Case report

Yersinia arthritis: demonstration of occult enteritis by $^{111}$indium leucocyte scanning


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Summary

$^{111}$Indium-leucocyte scanning demonstrated enteritis in a patient with acute arthritis and diarrhoea when contrast radiology was normal. Infection with Yersinia enterocolitica was proved serologically. Leucocyte scanning may be useful in the screening for inflammatory bowel disease in patients with seronegative arthritis.

Yersinia enterocolitica is a rare cause of enteritis and arthritis in the UK. We present a patient with acute yersinia arthritis in whom enteritis was demonstrated by $^{111}$indium leucocyte scanning when the radiological appearance was normal.

Case history

One month after arriving in London a 22-year-old female undergraduate from Minnesota became ill with malaise, anorexia, backache, and watery diarrhoea. Three weeks later she presented with an acute arthritis of the right ankle and fever up to $39^\circ$C, but no urethritis, conjunctivitis, or aphthous ulceration. Therapy with flucloxacillin and aspirin produced resolution of the fever, but diarrhoea remained unchanged, and the left ankle became inflamed. Investigations showed: haemoglobin concentration 11·6 g/dl (MCV 92 fl), white cell count 10·2 × 10$^9$/l with a normal differential count, erythrocyte sedimentation rate 107 mm in the first hour, and serum vitamin B$_2$ normal at 550 ng/l. HLA typing revealed B27 and A1, B8, DR3. Cultures of joint fluid and blood were sterile, and repeated stool cultures for Salmonella, Shigella, Campylobacter, and Yersinia were negative. Sigmoidoscopy, rectal biopsy, double contrast barium enema, and small bowel enema were all normal. However, $^{111}$indium-labelled autologous leucocyte scanning showed abnormal localisation in the ileocaecal region (Fig. 1). Agglutinins for Yersinia enterocolitica serotype 0 III were detected at a titre of 1280.

Following therapy with doxycycline 100 mg twice daily the diarrhoea ceased within 3 days, and a repeat white cell scan after 5 days was normal. The Yersinia enterocolitica agglutination titre fell to 640 at 2 weeks and 320 at 3 weeks. Arthritis and sacroiliac pain improved greatly within the first week but had not completely settled 6 weeks later.

Discussion

Reactive yersinia arthritis has been reported chiefly from Scandinavia and only rarely from Great Britain. Although it is predominantly a lower limb arthritis often associated with diarrhoea, the features are not sufficiently distinctive to allow diagnosis on clinical grounds alone. If stool cultures are negative, the diagnosis can be made serologically. However, peak antibody titres are not reached until the 3rd or 4th week of the illness and cannot be used at the onset. In the present case, despite the prominent bowel symptoms, routine bowel radiology and histology were unhelpful.

It is established that contrast radiology may fail to detect significant bowel inflammation, and in this case leucocyte scanning demonstrated the lesion. Leucocyte scanning has been applied to the diagnosis of Crohn's disease and ulcerative colitis and, as in the present case, may detect inflammation missed by contrast radiology.
Fig. 1 Abnormal localisation of $^{111}$indium-labelled leucocytes in the ileocaecal region.

We suggest that leucocyte scanning may have applications in the screening for underlying bowel disease in patients with seronegative or reactive arthritis.

References

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R M Bernstein, C G Mackworth-Young, S H Saverymutu, S Gupta, J P England and G R Hughes

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