Clinical Case Report

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Progressive sacroiliitis due to accessory sacroiliac joint mimicking ankylosing spondylitis

A case report

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Abstract

Rationale: An accessory sacroiliac (SI) joint usually has little clinical significance. However, severe arthritic changes can cause chronic buttock or low back pain and can be misdiagnosed as another disease presenting with sacroiliitis such as ankylosing spondylitis (AS).

Patient concerns: A 33-year-old woman was diagnosed with AS due to chronic buttock pain and progressive sacroiliitis on plain X-ray and magnetic resonance imaging (MRI). Her buttock and low back pain gradually worsened despite proper treatment for AS.

Diagnosis: Computed tomography revealed an accessory SI joint with arthritic changes.

Interventions: Nonsteroidal anti-inflammatory drugs (NSAIDs) and restricted movement were prescribed.

Outcomes: The symptoms were controlled with NSAIDs, rest, and restriction of excessive movement. The medication could be stopped after the pain subsided.

Lessons: An accessory SI joint can be a cause of chronic back pain and can be misdiagnosed as AS with sacroiliitis when progressive arthritic changes are observed. Therefore, additional imaging studies other than conventional X-ray or MRI may be required for accurate diagnosis.

Abbreviations: AS = ankylosing spondylitis, CT = computed tomography, MRI = magnetic resonance imaging, SI = sacroiliac.

Keywords: accessory, sacroiliac joint, ankylosing spondylitis

1. Introduction

An accessory sacroiliac joint (ASIJ) is a common anatomical variant that develops posteriorly between the ilium and sacrum.[1] ASIJ is more common in elderly, obese patients, and women with a previous history of 3 or more deliveries.[2] In a previous study of anatomical variants of SI joints using computed tomography (CT), ASIJ was identified as the most common variant, with a prevalence of 19%.[3] However, clinical significance is considered less important because most ASIJ cases are asymptomatic and the majority are found incidentally. Therefore, ASIJ is mostly reported in the radiological literature, in addition to a few reports. However, ASIJ is associated with degenerative arthritis and may cause chronic buttock or back pain.

We present a case of ASIJ with progressive sacroiliitis mimicking ankylosing spondylitis. Ethics approval was waived due to the retrospective nature of the study. Written informed consent was obtained from the patient for publication of this case.

2. Case presentation

A 33-year-old woman presented with a 7-year history of buttock and low back pain. The pain started in the right buttock after pregnancy and was intermittently worse. She also had mild right ankle pain and intermittent bilateral heel pain. Plain radiography showed a normal SI joint at that time (Fig. 1A).

After a 6-month period of follow-up without specific treatment, severe pain had developed on coughing. The plain X-ray showed progressive sacroiliitis with subcortical erosions and sclerosis at the right SI joint (Fig. 1B). Magnetic resonance imaging (MRI) of the SI joint demonstrated large subcortical erosions on both the sacral and iliac sides with bone marrow edema at the sacral side of the right SI joint (Fig. 2). Laboratory examination revealed a normal erythrocyte sedimentation rate (ESR) (6 mm/h) and C-reactive protein (CRP) (0.1 mg/dL). Human leukocyte antigen (HLA)-B27 was negative. Antinuclear

