

Hepatitis in a family infected by *Chlamydia psittaci*

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Summary

Hepatic involvement is considered a rare complication of psittacosis. Occurrence of icteric hepatitis as the cardinal manifestation of the disease has been rarely reported. We describe two members of a family infected by psittacosis, in whom icteric hepatitis was the prominent expression of the disease.

The diagnosis of psittacosis was confirmed by isolation of the pathogen and by detection of serum antibodies to *Chlamydia* species. No serological evidence for acute TWAR infection was found. *Chlamydia psittaci* was also isolated from the family's parrot.

Introduction

Psittacosis is a disease caused by *Chlamydia psittaci*, an obligatory intracellular microorganism which belongs to the bacteriae species.

The clinical manifestations and course of psittacosis are extremely protean, ranging from a subclinical infection to a severe and sometimes fatal disease. Respiratory infections are the most common clinical findings^{1,2}. Jaundice, the result of hepatic involvement, has been reported and was considered a rare and ominous complication^{3,4}.

We describe four members of a family infected by *C. psittaci*. Icteric hepatitis was the cardinal manifestation in two of them.

Antibodies for *Chlamydia* species were detected in the serum of all four patients. *Chlamydia psittaci* was isolated from the saliva and pharynx of two of them, from the sputum of a third, and from the liver and spleen of one of the family's parakeets.

Materials and methods

Chlamydia psittaci was isolated by cell culture technique. Clinical specimens were inoculated into cycloheximide-treated McCoy cells and incubated for 48-72 h. Cells were stained, using iodine and Giemsa methods, and examined for inclusion bodies. The culture was regarded as positive for *C. psittaci* when inclusion bodies were seen only in the Giemsa-stained preparation.

Antichlamydial IgA, IgG and IgM antibodies were detected by indirect immunoperoxidase assay, using the 'Ipazyme Chlamydia Kit', Savion Diagnostics Ltd, Beer Sheva, Israel.

Serum samples were tested for specific antibodies to the TWAR strain, by the microimmunofluorescence method, at the University of Washington.

Case reports

Case 1

A 19-year-old soldier was hospitalized because of fever and jaundice of 10 days' duration. On physical examination the

patient appeared ill, his temperature was 37.8°C. Yellow sclerae and a hyperemic pharynx were noted, tenderness was elicited over the right upper quadrant of the abdomen and the spleen was slightly enlarged; X-ray examination showed the lungs to be clear.

Pertinent laboratory data at the time of admission included: haemoglobin 13.6 g/dl; leucocytes 7400/mm³, with a normal differential count; total bilirubin 85 µmol (N : <17); direct bilirubin 64 µmol. Serum aminotransferase (ALT): 151 IU/l (N : <20). Alkaline phosphatase 378 IU/l (N : <208). Prothrombin activity 56%, HBsAg and anti HBs anti HBc (core) and anti HBe negative, anti HAV IgG positive.

No rising titres for cytomegalovirus, Epstein-Barr, herpes simplex, coxsackie, Q fever, salmonella and brucella were detected. Blood cultures were sterile and a chest X-ray was normal. During hospitalization the patient remained febrile and jaundiced with total bilirubin up to 241 µmol, ALT up to 432 IU/l and alkaline phosphatase up to 428 IU/l. *Chlamydia psittaci* was isolated from pharyngeal and saliva cultures. Antichlamydial antibodies were detected including diagnostic titre of IgM antibodies in the first serum sample (Table 1).

Treatment with tetracycline HCl (2 g/day by mouth), which was begun on the 10th day, was discontinued after 4 days, owing to vomiting and the patient's refusal to continue. The patient was discharged and, during 4 months of outpatient follow-up, the liver function test results progressively returned to the normal range. A subsequent questioning revealed that the patient had owned three parrots, two of which had recently died.

