

**Rapid reports**

*Yersinia pseudotuberculosis* and arthritis

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**SUMMARY** In 1986 and 1987 nine patients with a raised antibody titre to *Yersinia pseudotuberculosis* were found. Two of these results were almost certainly due to the cross reactivity between some *Y pseudotuberculosis* serogroups and some salmonella serotypes. Of the other seven patients with otherwise unexplained *Y pseudotuberculosis* serology, three suffered from severe arthritis and two had symptoms suggestive of sacroiliitis. Our data and published reports suggest that reactive arthritis might follow both *Y enterocolitica* and *Y pseudotuberculosis* infections.

In Great Britain reactive arthritis is considered to be a possible complication of *Yersinia enterocolitica* infection but a very uncommon complication of *Yersinia pseudotuberculosis* infection.<sup>1</sup> While reviewing the records of all patients with a positive yersinia serology encountered in Oxford in 1986 and 1987 we realised that this belief conflicted with our experience.

**Case review**

In 1986 and 1987 we sent serum samples from 111 patients to the Leicester PHLS reference laboratory, 91 of which were tested for antibodies to both *Y enterocolitica* and *Y pseudotuberculosis*. Among these 91 serum samples, one was found with antibodies to *Y enterocolitica* and nine to *Y*

*pseudotuberculosis*. In two of these nine cases the serology result could be otherwise explained: one girl suffered from *Salmonella typhimurium* infection proved by culture (group B salmonellas are antigenically related to *Y pseudotuberculosis* serogroup II), and one man had received typhoid vaccine (group D salmonellas are antigenically related to *Y pseudotuberculosis* serogroup IV).

Of the seven patients with otherwise unexplained positive *Y pseudotuberculosis* serology, three were admitted to hospital because of a severe arthritis which affected knees and ankles, whereas the other two, though not described in the request form for serology as having arthritis, had symptoms suggestive of sacroiliitis. Table 1 presents the serological and clinical features. The clinical management of our patients was unaffected by the positive yersinia serology results because these results were available only two to six weeks later and also because the clinical implications of positive results are uncertain.

Accepted for publication 31 January 1989.  
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Table 1 Sex, age, serogroup, titre, clinical features of seven patients with positive *Yersinia pseudotuberculosis* serology

Patient No	Sex	Age (years)	Serogroup	Titre	Clinical features
1	F	31	I	2560	Abdominal pain → erythema nodosum. ? sacroiliitis
2	F	20	III	160	Fever. ? ileitis
3	M	42	II	320	Arthritis
4	M	25	III	2560	Pseudoappendicular syndrome. ? sacroiliitis
5	M	40	II	640	Arthritis
6	M	54	III	160	Pseudoappendicular syndrome. campylobacter in stools
7	M	45	IV	2560	Diarrhoea → arthritis

## Discussion

There are other reported cases of positive *Y pseudotuberculosis* serology associated with arthritis.<sup>2-6</sup> Terti *et al* described 17 patients with positive *Y pseudotuberculosis* serology (10 also had positive stool cultures) who experienced the whole range of clinical patterns: some presented with the pseudoappendicular syndrome and 10 others came to medical attention because of arthritis, which was severe in four.<sup>7</sup> In Finland the prevalence of arthritic complications is the same after either *Y enterocolitica* or *Y pseudotuberculosis* infections.<sup>8</sup>

Stool culture for *Y pseudotuberculosis* has been considered unrewarding,<sup>1</sup> but in Finland attempts to culture were successful in 10 of 17 symptomatic patients with positive serology.<sup>7</sup> If cultures are attempted the cefsulodin-triclosan (Irgasan) novobiocin agar commonly used for *Y enterocolitica* isolation should not be used in this case as it is unsuitable for *Y pseudotuberculosis* isolation.<sup>9</sup>

Because cross antigenicity between unrelated Enterobacteriaceae is not uncommon, serology alone cannot be regarded as conclusive. Serum samples containing antibodies to *Y pseudotuberculosis* serogroups II and IV could be retested after absorption with the cross reacting *Salmonella* spp, but there is a lack of published data to substantiate this practice. Stool cultures might provide confirmatory evidence whenever a defini-

tive diagnosis is required, and a history of typhoid vaccination should be excluded. The presence of arthritis is not a valid indication to test serum samples for *Y enterocolitica* antibodies only.

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