

## Acute Q fever in a patient returning from the tropics

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A 40-year-old man living in Marseille was admitted to our hospital with a 3-day history of fever. The patient had returned from Senegal 3 weeks earlier. He had stayed in the eastern part of the country, near the Senegal River, the northern border with Mauritania and the eastern border with Mali. He had been there for 2 months without chemoprophylaxis against malaria. On admission his temperature was 39°C, and the pulse 110 beats/min. He complained of severe headaches, vertigo, and a dry cough. Physical findings were unremarkable. Chest X-ray showed a moderate bibasilar interstitial infiltrate. The white blood cell count was  $7.6 \times 10^9/l$  with 70% band forms. The platelet count was  $112 \times 10^9/l$ . The haemoglobin level was within normal limits. Blood chemistry analysis showed raised enzymes (lactate dehydrogenase 635 IU/l, gamma glutamyl transpeptidase 165 IU/l, and aspartate transaminase 65 IU/l). Repeated blood smears disclosed no parasites. The cerebrospinal fluid analysis was normal. Bacteriological culture of the faeces and three blood cultures remained negative. Serum testing for antibodies to *Chlamydia pneumoniae*, *Mycoplasma pneumoniae*, *Legionella pneumophila*, *Coxiella burnetii*, and HIV was negative. On day 4, the patient became spontaneously afebrile, and all the symptoms disappeared. He was discharged from the hospital. Ten days later, a new set of serologic studies were performed. The indirect immunofluorescence assay for antibodies reactive with phase II *Coxiella burnetii* antigens showed raised IgM (1:400) and IgG (1:25). These results confirmed the diagnosis of acute Query (Q) fever.<sup>1</sup>

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Submitted 8 June 1998  
Accepted 7 June 1999

### Questions

- 1 *Coxiella burnetii*:
  - A is a Gram-negative bacteria
  - B is a strict intracellular bacteria
  - C may persist in the environment
  - D is cultivable on blood agar gelose
  - E has to be isolated in biosafety level 3 laboratories only
- 2 How is Q fever usually acquired?
  - A by mosquitoes bites
  - B by tick bites
  - C by ingestion of raw milk
  - D by inhalation
  - E by percutaneous route
- 3 Where does Q fever represent a risk for travellers?
  - A Asia
  - B Europe
  - C Africa
  - D Australia
  - E USA
- 4 What are the principal clinical manifestations of acute Q fever?
  - A isolated fever
  - B pneumonia
  - C gastroenteritis
  - D hepatitis
  - E meningitis
- 5 What is the treatment?
  - A aminopenicilline
  - B rifampicine
  - C doxycycline
  - D erythromycine
  - E clindamycine
- 6 Chronic Q fever:
  - A occurs in approximately 15% of patients infected with *C burnetii*
  - B may develop years after the acute phase
  - C may manifest as endocarditis
  - D is diagnosed by blood cultures
  - E is diagnosed by serology

**Answers**

## QUESTION 1

A, B, C and E are true.

## QUESTION 2

C and D are true. Q fever is usually acquired by the ingestion or inhalation of virulent organisms from infected mammals. Goats, sheep or cats are frequently involved. Generation of infectious aerosols often follows parturition, owing to high concentrations of the organism in the infected placenta.<sup>1,2</sup> Questioning our patient revealed direct contact for 1 month with pregnant ewes and newborn sheep, some of which died after one week of life.

## QUESTION 3

A, B, C, D and E are true. Q fever is endemic in every part of the world except New Zealand.<sup>1,2</sup> Although the disease is distributed throughout Africa, seroprevalences vary greatly, from 1% to more than 35%.<sup>3</sup> There is a good correlation between the seroprevalence and the development of the stock-breeding industry,<sup>3</sup> which is significant in Senegal, particularly in the River area. No recent data

about the seroprevalence of Q fever are available from Senegal. However, a seroprevalence of 24% was recently reported among healthy adults in the eastern neighbour Mali, where the stock-breeding industry is also highly developed.<sup>3</sup>

## QUESTION 4

A, B and D are the correct answers. Clinical signs are often subclinical (50%) or very mild.<sup>1,2</sup> The incubation period has been estimated to be approximately 3 weeks (range 14–39 days).

## QUESTION 5

C is the correct answer. The treatment of acute Q fever is based on tetracycline (doxycycline 200 mg daily) for 3 weeks. Our patient received this treatment and remained well.

## QUESTION 6

B, C and E are correct. Chronic Q fever occurs in approximately 5% of patients infected with *Coxiella burnetii*. Blood culture-negative endocarditis is the principal manifestation. Elevated anti-phase I antibodies are uniformly detected.<sup>1</sup>

1 Fournier PE, Marrie TJ, Raoult D. Diagnosis of Q fever. *J Clin Microbiol* 1998;**36**:1823–34.

2 Marrie TJ, Raoult D. Q fever - a review and issues for the next century. *Int J Antimicrob Ag* 1997;**8**:145–61.

3 Tissot-Dupont H, Brouqui P, Faugère B, Raoult D. Prevalence of antibodies to *Coxiella burnetii*, *Rickettsia conorii*, and *Rickettsia typhi* in seven African countries. *Clin Infect Dis* 1995;**21**:1126–33.