The Ulster Medical Journal, Volume 59, No. 1, pp. 87–89, April 1990.

Case report

Reactive arthritis following *Yersinia pseudotuberculosis* infection

M H Cave, F A MacAleenan, J Hunter, A L Bell, R Curran

Accepted 10 December, 1989.

Reactive arthritis after *Yersinia pseudotuberculosis* infection is rare. Two recent cases illustrate the typical features, and highlight the need to look for the diagnosis.

CASE 1

A 19-year-old student presented with pain in her left hip for four days. She described pain in her right temporo-mandibular joint, neck stiffness for three weeks, tiredness, and loss of energy. Five weeks previously she had suffered severe lower abdominal cramps, with diarrhoea and pyrexia lasting for one week. Her temperature was 37·5°C. Psoriasis was noted on the scalp. Left hip movements were severely limited by pain. There was tenderness over the right temporo-mandibular joint, both sacroiliac joints and the left plantar fascia insertion. Spinal movements were full, although painful in the neck. Haemoglobin was 12·0 g/dl; white cell count 10·1 × 10^9/l; ESR 70 mm/hr; serum C-reactive protein 32 mg/l; serum rheumatoid factor and autoantibody screening tests were negative, as were a throat swab and faecal culture. Small bowel and skeletal X-rays and sigmoidoscopy were normal. Antibodies were detected to *Yersinia pseudotuberculosis* Type II and *Salmonella typhimurium,* to titres of 1:5120 and 1:320 respectively. After absorption with *Salmonella typhimurium* to remove cross-reacting agglutinins, the titre to *Yersinia pseudotuberculosis* was 1:160. Her tissue type was HLA-B27 positive. The joint symptoms settled with bed rest and naproxen. During the next six weeks there were episodes of acute synovitis involving each knee and the left ankle in turn. Both knees were aspirated and injected with corticosteroid. Joint aspirates were sterile, with white cell count 10·3 × 10^9/l, mostly neutrophils. Spinal stiffness developed but responded to physiotherapy, and at one year review she remained well, except for intermittent back pain.

The Ulster Hospital, Dundonald, Belfast BT16 0RH.

M H Cave, MB, MRCP, Senior House Officer in Medicine.
F A MacAleenan, MD, FRCP, Consultant Physician.
J Hunter, MB, FRCPI, FRCPath, Consultant Bacteriologist.

Royal Victoria Hospital, Belfast BT12 6BA.

A L Bell, MD, MRCP, Consultant Rheumatologist.
R Curran, MB, BCh, Registrar in Bacteriology.

Correspondence to Dr Cave.

CASE 2

A 13-year-old boy presented with a three week history of pain in his lower back and left hip, worst in the mornings. Six weeks previously he had hurt his neck and back during a fall; this was successfully treated by a physiotherapist. Two weeks before, he had had a bout of watery diarrhoea with abdominal cramps and nausea. He looked generally well. There was marked tenderness over the left sacroiliac joint, and slight reduction of lower spinal movements. Haemoglobin and white cell count were normal. ESR and serum C-reactive protein were raised at 50 mm/hr and 8 mg/l respectively. X-ray suggested left sacroiliitis, which was confirmed on isotope bone scan. Stool cultures were negative for *Shigella, Salmonella* and *Campylobacter.* Serological tests revealed antibodies to *Yersinia pseudotuberculosis* Type IA, titre 1:640. His tissue type was HLA-B27 positive. The symptoms settled over a few days with bed rest and naproxen. Early morning back stiffness persisted for six months, but at review after one year he had only minor arthralgia of the hands and wrists.

COMMENT

Reactive arthritis following Yersiniosis is well recognised, particularly in Scandinavia,[1] but is rarely reported in the UK.[2] Nearly all cases occur following *Yersinia enterocolitica* infection, and arthritis due to *Yersinia pseudotuberculosis* remains rare.[3] These two cases were diagnosed by the detection of specific serum antibodies to the organism, backed up by the recent history of typical bowel symptoms. In both cases, the high antibody levels were sufficient to indicate recent infection without having to show a rising titre.

The pathogenesis of this disease is poorly understood. Patients who develop arthritis after infection show several abnormalities of the immune response, with prolonged persistence of the organism in the body.[4] Recently, Yersinia antigens have been demonstrated in synovial fluid cells from affected joints.[5] Over 80% of patients are HLA-B27 positive, suggesting a genetic predisposition.[6] The preceding injury in Case 2 is interesting, as there are several reports of ankylosing spondylitis and Reiter's syndrome believed to have been provoked by trauma.[7] In Case 1, the finding of psoriasis may also be relevant, since this condition is associated with the seronegative spondyloarthritides.

Case 1 typifies the classical syndrome, an asymmetrical oligoarthritis affecting several joints in turn, usually in the lower limbs, with a rise in acute inflammatory markers and a leucocytosis in sterile synovial fluid. Back pain is common, and sacroiliitis occurs in 15–20% of cases,[8] sometimes predominating as in Case 2. The acute illness lasts two to six months, and while the mild residual symptoms experienced by our patients are common, recent reports suggest that in contrast with other spondylarthritic syndromes progression to chronic polyarthritis or ankylosing spondylitis is rare.[9] These cases confirm the need to test for Yersinia antibodies in patients with arthritis following an enteric illness, particularly as the prognosis is now relatively good.

REFERENCES

1. Butler TC. Plague and other Yersinia infections. New York: Plenum Press, 1983.
2. Fordham JN, Maitra S. Post-Yersinial arthritis in Cleveland, England. *Ann Rheum Dis* 1989; **48**: 139-42.
3. Bignardi GE. *Yersinia pseudotuberculosis* and arthritis. *Ann Rheum Dis* 1989; **48**: 518-9.
4. Toivanen A, Tertti R, Lahesmaa-Rantala R, et al. Factors associated with the development of reactive arthritis. *Br J Rheum* 1988; **27** (Suppl II): 46-51.
5. Granfors K, Jalkanen S, von Essen R, et al. Yersinia antigens in synovial fluid cells from patients with reactive arthritis. *N Engl J Med* 1989; **320**: 216-21.
6. Aho K, Ahvonen P, Lassus A, et al. HLA-B27 in reactive arthritis. A study of Yersinia arthritis and Reiter's disease. *Arth Rheum* 1974; **17**: 521-6.
7. Masson G, Thomas P, Bontoux D, Alcalay M. Influence of trauma on initiation of Reiter's syndrome and ankylosing spondylitis. *Ann Rheum Dis* 1985; **44**: 860-1.
8. Leirisalo-Repo M. Yersinia arthritis. Acute clinical picture and long term prognosis. *Contrib Microbiol Immunol* 1987; **9**: 145-54.
9. Leirisalo-Repo M, Suoranta H. Ten-year follow up study of patients with Yersinia arthritis. *Arth Rheum* 1988; **31**: 533-7.