

## In vivo response of acute Q fever to erythromycin

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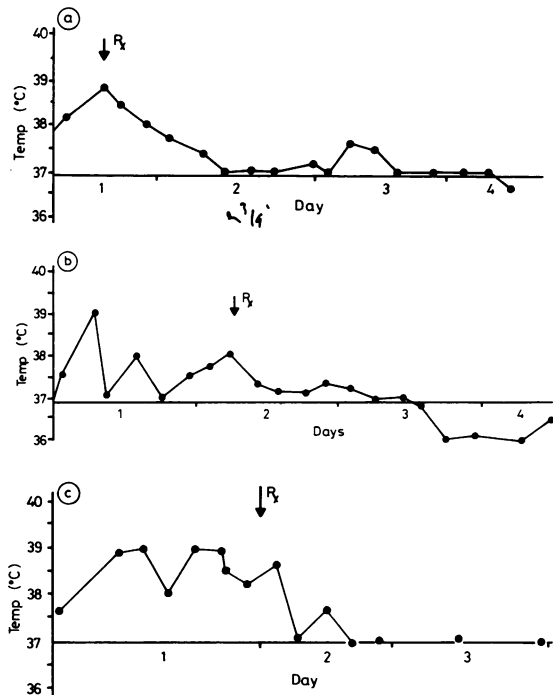
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Erythromycin has an established role in the treatment of pneumonia due to *Mycoplasma pneumoniae* and *Legionella pneumophila*. Its use in acute Q fever pneumonia is not established; indeed, erythromycin has been recorded as having no therapeutic effect on the organism.<sup>1</sup> We report three patients, all acutely ill with subsequently proved Q fever pneumonia, in whom the use of erythromycin was associated with rapid defervescence and relief of symptoms. The fear that erythromycin, used in non-specific atypical pneumonias, will not be effective against Q fever appears to be less tenable.

### Case reports

**Case 1**—A man aged 44 years, who worked at an abattoir carrying fresh beef carcasses, gave a six-day history of diarrhoea and vomiting, accompanied by myalgic pain, sweats, and rigors. Latterly he had experienced pleuritic chest pain associated with a non-productive cough. On arrival at hospital he was ill and febrile (39°C). The pulse was 100 beats/min and regular; the blood pressure was 140/80 mm Hg. Apart from occasional wheezes examination of the respiratory system showed nothing abnormal. A chest radiograph showed lingular consolidation. The peripheral white blood count was  $5.2 \times 10^9/l$  (79% neutrophils, 18% lymphocytes, 3% monocytes) and the ESR was 78 mm in the first hour. Samples of sputum and blood sent for culture proved sterile and a stool sample did not show any pathogenic organisms. A diagnosis of atypical pneumonia was made and the man was treated with erythromycin lactobionate intravenously (1 g six hourly). Twenty-four hours after commencing treatment he was afebrile and felt better (fig). Intravenous treatment was stopped after two days and oral erythromycin estolate (500 mg six hourly) was given for a further seven days. Recovery was rapid but complicated by haemoptysis, and the radiographic changes resolved only slowly. Bronchoscopy was therefore undertaken to exclude a bronchial carcinoma and the result was negative. A combined ventilation-perfusion lung scan showed changes consistent with pulmonary infection only. Serological evidence of acute infection with *Coxiella burnetii* was subsequently found (table).

**Cases 2 and 3**—A married couple, both of whom were in their early forties, had recently returned from a holiday on a farm in Anglesey where there had been calving and lambing. Two weeks later both had experienced severe headache and vomiting. There were no respiratory symptoms. Admission had been precipitated in the wife by signs highly suggestive of meningitis; the



Temperature charts of the patients.  $R_x$ —initial treatment with erythromycin; (a)—case 1; (b)—case 2; (c)—case 3.

cerebrospinal fluid obtained by subsequent lumbar puncture was normal. Examination of the respiratory system in both patients showed nothing abnormal. The biochemical and haematological tests gave normal results. The radiograph showed consolidation in the apical segment of the left lower lobe in one and at the right base in the other patient. Both patients received erythromycin estolate by mouth (500 mg six hourly). Their fevers had abated by 24 hours after the start of treatment, with relief of symptoms

### Complement-fixing antibodies to *Coxiella burnetii* phase II

Patient no	Titres	
	On admission	$\geq 10$ days after admission
1	1/10	1/160
2	1/10	1/80
3	<1/10	1/80

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(fig). Convalescence was uncomplicated. There was a subsequent significant rise in the titre of antibody to *Coxiella burnetii*. There were two other proved cases among people staying at the farm at the same time.

### Discussion

It is doubtful whether the atypical pneumonias can be confidently differentiated on clinical, radiological, biochemical, or haematological grounds.<sup>2</sup> A clear history of specific exposure may occasionally suggest the aetiological agent. Delay of at least one week is usual, however, before rising serological titres provide the correct diagnosis. In patients with untreated Q fever therefore inappropriate antimicrobial treatment should be a cause for concern as there is a risk of infection in the patient's attendants<sup>3</sup> and of chronic Q fever or endocarditis in susceptible patients.<sup>4</sup> *Coxiella burnetii* is resistant to erythromycin in vitro and consequently it has been assumed to be ineffective in vivo. Nevertheless, the three patients described, with their rapid recovery from fever and clinical improvement after treatment, provide some evidence for a satisfactory in vivo response to both oral and intravenous erythromycin. There has been one previous

report from America<sup>5</sup> suggesting that intravenous erythromycin in a patient with serologically documented acute Q fever may have been efficacious. Our cases strengthen this view. Since erythromycin is commonly used as the antibiotic of first choice in acute non-specific atypical pneumonias, it seems reasonable to expect that it will prove effective against Q fever as well as the other likely causes. Further in vivo studies, however, are needed to establish this.

### References

- <sup>1</sup> Garrod LP, Lambert HP, O'Grady F. *Antibiotics and chemotherapy*. 5th ed. Edinburgh: Churchill Livingstone; 1981: 356.
- <sup>2</sup> Murray HW, Tuazon C. Atypical pneumonias. *Med Clin North Am* 1980;**64**:507-22.
- <sup>3</sup> Holland WW, Rowson KEK, Taylor CED. Q fever in the RAF in Great Britain in 1958. *Br Med J* 1960;i:387-90.
- <sup>4</sup> Anonymous. Chronic Q fever or Q fever endocarditis? *Lancet* 1976;ii:1171-2.
- <sup>5</sup> D'Angelo LJ. Q fever treated with erythromycin. *Br Med J* 1979;ii:305-6.