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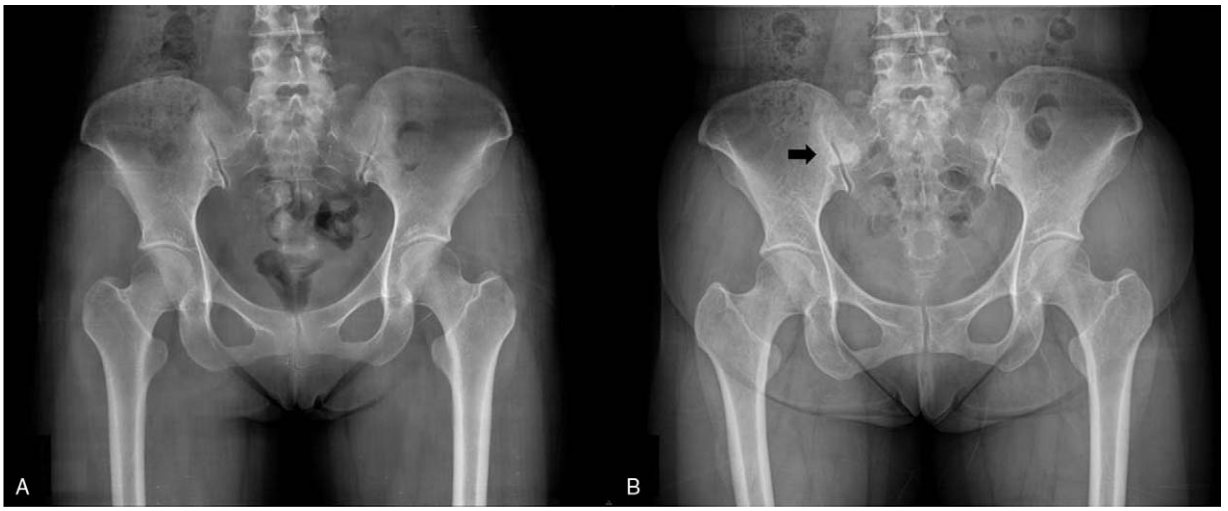

Figure 1. Changes on plain radiography of the pelvis during 7 years of follow-up. A, Initial plain radiography showed a normal sacroiliac joint. B, Follow-up plain radiography showed progressive sacroiliitis with subcortical erosions and sclerosis at the right sacroiliac joint (black arrow).

antibody, antineutrophil cytoplasmic antibody, and rheumatoid factor were also negative or normal. She was diagnosed with ankylosing spondylitis and progressive sacroiliitis based on plain radiography and MRI findings. She was treated with nonsteroidal anti-inflammatory drugs (NSAIDs), but the visual analogue scale score for pain improved only about 20%. The patient met the modified New York classification criteria[4] but did not meet the Assessment in SpondyloArthritis International Society (ASAS) criteria for axial spondyloarthritis (SpA)[5] due to lack of NSAID response, negative HLA-B27, and normal ESR and CRP, as well as a lack of SpA features such as uveitis, inflammatory bowel disease, or family history. Therefore, the diagnosis had to be reconsidered with further imaging studies and CT of the pelvic bone was performed. CT showed ASIJ with degenerative changes, including well-defined sclerosis and osteophytes in the right SI joint (Fig. 3).

The patient was diagnosed with ASIJ with severe arthritic changes in the right SI joint. NSAIDs and instruction to rest and restrict excessive movement were prescribed. The pain subsided 1 month later, and medication could be stopped.

Figure 2. Magnetic resonance imaging of the sacroiliac (SI) joint. Large subcortical erosions at both sacral and iliac sides of the right SI joint were observed. Subcortical erosions were more prominent at the sacral side. Bone marrow edema at the sacral side and minimal synovitis were seen in the right SI joint. Subcortical sclerosis with fat deposition was observed at the sacral side on both SI joints.

