Neurological complications in psittacosis: a case report and literature review

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Introduction

We present a case of meningo-encephalitis secondary to infection with *Chlamydia psittaci* in which the initial lack of respiratory symptoms caused diagnostic uncertainty. A literature review shows that neurological involvement in psittacosis is recognized but rare.

Case Report

A 51-year-old crab fisherman was admitted with a 3-day history of testicular pain, arthralgia, headache, fever and sweats. There was no relevant medical history but 12 days prior to the onset of his symptoms, he had returned from a 2 week holiday in Kenya. The only abnormalities on examination were a low grade pyrexia (*t* = 37.5°C) and mild right upper quadrant tenderness.

On initial investigation, blood count, renal and hepatic function, chest radiograph, abdominal ultrasound and malaria films were normal. C reactive protein was grossly elevated (385 mg l⁻¹, n< 10).

The patient received oral quinine to treat presumed malaria, although subsequent malaria films remained negative. His symptoms and fever persisted. On the seventh day of admission, tetracyclin was added empirically to treat a possible Rickettsial illness, although without microbiological evidence to support this diagnosis. During the subsequent 3 days, his headache, pyrexia and abdominal tenderness resolved, but a productive cough with pleuritic chest pain developed. A chest X-ray on Day 10 demonstrated patchy consolidation in the right upper lobe, but sputum culture was negative and the white cell count remained normal. Tetracycline was discontinued and replaced with amoxycillin.

On Day 14, the patient reported recurrence of headache, but was otherwise clinically unchanged. Over the following 48 h, his headache worsened with the development of confusion, left-sided dysaes-

Table 1  CSF results

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Cloudy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein</td>
<td>1·4 g l⁻¹</td>
</tr>
<tr>
<td>Glucose</td>
<td>3·9 mmol l⁻¹</td>
</tr>
<tr>
<td>Microscopy</td>
<td>Lymphocytes 275 × 10⁶ l⁻¹</td>
</tr>
<tr>
<td></td>
<td>Neutrophils 10 × 10⁶ l⁻¹</td>
</tr>
<tr>
<td></td>
<td>Erythrocytes 37 × 10⁶ l⁻¹</td>
</tr>
<tr>
<td>Gram, Ziehl-Neelsen, Fungal stains</td>
<td>negative</td>
</tr>
</tbody>
</table>

Thesia, photophobia, drowsiness and an abnormal left plantar response. A leucocytosis was noted, white cell count 21 000, 90% neutrophils. A CT scan of the brain was normal. Lumbar puncture was performed (Table 1), and an EEG showed generalized slow wave activity consistent with diffuse cerebral dysfunction.

At this point, serology confirmed a four-fold rise in Chlamydial antibodies, from negative on admission to 1:128 on Day 14.

The complement fixation test result was confirmed as being due to *Chlamydia psittaci* by specific immunofluorescence, specific IgM was also positive. There was no evidence for any other infection. Tetracycline was resumed, and the patient made a full recovery.

Retrospective questioning established contact with cattle and a visit to a sanctuary for sick animals in Kenya, within the recognized 5–16 day incubation period for *C. psittaci*, therefore suggesting a source for the infection.

Discussion

Psittacosis varies from a mild illness to a life-threatening infection. There have been few reports of major neurological complications, although minor CNS symptoms are common. Schamahmann (1) noted headache occurring in 38% of 397 confirmed or presumed cases of ornithosis, more severe symptoms—photophobia, neck stiffness or mental change occurred in 5–9%. Other series (2) have reported headache in a similar frequency, although
Yung et al. (3) reported headache as an early symptom in 112 of 129 serologically proven cases (87%). Of their series, 23% presented as ‘headache suggestive of meningitis’ with 12% exhibiting altered mental state. They report results of 43 lumbar punctures—elevated CSF protein found in 19, and lymphocytosis in a single case with the remainder being normal.

As well as meningitis (4), reports of confusion with abnormalities in the EEG suggest that *C. psittaci* can cause encephalitis (5,6). This compilation is infrequent, occurring in only two of 156 reported cases in a U.K. series (7). Recognition of rarer complications relies on individual case reports, although an association with Guillain-Barre syndrome has been suggested (8). Cerebellar disturbance, transverse myelitis, intra-cranial hypertension and cranial neuropathies have all been reported (9–13).

The pathogenesis of the neurological lesions is unclear—localized vasculitis (6) and an association with cold agglutinins have been postulated (14). Pathological studies confirm perivascular haemorrhage and infiltration (15), but no specific lesion has been identified.

Meningoencephalitis and major neurological disturbance are rare in psittacosis although less severe neurological involvement is frequent. The respiratory symptoms may be late in onset, mild in nature or even absent (3), and the clinical picture can be misleading, if as in this case the neurological manifestations predominate. Psittacosis should be considered in any infection with neurological symptoms, regardless of respiratory involvement.

Acknowledgements

Dr S. Reilly, Consultant Microbiologist, Derriford Hospital, Plymouth and Mrs J. Kester, Secretary.

References