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CASE REPORT

A case of avian influenza (H5N1) pulmonary infection with early expansion of lung bulla formations ☆

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Summary A 22 year old previously healthy male subject was admitted to hospital in Ho Chi Minh City, Vietnam, with fever and severe pneumonia. On interviewing the patient a recent close contact with poultry was revealed and a RT-PCR test for H5 and N1 influenza antigen was found positive following nose and throat swabs. Partial recovery was highlighted by the development of extensive bulla formations in the left lung.

We herein report clinical and radiological features in a 22 year old male Vietnamese patient who developed severe acute pneumonia and in whose RT-PCR test for H5 and N1 influenza antigen was found positive following nose and throat swabs. Partial recovery was highlighted by the development of extensive bulla formations in the left lung.

Background and initial findings

No previous history of respiratory illnesses was reported by this two packet per year smoker, studying industrial design in HCMC University. In January 2004, this student paid a visit to his family in Binh Dinh, a town with a population of 50,000 located 700 km north of HCMC. He spent a week in his father's house, opposite the city market where

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a lot of poultry was being traded. Ten days after he came back to the university, he developed over a three-day period symptoms of fever and asthenia, despite the self-administration of paracetamol. On admission to the hospital, mild transient watery nasal discharge and diarrhoea were noticed; the patient did not complain of any other upper airway symptoms, headache or myalgia. On examination, fever up to 40 °C was present, together with shortness of breath (respiratory rate: 22 breaths per minute) at rest and crackles originating from the left side of the chest. On throat and conjunctive examination, no abnormality was detected and no rash was noticed. An antero-posterior chest X-ray revealed a consolidation of the lower segment of the upper left lobe (Fig. 1). The full peripheral blood white cell count was 2630 per mm^3, of which 75.3% were polynuclear cells and 21% lymphocyte cells and a platelet count was 78,400 per mm^3. No significant hepatic or renal impairment was detected. Arterial blood gases, measured in room air, showed significant hypoxaemia (PaO_2: 56 mmHg; $PaCO_2$: 31 mmHg, pH: 7.45). The patient was put on a combination of ceftriaxone and amikacine, plus oseltamivir (75 mg BID) and methylprednisolone (160 mg per day). Forty eight hours later, intense asthenia persisted together with a worsening of dyspnea and a decrease in transcutaneous oxygen saturation (90% under oxygen mask, 8 l/min); a repeat X-ray revealed a significant extension of the consolidation. Four days after admission, tachypnoea was intense (48 per min), auscultation revealed diffuse crackles and bilateral extensive pneumonia was confirmed by a chest-X-ray (Fig. 2). A full peripheral blood white cell count was 13 700 mm^3 and the CD4:CD8 ratio was 1.08. The patient was put on a combination of imipenem and vancomycine, while

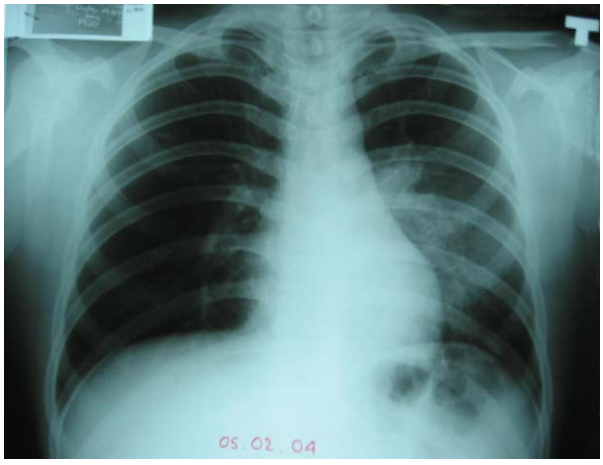

Figure 1 Chest X-ray on admission.

Figure 2 Day 4 in hospital: Chest X-ray.

oseltamivir and methylprednisolone were maintained for three additional days.

Results of RT-PCR for influenza antigen H5 and N1 and of other microbiological evaluations

Regarding any acute pneumonia cases entering our hospital at that time, systematic nose and throat swabs sampling was standard practice in order to detect the Influenza A H5N1 virus infection, as described previously.[1] Briefly, RNA was extracted with the use of a viral RNA kit (QIAamp, Qiagen); samples were tested with two different primer sets for H5 and N1 amplification products. The RT-PCR tests on this patient were found positive for both H5 and N1 on admission. A repeat test performed two days later yielded to the same results. A week later, the RT-PCR results were found negative and so were three further tests (up to 35 days after admission). Both the viral culture for influenza and the rapid influenza test (Capillia Flu A/B test—-Nippon Becton Dickinson) performed on admission were found to be negative.[2]

Repeated blood cultures and sputum examinations to detect *Mycobacterium tuberculosis* were all found negative; the HIV test was also negative.

Evolution of clinical and radiological findings

The symptoms persisted for the first two weeks. At day 12 in hospital, a sustained apyrexia was obtained and the respiratory rate under oxygen therapy (via nasal prongs, 5 l/mn) was 28–32 per min. The patient remained oxygen-dependent until