Lumbar Spondylodiscitis in SAPHO Syndrome: Multimodality Imaging Findings

TOSHIHIRO AKISUE, MD, Senior Resident; TETSUJI YAMAMOTO, MD, Assistant Professor; TAKASHI MARUI, MD, Assistant Professor; TOSHIAKI HITORA, MD, Postgraduate Student; KEIKO NAGIRA, MD, Senior Resident; TETSUYA NAKATANI, MD, Postgraduate Student; YUTAKA MIHUNE, MD, Resident; and MASAHIRO KUROSAKA, MD, Director and Chairman, Department of Orthopaedic Surgery, Kobe University School of Medicine, 7-5-1 Kusunoki-cho, Chuo-ku, Kobe 650-0017, Japan. Address reprint requests to Dr. Yamamoto. E-mail:yamatetu@med.kobe-u.ac.jp

We describe radiographic, computed tomographic (CT), magnetic resonance (MR) imaging, scintigraphic, and pathologic findings of lumbar spondylodiscitis associated with SAPHO (synovitis, acne, pustulosis, hyperostosis, and osteitis) syndrome.

A 29-year-old woman presented with a one month history of low back pain. She had developed palmoplantar pustulosis 3 months prior to the orthopedic consultation, and was treated with local application of corticosteroid. Examination revealed stiffness of the lumbar spine and local tenderness over L4 and L5. Neurologic deficits were absent. The patient was afebrile. She had no other skin lesions or evidence of peripheral arthritis. Laboratory data showed a normal white blood cell count (8300/mm^3), erythrocyte sedimentation rate (6 mm/h), and C-reactive protein (0.25 mg/dl). HLA-B27 was negative. She had no family history of psoriasis or other spondyloarthropathy.

A lateral radiograph of the lumbar spine revealed an erosive change in the anterosuperior corner of the L5 vertebral body, and disc narrowing of L4/5 and L5/S1 (Figure 1). A CT scan showed erosion in the anterior area of the L5 vertebral body (Figure 2). T1 weighted MR images showed diffuse hypointensity in L5 and focal hypointensity in the S1 endplate (Figure 3A). T2 weighted images showed diffuse, significant hyperintensity in L5 and focal hypointensity in the anterosuperior corner of the L5 vertebral body (Figure 3B). The L4/5 and L5/S1 disc spaces showed hypointensity on T2 weighted images, suggesting disc degeneration. Postcontrast T1 weighted images showed marked enhancement of soft tissues anterior to the L4 and L5 vertebral bodies, as well as the L5 bone marrow (Figure 3C). A ^{99m}technetium scintigraphic scan showed mild increased isotope uptake in L4, L5, and both distal claviclar ends. Radiographs of both clavicles were unremarkable. Needle biopsy of the L5 vertebral body revealed bone marrow fibrosis accompanied by chronic inflammatory cells. Bacterial culture of the specimens was sterile.

She was subsequently treated with a nonsteroidal antiinflammatory drug (NSAID), which alleviated symptoms. Followup radiographs of the lumbar spine showed no signs of progression of L5 spondylodiscitis.

The frequency of spondylodiscitis in SAPHO syndrome has been reported to be 9–32%[1]. Some investigators suggest that spondylodiscitis is due to Propionibacterium acnes[2]. CT scans of the disease show erosive lesions in the vertebral bodies. The vertebral lesions show hypointensity on T1 weighted images and hyperintensity on T2 weighted and postcontrast T1 weighted images, while involved disc spaces are not enhanced[1,3]. The anterior portion of the discovertebral junction is usually affected[1]. Paravertebral soft tissues may show abnormal signal intensity[3,4].

Figure 1. A lateral radiograph of the lumbar spine shows an erosive change in L5 (arrow), and disc narrowing of L4/5 and L5/S1.

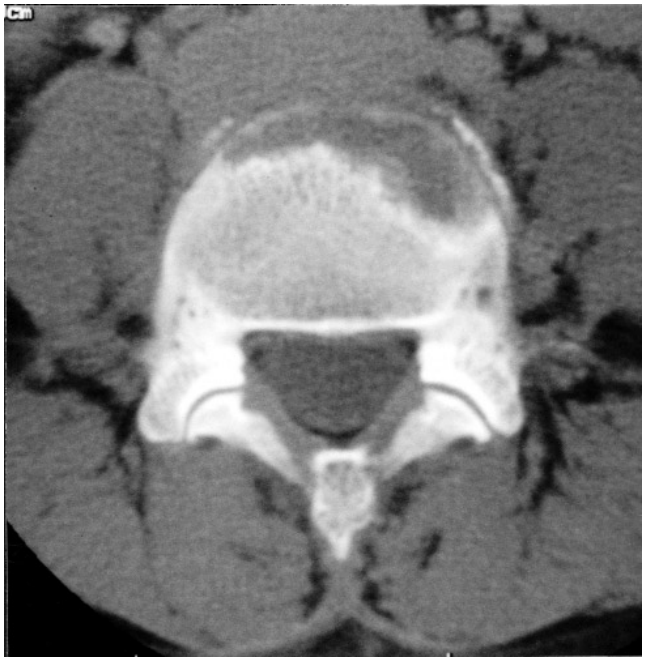

Figure 2. A CT scan through the L5 level shows erosion in the anterior potion of the vertebral body.

Illustrative cases of spondylodiscitis in SAPHO syndrome have rarely been reported in the English language literature.

