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Original article

Aseptic discitis in patients with ankylosing spondylitis: a retrospective study of 14 cases

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Abstract

Objectives. **–** To determine whether patients with ankylosing spondylitis (AS) and discitis exhibit specific characteristics as compared to patients who have AS without discitis.

Methods. **–** We retrospectively collected clinical, laboratory, and imaging data from the charts of 79 patients with AS admitted to a rheumatology department.

Results. **–** Of the 79 patients, 14 (18%) had discitis that was not due to infection or trauma. Mean age at the diagnosis of AS was 40 years and mean duration of AS at admission was 10 years, with no difference between the two groups. In three patients, discitis was the inaugural manifestation of AS. Two patients had discitis at two levels. The lumbar and thoracolumbar segments were the most common sites of discitis. Symptoms of discitis were present in 10 of the 14 patients. Stage III sacroiliitis was significantly more common in the patients with discitis. None of the patients experienced neurological compromise.

Conclusion. **–** The frequency of aseptic discitis in patients with AS is probably overestimated as a result of inclusion and exclusion biases. Discitis usually occurs at an advanced stage of AS under the form of an erosive condition related to both mechanical factors and osteoporosis. Inaugural or early discitis can occur, however, as a result of the inflammatory process.

Keywords: Ankylosing spondylitis; Discitis

1. Introduction

Aseptic discitis is an uncommon manifestation of ankylosing spondylitis (AS) first described by Andersson in 1937. Destructive lesions of the disk and adjacent vertebral bone occur in the absence of infection or trauma. This pattern is characteristic of AS [1]. Studies conducted using modern imaging techniques and pathological examination of the entheses have rekindled interest in aseptic discitis as a manifestation of AS. Nevertheless, few data are available on aseptic discitis in AS. The studies reported by Marie-Bonnin [2] in 1986 and Bouvier et al. [3] in 1987 (43 patients) are among the most recent and largest case-series. Discitis is defined primarily on the basis of imaging features as a variable combination of disk-space narrowing, erosions in the adjacent endplates, and peripheral sclerosis. The objectives of the present study in a population with AS were to look for specific characteristics of patients with discitis as compared to those without discitis, to compare our findings with results in the literature, and to discuss available evidence on the pathophysiology of discitis associated with AS.

2. Patients and methods

We reviewed the medical records of all the patients with AS admitted to the rheumatology department of the Besançon Teaching Hospital, Besançon, France, over a 6-year period. We selected the patients who met the modified New York criteria for AS [4]. With this criteria set, the diagnosis is definite in patients who have radiological evidence of grade II to IV sacroiliitis on both sides, or grade III or IV sacroiliitis on one side with at least one of the three following clinical

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Table 1
Numerical clinical data on the 14 cases with discitis and the 65 controls without discitis

	Cases	Controls	*P* value
Schöber's index, cm	1.25	2.60	0.058
Finger-to-floor distance, cm	37	26.6	0.32
Occiput-to-wall distance, cm	10.3	4 .9	0.10
Chest expansion	2.3	3.4	0.37
BASFI	87.5	57.1	0.16
BASDAI	69	55.8	0.29

BASDAI: Bath Ankylosing Spondylitis Disease Activity Index. BASFI: Bath Ankylosing Spondylitis Functional Index.

criteria: low back pain and stiffness for longer than 3 months with the pain abating upon physical activity but persisting at rest, motion range limitation of the lumbar spine in the coronal and sagittal planes, and reduced chest expansion as compared to normal values adjusted for age and sex. A diagnosis of probable AS is given in patients with all three clinical criteria but without the radiological criterion, or vice versa; in this last situation, other possible causes of sacroiliitis should be considered. In this study, the diagnosis of discitis was based on a review of the imaging studies in the medical records. Full-length spinal radiographs to look for multifocal discitis were not available for all the patients.

We defined cases as patients with discitis and controls as patients without discitis. We compared clinical, laboratory, and imaging study features in the cases and controls. The following clinical variables were recorded: sex and age; conventional criteria for evaluating AS (peripheral arthritis, ocular involvement, enthesopathy, Schöber index, finger-to-floor distance, chest expansion, occiput-to-wall distance, Bath Ankylosing Spondylitis Disease Activity Index [BASDAI], and Bath Ankylosing Spondylitis Functional Index [BASFI]), comorbidities, and whether the patient was a manual laborer. Laboratory variables abstracted from the records were as follows: tests for inflammation at AS diagnosis and at discitis diagnosis, whether the HLA B27 antigen was present, and whether the serum IgA level was ≥3 g/l. Standard radiographs of the lumbar spine and pelvis were reviewed to determine the presence and stage of sacroiliitis and to look for syndesmophytes. We recorded bone mineral density data when available. In the cases, we recorded the following data: symptoms of discitis and findings from the investigations used to establish the diagnosis of discitis (histology, computed tomography [CT], radionuclide bone scanning, and magnetic resonance imaging [MRI]). Finally, we used the classification scheme developed by Bouvier et al. [3] to classify the patients based on the imaging features of discitis.

3. Results

Of the 79 AS patients with valuable medical records who were admitted during the study period, 14 had radiological evidence of discitis.

3.1. Clinical data

Mean duration of AS was 10 years in both groups. In three patients, discitis was the inaugural manifestation of AS. Mean age at the diagnosis of AS was 33 years in the cases and 30 years in the controls ($P = 0.30$). Mean age at the diagnosis of discitis in the cases was 40 years. We found no significant differences between the cases and the controls for the proportion of patients with a family history of AS (33% vs. 17%, $P = 0.21$), manual labor (64% vs. 54%), ocular involvement, peripheral arthritis, enthesopathy, or numerical indices, although Schöber's index was lower in the cases (1.25 vs. 2.60 cm) with a *P* value of borderline significance (0.058) (Tables 1 and 2). Comorbidities in the controls were as follows: psoriasis (1), eosinophilic gastrointestinal disorder akin to chronic inflammatory bowel disease (1), and Reiter syndrome (1). Among the cases, two patients had psoriasis. Symptoms of discitis were present in 12 of the 14 cases, with wide variations in clinical patterns. An injury with direct impact on the spine 4 years earlier was recorded as a possible precipitating factor in one of the cases.

Of the 14 cases, 12 had discitis at a single level and two at two levels. The clinical outcome was consistently favorable, without neurological compromise or need for surgery. Follow-up radiographs showed development of vertebral synostosis over a 6-year period in one patient. In patient no. 11, intravenous bisphosphonate therapy was followed by increased bone sclerosis with no change in the erosions. The patient with cervical discitis achieved a full recovery after intravenous bisphosphonate therapy; an MRI scan done after 7 years showed no evidence of discitis. In patients no. 1 and no. 4, the disk space narrowing worsened over the years.

3.2. Laboratory tests

We found no significant differences between the cases and controls regarding presence of HLA B27 (83% of cases and 93% of controls), serum IgA elevation, or severity of AS-related inflammation. Parameters for inflammation were similar at the diagnosis of discitis and at other times during follow-up (Table 3).

3.3. Imaging study findings

The cases were more likely to have spinal syndesmophytes, although the difference with the controls was not statistically significant. Stage III sacroiliitis was significantly more common among the cases than among the controls (57% vs. 29%; $P = 0.045$) (Table 4). Imaging study patterns of discitis were distributed as follows: pseudotuberculous,