Journal de Mycologie Médicale (2012) 22, 88—91

Available online at
SciVerse ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com

CAS CLINIQUE/CASE REPORT

Possible pandemic HIN1 influenza complicated by *Pneumocystis jirovecii* pneumonia in an HIV-infected patient

Pneumocystose possible compliquant une grippe pandémique H1N1 chez un patient infecté par le VIH

C. Pulcini [a,*,b], L. Hasseine [c], V. Mondain [a], G. Baudin [b,d], P.-M. Roger [a,b]

[a] *Service d'infectiologie, hôpital l'Archet-1, centre hospitalier universitaire de Nice, 151, route Saint-Antoine-de-Ginestière, BP 3079, 06202 Nice cedex 3, France*
[b] *Faculté de médecine de Nice, université de Nice Sophia-Antipolis, 28, avenue de Valombrose, 06107 Nice cedex 2, France*
[c] *Laboratoire de parasitologie-mycologie, hôpital l'Archet-2, centre hospitalier universitaire de Nice, 151, route Saint-Antoine-de-Ginestière, BP 3079, 06202 Nice cedex 3, France*
[d] *Service d'imagerie médicale, hôpital l'Archet-2, centre hospitalier universitaire de Nice, 151, route Saint-Antoine-de-Ginestière, BP 3079, 06202 Nice cedex 3, France*

Received 11 July 2011; received in revised form 12 November 2011; accepted 14 November 2011
Available online 5 January 2012

KEYWORDS
Opportunistic infection;
Immune response;
Lymphopenia;
Pneumocytosis

MOTS CLÉS
Infection opportuniste ;
Lymphopénie ;
Réponse immunitaire ;
Pneumocytose

Summary Immune response to a pandemic influenza A 2009 (H1N1) virus infection can influence the way a second unrelated pathogen is handled by the host. We report here a case of pandemic flu with marked CD4 T-cell lymphopenia complicated by a possible *Pneumocystis jirovecii* pneumonia in an HIV-infected patient.

Résumé La réaction immunitaire suite à une infection par le virus grippal pandémique A 2009 (H1N1) peut modifier la réponse à une infection secondaire. Nous décrivons ici un cas de grippe pandémique responsable d'une lymphopénie CD4 sévère chez une patiente infectée par le VIH, possiblement compliqué d'une pneumocystose.

* Corresponding author. Tel.: +33 4 92 03 54 61; fax: +33 4 92 03 90 66.
E-mail address: pulcini.c@chu-nice.fr (C. Pulcini).

1156-5233/$ — see front matter
doi:10.1016/j.mycmed.2011.11.003

Introduction

Pandemic influenza A 2009 (H1N1) virus infection has affected many young adults, including HIV-infected ones. We report here a case of pandemic flu complicated by a possible *Pneumocystis jirovecii* pneumonia in an HIV-infected patient.