The prognosis of spondylodiscitis in SAPHO syndrome is favorable. NSAID are effective. Recurrence or neurologic disturbances have not been reported[1].

In patients with ankylosing spondylitis, similar radiologic changes may be observed at the anterior discovertebral junctions due to enthesopathy[5]. This condition is known as a Romanus lesion[5]. Our patient had no clinical or laboratory criteria of ankylosing spondylitis.

REFERENCES

1. Toussirot E, Dupond JL, Wendling D. Spondylodiscitis in SAPHO syndrome. A series of eight cases. Ann Rheum Dis 1997;56:52-8.
2. Gerster JC, Lagier R, Livio JJ. Propionibacterium acnes in a spondylitis with palmoplantar pustulosis. Ann Rheum Dis 1990;49:337-8.
3. Nachtigal A, Cardinal E, Bureau NJ, Sainte-Marie LG, Milette F. Vertebral involvement in SAPHO syndrome: MRI findings. Skeletal Radiol 1999;28:163-8.
4. Kotilainen P, Gullichsen RE, Saario R, Manner I, Kotilainen E. Aseptic spondylitis as the initial manifestation of the SAPHO syndrome. Eur Spine J 1997;6:327-9.
5. Jevtic V, Kos-Golja M, Rozman B, McCall I. Marginal erosive discovertebral "Romanus" lesions in ankylosing spondylitis demonstrated by contrast enhanced Gd-DTPA magnetic resonance imaging. Skeletal Radiol 2000;29:27-33.

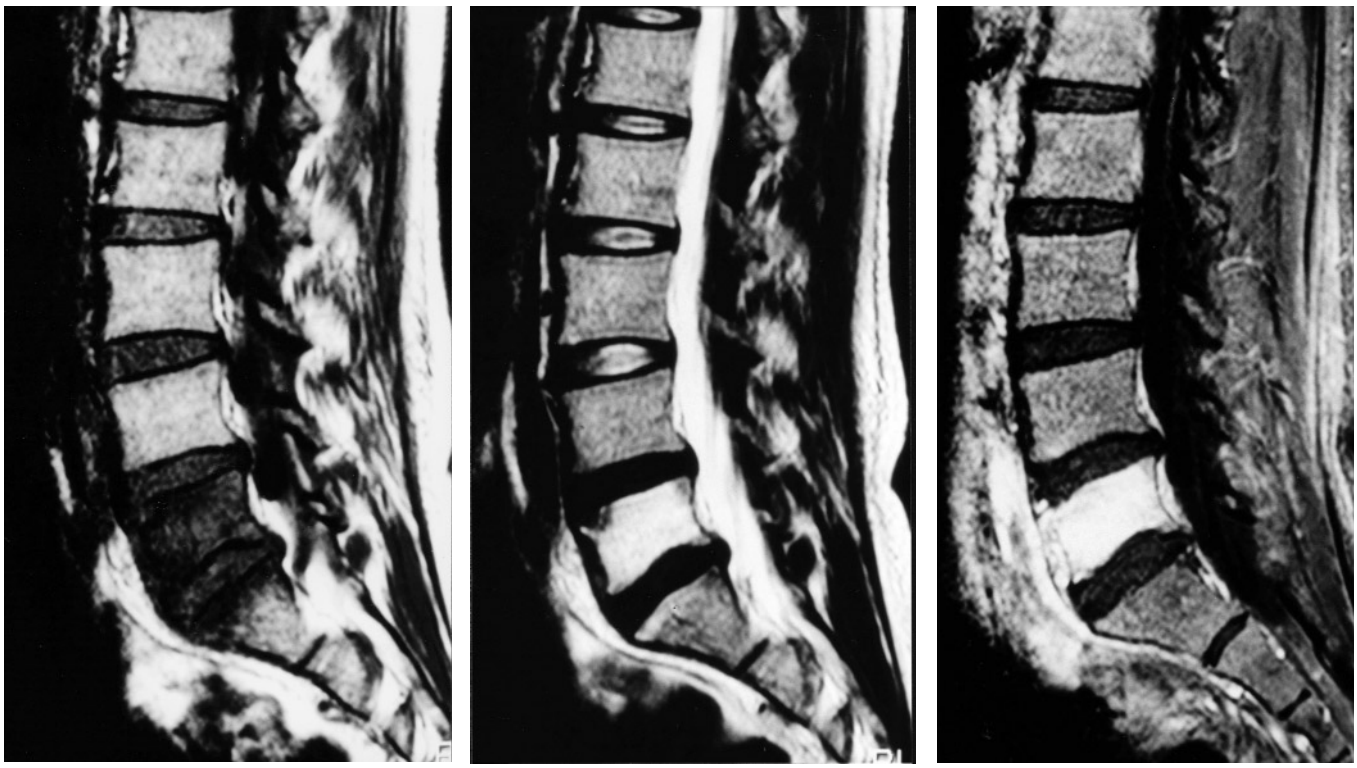

Figure 3. Sagittal MR images of the lumbar spine. T1 weighted image shows diffuse hypointensity in L5 and focal hypointensity in the S1 (A). T2 weighted image shows diffuse hyperintensity in L5 and focal hypointensity in the anterosuperior corner of the L5 vertebral body. L4/5 and L5/S1 disc spaces show hypointensity (B). Postcontrast T1 weighted image shows enhancement of L5 and paravertebral soft tissues anterior to L4 and L5 (C).