Case 2

The 15-year-old sister of patient 1 was admitted to another ward during the same period because of jaundice, nausea

Table 1. Follow-up of the cultures and serological examinations

	Date	Serology			Cultures
		IgA	IgG	IgM	
Patient 1	18.07.87	—	1/64	1/32	Saliva positive
	06.08.87	1/16	1/64	1/8	Throat positive
	16.09.87	1/16	1/128	1/8	
	29.09.87	1/16	1/128	—	Throat negative
Patient 2	12.12.87	—	1/64	—	
	31.07.87	1/16	1/512	1/8	Throat positive
	30.09.87	1/16	1/512	—	Throat negative
Patient 3	12.12.87	—	1/128	—	
	31.07.87	—	1/64	—	Throat negative
	30.09.87	—	1/128	—	Throat negative
Patient 4	12.12.87	—	1/64	—	
	31.07.87	1/16	1/256	—	Sputum positive
	30.09.87	1/16	1/1024	—	Sputum negative
	12.12.87	—	1/256	—	

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and vomiting. Her laboratory tests showed: total bilirubin up to 99 μmol , direct bilirubin up to 80.6 μmol , ALT up to 1070 IU/l, alkaline phosphatase up to 394 IU/l, prothrombin activity 54%. HBsAg and anti HBs anti HBc (core) and anti HBe negative, anti HAV IgG positive.

Pharyngeal culture was positive for *C. psittaci*. IgA and high titres of IgG antibodies to *Chlamydia* species were detected (Table 1).

Case 3

The 14-year-old brother of case 1 complained of malaise, and mild jaundice was observed by the family. Liver function tests were not performed. Antichlamydial IgG antibodies were found. Pharyngeal cultures were negative for *Chlamydia* species and other pathogens (Table 1).

Case 4

The 50-year-old father of the family was examined because of an irritating cough. The sputum was found positive for *C. psittaci* and no other pathogen was isolated. IgA and high titres of IgG to *Chlamydia* species were elicited.

Follow-up results of the cultures and the serological examination of the four cases are given in Table 1.

Discussion

Psittacosis is a disease caused by *C. psittaci*. The natural hosts of this pathogen are psittacines and other families⁵, although transmission from man-to-man has also been described⁶.

The incidence of the disease has recently increased: approximately 200 cases have been reported annually in the United States, and 400 in England.

The clinical picture of psittacosis is extremely protean, ranging from a mild flu-like illness to a severe and lethal disease. Respiratory signs usually predominate, generally associated with fever, shaking chills, and headaches. In some epidemics the disease mimics meningitis, with lethargy, disorientation, delirium and stupor. Gastrointestinal complaints such as vomiting, diarrhoea or constipation are not rare. Other clinical manifestations involving the heart, kidney, pancreas and haematological system have been reported^{3,5,6}.

Recently, a new strain of *Chlamydia psittaci*, designated 'TWAR', has been isolated and proven to be an important respiratory pathogen. This new strain could be responsible for as many as 10-20% of the cases of atypical pneumonia. Some serological studies have found high rates of human exposure, up to 60% of some adult populations having antibodies to the TWAR strain^{7,8}.

Hepatic involvement as part of the clinical picture of psittacosis is remarkably rare. Only eight cases have been previously reported, three of which manifested abnormal liver function tests without clinical jaundice^{3,9}.

Yow described two poultry workers infected by psittacosis, one of whom died from acute renal failure¹⁰. Byron reported a patient who suffered from a fulminant course of psittacosis, in whom only mild hepatic involvement was noticed¹¹. The case of a pregnant woman infected by psittacosis was recently described, where it is likely, though unproven, that *C. psittaci* was responsible for the disease¹².

Another controversial case of psittacosis with severe hepatic damage was reported in a patient who had ingested a large amount of acetaminophen, a drug known to induce severe liver damage¹³. We describe four members of a family infected by *C. psittaci*: two of them suffered from icteric hepatitis as the dominant manifestation of the disease. Both of these patients yielded diagnostic titres of serum antibodies. The pathogen was isolated in both of them, in another family member and in the family's parrot. All patients positive for IgA antichlamydial antibody had positive cultures; this supports Sarov *et al.*'s¹⁴ suggestion that IgA antibodies may indicate active infection. TWAR antibodies were not found in any case.

Although only few cases of hepatitis caused by *C. psittaci* have so far been reported, we propose that *C. psittaci* hepatitis be included in the differential diagnosis of hepatitis of obscure aetiology.

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