Case report

A 48-year-old woman was admitted on an infectious diseases ward on the 3rd December 2009 with a 4-day history of fever, myalgias, nausea, shortness of breath and non-productive cough. She received oseltamivir (75 mg bid) 24 hours after the onset of illness for suspicion of pandemic flu. The patient was diagnosed with HIV infection in 1991, and she had been treated with an antiretroviral regimen that consisted of emtricitabine, tenofovir and atazanavir boosted with ritonavir since March 2009. Her HIV RNA level was 56 copies/mL and her CD4 T-cell count was 644/μL in July 2009 (CD4:CD8 ratio = 0.46, with 28% CD4) versus 403/μL in April 2009. She reported a past history of depression, seasonal flu in 1996, pneumococcal pneumonia in 1999 and 2006. She had been smoking 20 cigarettes per day for 20 years. On physical examination on admission, temperature was 38.1 °C, pulse rate 80/min, blood pressure 110/70 mmHg, respiratory rate 20/min. Measurement of arterial saturation (SaO_2) by pulse oximetry showed a resting room air oxygen saturation of 86%, increased to 91% when breathing 6 L/min oxygen. Chest examination showed diffuse rhonchi and wheezing. Her blood tests showed an increased C-reactive protein (360 mg/L for a normal $<$ 3 mg/L), normal lactate dehydrogenase level (LDH 353 UI/L for a normal range of 200 to 480) and a normal lymphocytes count (2100/μL). Chest radiograph was normal. Nasal swab was positive for pandemic flu using real-time reverse transcriptase-PCR. Oseltamivir was then pursued for a total of 5 days. She remained afebrile throughout her hospital stay and her CRP decreased to 53 mg/L on the 8th. She was discharged home on the 9th, with 3L/min oxygen supplementation. She was reassessed on the 15th December and was admitted again, since she still needed oxygen and had fever. On physical examination, her temperature was 40 °C, pulse rate 85/min, respiratory rate 18/min, and SaO_2 86% when breathing 2 L/min oxygen. She still complained of shortness of breath, non-productive cough and nausea. Chest examination showed discrete bilateral crackles. Her blood tests showed a partial pressure of oxygen of 63 mmHg on arterial blood gas analysis when breathing 2 L/min oxygen, lymphopenia (900 lymphocytes/μL), an increased C-reactive protein (64 mg/L) and an elevated LDH level (571 UI/L). Her HIV RNA level was less than 20 copies/mL and her CD4 cell count was 216/μL (CD4:CD8 ratio = 0.29, with 18% CD4). Computed tomography ruled out pulmonary embolism and showed an emphysema bulla in the left basal pyramid, bronchioalveolar micronodulae in the two lower lung zones (Fig. 1). Electrocardiogram and trans-thoracic echocardiography were normal. Urine antigen tests were negative for pneumococcus and *Legionella* and blood cultures remained negative. On the 18th, an induced sputum was negative on direct exam for *P. jirovecii* and pneumococci, and bacteriological cultures did not grow any pathogen. A fiberoptic bronchoscopy with broncho-alveolar lavage (BAL) was performed on the 21st. Bacteriological cultures of BAL fluid samples were negative, microscopic examination using traditional staining methods (toluidine blue O and Giemsa) was negative for *P. jirovecii*. However, on the 23rd, real-time PCR identified *P. jirovecii* DNA by using fluorescent TaqMan® method [10]. This PCR amplified the *P. jirovecii* mitochondrial large subunit rRNA (mtLSUrRNA) gene. DNA sample was extracted from 2 ml of BAL from our patient. Tenfold serial dilutions of a plasmid

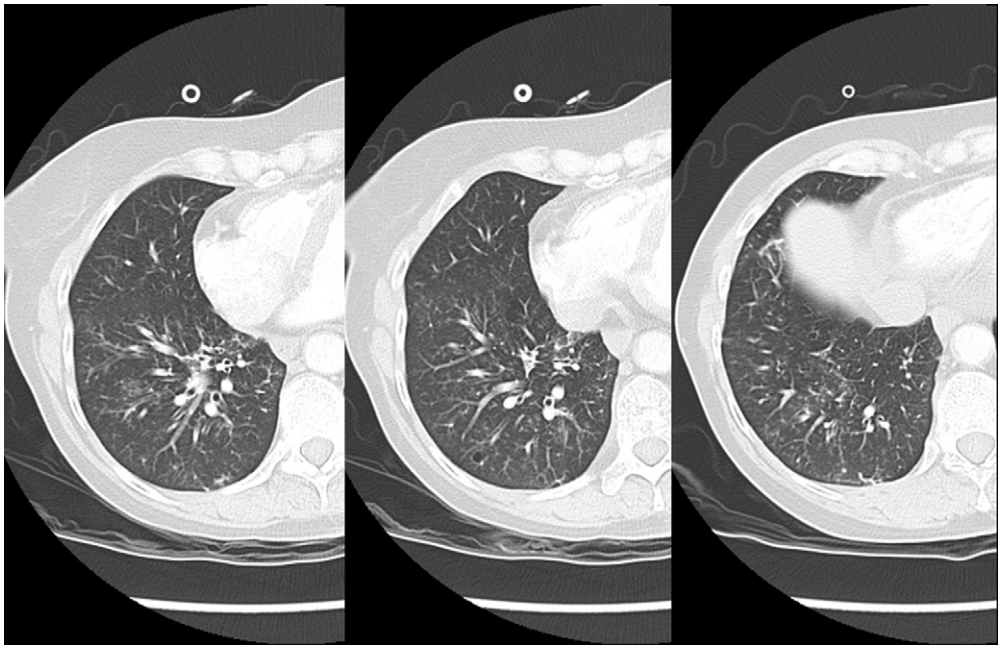

Figure 1 Thoracic computed tomography showing bronchioalveolar micronodulae in the lower lung zone.
Scanner thoracique montrant des micronodules bronchiolo-alvéolaires lobaires inférieurs.