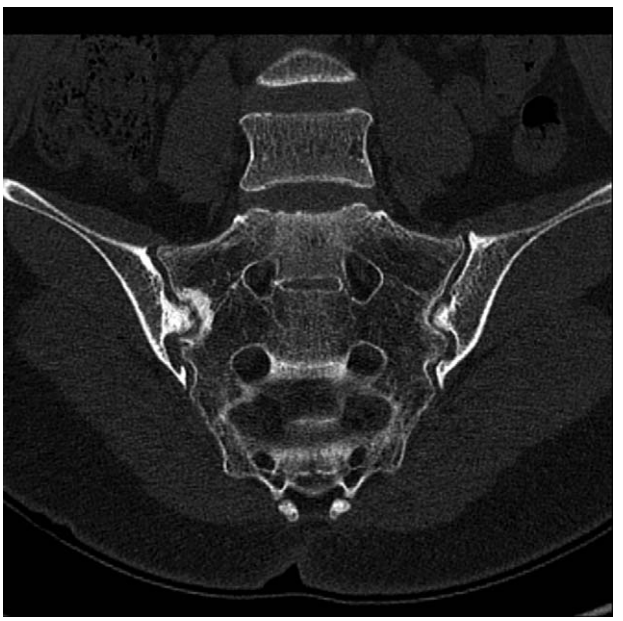

Figure 3. Computed tomography (CT) of the pelvic bone. CT showed an accessory sacroiliac joint with well-defined sclerosis and osteophytes and minimal bridging bone formation at the right SI joint. Sclerosis was also observed at the left SI joint.

3. Discussion

AS can be diagnosed if the plain X-ray shows sacroiliitis more than grade 2 according to the modified New York classification criteria.[4] Recently, new ASAS criteria for axial or peripheral SpA enable early diagnosis. The ASAS criteria added active inflammation on MRI as highly suggestive of sacroiliitis in addition to X-ray findings. Active sacroiliitis is defined by the presence of bone marrow edema in subchondral bone.[5] As a result, primary imaging modalities for the evaluation of chronic buttock pain and the diagnosis of AS or SpA include plain X-ray or MRI. CT examination has been limited because of radiation exposure despite the advantage for detection of structural changes such as erosions and subchondral sclerosis. The detection of ASIJ in plain radiographs is sometimes difficult, especially in an early stage. In addition, ASIJ is more difficult to detect when the image is occluded by bowel gas or rotated by scoliosis. In this case, plain X-ray seemed to be normal when the patient initially presented with pain. ASIJ can even be confused on MRI. Coronal MRI has more limitations for assessment of normal anatomy, variants, or abnormalities of the ventral and dorsal margin of the SI joint than axial imaging.[6] Moreover, MRI can be easily misdiagnosed when anatomic variations such as ASIJ are associated with edematous or structural changes.

Our patient presented with chronic buttock pain onset at less than 45 years of age and was evaluated with plain radiographs and MRI for a differential diagnosis including AS or SpA. Unilateral sacroiliitis on plain X-ray appeared to have progressed in the 7 years since initial evaluation and MRI also showed large subcortical erosions in the SI joint, although bone marrow edema was minimal. These imaging findings led to a diagnosis of AS. In fact, 1-quarter of primary care patients with chronic low back pain in the age group of 20 to 39 years are diagnosed with axial SpA.[7] However, the negative result for HLA-B27 and inadequate response to NSAIDs led to suspicion of other diseases and an additional imaging study. CT is not the diagnostic tool of choice for young patients with chronic buttock or low back pain. However, CT is helpful for finding structural changes or anatomical variations, and is also useful in the differential diagnosis of the cause of sacroiliitis, other than AS or SpA.

A reason for delayed diagnosis is that many clinicians are not aware that ASIJ can be a cause of chronic buttock or low back pain. Demir et al[8] reported that ASIJ was the most common variant of the SI joint (17.5%, 70/400 consecutive patients) on CT and that most patients with ASIJ had no complaint of low back pain. However, ASIJ is also the cause of chronic buttock or low back pain, especially with severe arthritis and degenerative changes. When CT was used to assess low back pain in patients younger than 40 years, ASIJ was identified as the cause of pain in 4.5%.[9]

A case similar to our patient was recently reported.[10] The difference in our case is that the patient was more likely to have been misdiagnosed with AS or SpA because she was less than 45 years of age, had pain prior to the appearance of degenerative changes, and had developed arthritic changes due to ASIJ over a period of 7 years.

In conclusion, this patient was diagnosed with ASIJ as the cause of her buttock pain and stopped medication after the pain had subsided with appropriate treatment. This case report should remind clinicians that ASIJ may be a cause of arthritic and chronic buttock pain and that a differential diagnosis of chronic buttock pain should include ASIJ, enabling early diagnosis with additional imaging studies.

Author contributions

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