

# A Case of Fulminant Psittacosis

V. PANDELI, D. ERNEST

Intensive Care Department, Box Hill Hospital Campus, Eastern Health, VICTORIA

---

## ABSTRACT

*Psittacosis is a systemic disease that causes fever, headache and pneumonia. Although potentially serious, it is rarely fatal unless respiratory or renal failure occurs. In this case report we describe a case of psittacosis with an unusual clinical picture for this disease and where, despite multi-organ failure, the patient survived. (Critical Care and Resuscitation 2006; 8: 40-42)*

**Key words:** Psittacosis, multiorgan failure, drotrecogin alfa

---

## CASE REPORT

A 58 year old man presented to a rural hospital with a history of nine days of high fevers, headache, sweating, myalgia and arthralgia and two days of episodic non-productive cough and mild dyspnoea. His medical history included stable ischaemic heart disease and hyperlipidaemia, treated with atenolol and simvastatin. The patient worked as an earth-moving contractor in rural sites, had no history of recent travel, intravenous drug use or blood transfusion.

On presentation the patient was pale, diaphoretic, disorientated and in obvious respiratory distress. His temperature was 39.2°C, heart rate 120 bpm, blood pressure 90/30 mmHg, respiratory rate 40 per min and his oxygen saturation was 86% on 8 L/min of supplemental oxygen. Examination of the chest revealed inspiratory crepitations at the left mid zone. The remainder of the examination was unremarkable.

Initial investigations included a chest x ray (CXR) that showed extensive right upper lobe and left lower lobe consolidation (Figure 1). Baseline blood tests revealed a moderate leucocytosis ( $17.4 \times 10^9/L$ ) with a predominant neutrophilia ( $16.2 \times 10^9/L$ ) and acute renal impairment (serum urea of 16.8 mmol/L and creatinine of 0.17 mmol/L). Arterial blood gases revealed moderately severe hypoxia ( $PO_2$  142 mmHg on  $F_{iO_2}$  60%) and metabolic acidaemia (bicarbonate 16 mmol/L, base excess -8.9 mmol/L). The patient had a mild coagulopathy (INR 1.6, APTT 37 sec) and abnormal liver function tests with a total bilirubin of 42  $\mu$ mol (N < 22), alkaline phosphatase 155 IU/L (N 40 - 120), GGT 109 IU/L (N 5 - 60) and ALT 407 IU/L (N <50), and an elevated C reactive protein level of 380 mg/L (N

2 - 10). Cultures of blood, sputum, urine were collected and atypical pneumonia serology and *Legionella* urinary antigen tests were requested.

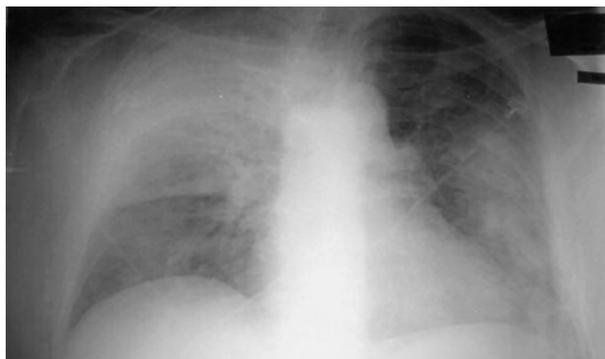


Figure 1. Chest x-ray of patient on admission.

A diagnosis of severe community acquired pneumonia was made and treatment commenced, including intravenous fluid, azithromycin and cefotaxime. The patient was transferred to the intensive care unit (ICU).

One hour after admission to the ICU the patient's condition rapidly worsened and he required intubation and mechanical ventilation. Despite ventilation with  $F_{iO_2}$  of 100% and 15 cmH<sub>2</sub>O of positive end expiratory pressure (PEEP) he remained hypoxaemic.

Inhaled nitric oxide (NO) was introduced with minimal improvement in oxygenation. The patient remained unstable and high dose vasopressor support with noradrenaline and vasopressin, continuous venovenous haemodiafiltration and an infusion of drotrecogin alfa (recombinant activated protein C) were

---

Correspondence to: Dr V. Pandeli, Cardiology Department, Box Hill Hospital, Nelson Rd, Box Hill, Victoria 3128

instituted. A subsequent bronchoscopy was performed and bronchial washings were sent for examination.

A history of several dead parrots and a dead fox being found near a work-site of the patient was obtained from the family, raising the possibility of *Chlamidophila (Chlamydia) psittaci* as the causative agent. As such, doxycycline was added to the antibiotic regime on day 3 of his admission. Intravenous doxycycline was used initially due to concerns regarding gut dysmotility. On day 5 *C. psittaci* was found in the bronchial washings by polymerase chain reaction (PCR) testing, confirming the diagnosis of psittacosis. Doxycycline as sole antimicrobial therapy was continued.

In addition to respiratory and renal failure, the patient's clinical course was complicated by myocarditis, pancreatitis, splenic infarction, prolonged ileus and encephalopathy. The patient remained ventilator-dependent (due to the presence of a critical illness polyneuropathy and superimposed nosocomial pneumonia) despite improvements in his oxygenation.

The patient made a gradual recovery and the multiple organ system failures progressively resolved. He completed six weeks of doxycycline therapy and was discharged for rehabilitation after 50 days in the ICU. He had a total hospital admission of 71 days.

