Quantitative sacroiliac scintigraphy in ankylosing spondylitis and Crohn’s disease: a single family study

P. DAVIS

From the Rheumatic Disease Unit, Department of Medicine, University of Alberta, Edmonton, Alberta, Canada

SUMMARY A single family is presented in which 2 of the 3 sibs and 3 of 9 first degree relatives had Crohn’s disease. Two subjects with Crohn’s disease had classical ankylosing spondylitis (AS), and HLA typing revealed HLA B27 in all 5 members of the immediate family. The value of quantitative sacroiliac scintigraphy (QSS) in clinical practice is demonstrated. Both patients with AS had evidence of currently active sacroiliac disease in association with radiological change. One symptomatic sib had QSS evidence of sacroilitis without radiological abnormality.

Quantitative sacroiliac scintigraphy (QSS) has been shown to be a useful investigation in the evaluation of sacroiliac disease (Lentle et al., 1977a). Increased uptake of radionuclide in the sacroiliac joints correlates well with radiological changes of sacroilitis in patients with ankylosing spondylitis (Russell et al., 1975). In more recent studies it has been shown that sacroiliac scintigraphy may detect inflammatory disease of the sacroiliac joints in patients suffering from both low back pain and Crohn’s disease in whom radiological evidence of sacroilitis is absent (Lentle et al., 1977b; Davis et al. 1978). This technique has also been shown to be useful in the assessment of the sacroilitis associated with psoriasis (Barraclough et al., 1977), Reiter’s syndrome (Russell et al., 1977), and anterior uveitis (Russell et al., 1976). The value of this technique in the clinical management of patients with low back pain can be seen from the following case report and associated family study.

Patients and methods

Each patient in this family study was investigated by routine radiology of the pelvis and lumbosacral spine. Quantitative sacroiliac scintigraphy was performed by a technique previously described (Lentle et al., 1976), and each patient had his HLA antigens characterised (Mittal et al., 1968). The diagnosis of ankylosing spondylitis was made by the New York criteria (Bennett and Burch, 1967) and the diagnosis of Crohn’s disease established by standard clinical and pathological criteria (Leonard-Jones et al., 1968).

THE PATIENT

Miss A, aged 22, presented with a 2 year history of low back pain suggestive of inflammatory disease in the sacroiliac joints. There was associated morning stiffness and involvement of costochondrial joints although no peripheral arthropathy. Associated with a recent exacerbation in her back symptoms had been the development of diarrhoea. Clinical evaluation failed to reveal any abnormal physical signs. X-rays of the lumbar spine, the pelvis, and sacroiliac joints failed to show any abnormality. Quantitative sacroiliac scintigraphy showed significantly increased uptake at both sacroiliac joints, with subjective evidence of increased uptake throughout the axial skeleton. Tissue typing revealed the presence of HLA B27. Subsequent investigation of the diarrhoea confirmed the diagnosis of Crohn’s disease.

THE FAMILY

The family tree is shown in Fig. 1. Brief clinical details are provided for the patient’s parents and sibs and are all summarised in Table 1.

Mr B (father), aged 54, had had low back pain since his late 20s which had been associated with stiffness but no peripheral joint disease. He had been diagnosed as suffering from ankylosing spondylitis for 19 years. X-rays of his lumbar spine showed squaring of the lower dorsal and upper lumbar

Accepted for publication 4 July 1978
Correspondence to Dr P. Davis, 9-112 Clinical Sciences Building, University of Alberta, Edmonton, Alberta, Canada T6G 2G3.
At that time associated low back pain had been thought to be related to her inflammatory bowel disease. X-rays at that time were normal. Seen recently, x-rays of the lumbar spine were normal but x-rays of the sacroiliac joints showed stage III sacroilitis. Quantitative sacroiliac scintigraphy showed abnormal uptake at both sacroiliac joints. Tissue typing revealed the presence of HLA B27.

Miss E (sister), aged 13, was completely asymptomatic. X-rays of the lumbar spine and sacroiliac joints were normal. Bone scintiscanning was not performed, as quantitative evaluation cannot be assessed in the immature skeleton. Tissue typing revealed the presence of HLA B27.

### Discussion

This patient and her family demonstrate the value of quantitative sacroiliac scintigraphy in the evaluation of sacroiliac disease. In the case of the patient, the diagnosis of ankylosing spondylitis could not be confirmed owing to the absence of radiological change. However, quantitative sacroiliac scintigraphy confirmed the presence of inflammatory disease at the sacroiliac joints, and this was seen in association with both Crohn’s disease and with the presence of HLA B27. HLA B27 is not more prevalent in patients with Crohn’s disease than control populations (Hyla et al., 1976) but is seen in patients with Crohn’s disease and associated ankylosing spondylitis (Russell et al., 1974). Long-term follow-up will be of interest to see whether radiological change will develop as has been observed in previous patients from this unit with positive QSS but negative radiology (Chalmers et al., 1978).

The eldest sib and the father exemplify the association previously reported between radiological change and quantitative sacroiliac scintigraphy in patients with classical ankylosing spondylitis. Both father and daughter possessed HLA B27. They are also diagnosed as suffering from Crohn’s disease. On the mother’s side, although she herself was not affected with either ankylosing spondylitis or Crohn’s disease, there was a strong family history of Crohn’s disease. The youngest sib was apparently well, with no radiological change and no symptoms. However, in view of the presence of HLA B27 and the strong family history of both ankylosing spondylitis and Crohn’s disease she will be carefully followed up. Although both parents possessed HLA B27, none of the sibs were homozygous at the B locus. There was therefore no evidence to suggest that in this family homozygous B27 patients have more severe disease. Nor was it possible to relate the genetic predisposition to the development of either disease in the sibs to the inheritance of B27 from either parent.
Quantitative sacroiliac scintigraphy in ankylosing spondylitis and Crohn's disease

The association between Crohn's disease and ankylosing spondylitis is well recognised. In addition sacroilitis may be a feature of Crohn's disease, but it would appear that only those patients with classical ankylosing spondylitis and Crohn's disease possess the tissue antigen HLA B27 (Hyla et al., 1976; Davis et al., 1978). The presence of an abnormal scan in patient A, strongly suggests the presence of sacroilitis in the absence of radiological change. In the father, B, and eldest sib, D, the presence of the abnormal scan suggests currently active sacroilitis in the presence of radiological change and classical ankylosing spondylitis. These findings suggest that the patient, A, may well develop classical ankylosing spondylitis at some time in the future.

References


Quantitative sacroiliac scintigraphy in ankylosing spondylitis and Crohn's disease: a single family study.

P Davis

*Ann Rheum Dis* 1979 38: 241-243
doi: 10.1136/ard.38.3.241

Updated information and services can be found at:
http://ard.bmj.com/content/38/3/241

**Email alerting service**

Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Notes

To request permissions go to:
http://group.bmj.com/group/rights-licensing/permissions

To order reprints go to:
http://journals.bmj.com/cgi/reprintform

To subscribe to BMJ go to:
http://group.bmj.com/subscribe/