

Infection by *Coxiella burnetii* in a patient from a rural area of Montería, Colombia

Infección por *Coxiella burnetii* en un paciente de un área rural de Montería, Colombia

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Recibido 01 Octubre 2013/Enviado para Modificación 15 Marzo 2014/Aceptado 5 Julio 2014

ABSTRACT

Q fever is a zoonosis caused by *Coxiella burnetii*. In Colombia, there have been very few human cases reported to date. This report describes the case of a 56-year-old patient with a background in agriculture and livestock handling. An indirect immunofluorescence assay (IFA) showed high titers of IgG for *C. burnetii* anti-phase I (1:256) and anti-phase II (1:1024). For the next six months the patient's IgG antibody titers remained high, and after treatment with doxycycline, the IgG antibody titers decreased to 50% (anti-phase I 1:128 and anti-phase II 1:512); this profile suggests an infection due to *C. burnetii*.

Key Words: Q fever, *Coxiella burnetii*, vector-borne disease, zoonotic infectious diseases, communicable diseases emerging (source: MeSH, NLM).

RESUMEN

La fiebre Q es una zoonosis causada por *Coxiella burnetii*. En Colombia hay pocos casos humanos reportados a la fecha. Este reporte describe el caso de un paciente adulto de 56 años de edad, de sexo masculino, con antecedentes de trabajo agrícola y manejo de animales. Un ensayo de inmunofluorescencia indirecta mostró altos títulos de IgG contra *C. burnetii* en Fase I (1:256) y en fase II (1:1024). Durante los siguientes seis meses el paciente mantuvo títulos elevados, después del tratamiento con doxiciclina, los títulos IgG disminuyeron en un 50 % (anti-fase I 1:128 and anti-fase II 1:512); este perfil sugiere una infección por *C. burnetii*.

Palabras Clave: Fiebre Q, *Coxiella burnetii*, zoonosis, enfermedades transmisibles emergentes (fuente: DeCS, BIREME).

Q fever is a zoonosis caused by *C. burnetii*. The main reservoirs and sources of human infections are domestic ruminants, which secrete the bacteria in fluids following delivery, placenta, feces, milk and urine (1). The disease presents with a diversity of clinical manifestations as atypical pneumonia, febrile hepatitis and endocarditis may also occur (1).

In Colombia, Q fever is not a reportable disease in humans. Nevertheless, a seroprevalence of antibodies against *C. burnetii* of 24% in rural inhabitants of north of Colombia (2) and cases of endocarditis and pneumonia due *C. burnetii* were reported (3,4). We report here *C. burnetii* infection in a Caucasian male patient, 56 years of age, with a background of agricultural labor with livestock, from a tropical rural area of the municipality of Montería, Córdoba, Colombia (08° 54' 45.19" N and 76° 03' 51" O).

Case Report

A 56 year old man, who was asymptomatic, was included in a surveillance epidemiological study of *C. burnetii* in livestock and humans conducted by the University of Córdoba. Written consent was obtained from the patient. 5 ml blood was taken and analyzed by IFA for IgG antibodies against I-II phases of *C. burnetii*. The patient reported several tick bites, he also drank raw milk frequently and that he had contact with domestic ruminants. The IFA showed the presence of IgG antibodies anti-phase I (titer: 256) and anti-phase II (titer 1024) against *C. burnetii*.

The anamnesis of the patient showed that he suffered from a sharp pain in the left costal margin during the last year. He had been diagnosed of a structural heart disease at a primary health center. The patient did not reported angina and only reported episodes of dyspnea upon exertion. The physical examination showed: BP: 140/85, Heart Rate 70 min, Respiratory Rate 20/ min, Temperature 37.0 °C, weight 75 kg, Height 1.65 m, BMI: 27.5 Kg/m², jugular venous distension grade II at 45 degrees, humid mucosa, no jaundice, cervical lymphadenopathy or carotid puffs; the thorax was normal, S2 reinforcement, unaggregated breath sounds, soft abdomen with no tenderness, no masses or organ enlargements.

The patient was diagnosed with an essential hypertension and hypertensive heart disease. The patient was treated with doxycycline 100 mg twice per day for 21 days. After the medical evaluation and treatment, a new blood sample was taken 4 months later, the IFA showed a 50 % decrease of the IgG antibody titers (anti-phase I 1:128 and anti-phase II 1:512).

DISCUSSION

Symptomatic Q fever, which occurs in approximately 50 % of infected persons, can show a broad spectrum of clinical presentation. Accompanying symptoms often include fever, fatigue, chills, and myalgia (5). The clinical presentation of the disease is usually not distinctive, due to the diversity of symptoms, different routes of infection and the infecting dose. The course of the disease also depends on host factors e.g. age, medical history, structural heart disease or immune status (1).

The variability in the clinical manifestations of Q fever may lead to a delay of diagnosis. Therefore anamnesis, epidemiological factors and serological tests are important. Being exposed to livestock, living in rural area or living closely to farms are risk factors. Above that, the lack of direct contact with animals cannot exclude the diagnosis of Q fever, since airborne transmission of *C. burnetii* is frequent (5). In our report, the patient stated a close contact with tropical ruminants. The patient was diagnosed inadvertently, because he was included in the study while asymptomatic; in this sense, approximately half of the infected persons show a wide variety of non-specific clinical signs and symptoms, especially in the tropics, where fevers are common.

Serological tests are based on detecting antibodies against phase I and II of *Coxiella*. The IFA is the gold standard because it is highly sensitive and specific. In acute infection, typically the phase II antibodies increase first, whereas in chronic diseases phase I antibodies increase. Seroconversion usually occurs 7-15 days post-infection. In our case the results can be interpreted as an acute or past infection with *C. burnetii* (5) and no seroconversion was found after 3 months; however, following treatment, antibody titers dropped.

In Latin American countries, Q fever is a neglected disease due to high diversity of symptoms, lack of knowledge of the disease and epidemiological data, which most likely lead to underdiagnosis and underreporting of the disease. This case report highlights the importance of epidemiological surveillance of the zoonosis caused by *C. burnetii* and also reveals that *C. burnetii* is present in Colombia. Therefore, we would suggest further epidemiological and clinical studies, to evaluate the risk and the epidemiological situation as well as to detect the animal reservoirs ♦

Acknowledgments: The authors are grateful to the owners of farms and rural workers who participated in this study. To Dr. Ben Adler for the critical review of the manuscript. To Universidad de Córdoba, Project CIUC Code: 1-2-08-110-26, FMV-0411.

Conflict of interest: None

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