## DISCUSSION

Psittacosis is a systemic disease that often causes fever, headache and pneumonia. Although it is potentially serious it is rarely fatal when treated with tetracyclines. The overall mortality is estimated at 0.7%.<sup>1</sup> A number of case studies have been published documenting fulminant organ system failures involving the respiratory, renal, hepatic, cardiac, gastrointestinal and central nervous systems as isolated or at most dual complications of psittacosis.<sup>2-5</sup> Respiratory and/or renal failure are associated with a mortality of up to 70%.<sup>6</sup>

Psittacosis infections are recognised throughout the world. Birds are the primary reservoir with 75 - 90% of infected people reporting some form of bird contact, often quite incidental, in the few weeks prior to their illness.<sup>1</sup> The history of dead parrots and a dead fox at the patient's work-site provided a strong clinical clue to the diagnosis in our case. Human transmission is generally via inhalation of *C. psittaci* in dried bird faeces, feather dust, urine or respiratory secretions. Person to person spread is considered rare.<sup>7</sup> The incubation period has been reported as between 5 - 14 days but may be up to 39 days.<sup>8</sup> The disease commonly occurs in young or middle-aged adults with infection in children rare. Human psittacosis was first described in Australia in 1936 and has been a notifiable disease in all states of Australia since 1972.

The most common clinical features of psittacosis are high fever, headache and dry cough. One retrospective review of 135 cases of serologically-confirmed psittacosis concluded that psittacosis is a well defined systemic illness characterised by recent bird exposure (80%), abrupt high fever (100%), sweats (89%), pronounced headache (87%), late onset dry cough (78%), and very few physical signs.<sup>1</sup> 78% showed abnormalities on CXR, most commonly confined to a single lobe and 90% had a normal white cell count. No patients developed fulminant septic shock or multiorgan failure and there were no fatalities.<sup>1</sup>

Extrapulmonary organ failure and complications as a direct consequence of psittacosis have been reported and although sometimes severe are usually rare and occur in isolation.<sup>9</sup> In contrast, our patient had evidence of respiratory, renal, gastrointestinal (gut, liver and pancreas), cardiac and central nervous involvement.

A number of diagnostic tests can be used to confirm a clinically-suspected case of psittacosis included cultures of tissue samples, serological studies and DNA based methods, as in our case.

The most effective treatment of psittacosis is doxycycline at a dose of 100 mg orally twice a day with defervescence occurring usually by 24 hours and almost certainly by 60 hours if the diagnosis is correct.<sup>10</sup> The optimal duration of treatment however is not established. Most guidelines suggest at least 2 - 3 weeks of therapy as relapses have been reported with shorter courses.<sup>11</sup> However, these guidelines are mostly based on experience in ambulatory patients without evidence of respiratory failure or septic shock. In our patient doxycycline was continued for a total of six weeks in view of the severe multisystem involvement. Fever could not be used to guide therapy in our patient as serial temperature measurements were altered by the patient being on haemodiafiltration. He also developed nosocomial pneumonia which further clouded his response to therapy.

In addition to standard supportive care, an infusion of recombinant human activated protein C was used, due to the fulminant and rapid development of septic shock and multi-system organ failure. It is difficult to evaluate the direct effect of this treatment on the patient's positive outcome.

## CONCLUSION

In this case report we describe an unusual case of psittacosis (outside the realm of what is usually seen with the disease). Despite multi-organ dysfunction the patient survived. This case also highlights the importance of relevant clinical history and appropriate diagnostic tests. In addition to general supportive care

measures the treatment regimen included intravenous doxycycline and drotrecogin alfa.

Received 7 November 05

Accepted 21 November 05

#### REFERENCES

1. Yung AP, Grayson ML. Psittacosis – a review of 135 cases. *Med J Aust* 1988;148:228-233.
2. Van Berkel M, Dik H, Van der Meer JWM, Versteeg J. Acute respiratory insufficiency from psittacosis. *BMJ* 1985;290:1503-1504.
3. Mason AB, Jenkins P. Acute renal failure in fulminant psittacosis. *Resp Medicine* 1994;88:239-240.
4. Coll R, Horner I. Cardiac involvement in psittacosis. *BMJ* 1976;4: 35-36.
5. Carr-Locke DL, Mair HJ. Neurological presentation of psittacosis during a small outbreak in Leicestershire. *BMJ* 1976;2:853-854.
6. Byrom NP, Walls J, Mair HJ. Fulminant psittacosis. *Lancet* 1979;1:353-356.
7. Hughes C, Maharg P, Rosario P, et al. Possible nosocomial transmission of Psittacosis. *Inf Control Hosp Epidemiol* 1997;18:165-168.
8. Grayston, JT, Thom DH. The Chlamydial pneumonias. *Curr Clin Top Infect Dis* 1991;11:1.
9. Zalenik DF. Psittacosis. *Infect Dis Pract* 1988;11:1
10. Yung AP, Newton-John HF, Stanley PA. Atypical pneumonia: recognition and treatment. *Med J Aust.* 1987;147:132-136.
11. Schachter J, Dawson CR. Human chlamydial infections. Littleton, Massachusetts: PSG Publishing Company, 1978: pp 9-43.