;22:420–23.