Low back pain and fevers

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Discussion

Answer: Septic sacroiliitis with sequestration

Septic sacroiliitis is an uncommon entity, accounting for less than 1 % of cases of adult septic arthritis [1]. Infection of the sacroiliac joint typically occurs by hematogenous spread of bacteria and less commonly by direct extension from adjacent soft tissue or bone [2]. Intravenous (IV) drug use is a predisposing risk factor for septic arthritis, particularly of the sacroiliac joint. *Staphylococcus aureus* is the most common pathogen isolated [1]. CT-guided aspiration of the joint is indicated when blood cultures are negative, which occurs in approximately 75 % of reported cases [2].

Treatment depends on the severity of the infection; however, long-term antibiotics are the mainstay. Abscesses usually require drainage. A more extensive procedure is necessary if an osseous sequestrum is present [3]. A sequestrum represents a focus of necrotic bone secondary to devascularization and resorption of the surrounding bone, as seen in this case (Figs. 3 and 4, Test Yourself: Question). The sequestrum serves as a nidus of infection as it is avascular and is not penetrated by antibiotics. On magnetic resonance (MR) imaging, sequestra appear as low signal intraarticular fragments on all sequences and do not enhance [1]. Additional MR findings of septic sacroiliitis include erosions, abnormal cartilage signal

intensity on T1-weighted images, and areas of increased intensity within the joint on T2-weighted images. A highly specific finding is demonstration of bone marrow edema and inflammatory muscle tissue on STIR and T2-weighted images [1, 4–6]. Computed tomography (CT) findings include widening of the joint space, erosions, thinning of the periarticular fatty tissue layer, sequestra, and abscess formation [1, 7].

Our patient had a history of IV drug use and had been receiving a course of IV antibiotics for methicillin-sensitive *Staphylococcus aureus* bacteremia and multifocal subcutaneous abscesses. The abscesses improved; however, she complained of persistent fevers, drenching night sweats, low back pain, and difficulty ambulating on her right leg. Initial MR images demonstrate patchy bone marrow edema centered along the sacroiliac joints bilaterally, the right greater than left. Focal curvilinear structures within the right sacroiliac joint are low in signal on all sequences and suspicious for osseous sequestra. A follow-up nonenhanced pelvic CT demonstrates erosive changes and widening of the right sacroiliac joint. Areas of sclerotic bone in the posterior-inferior portions of the right sacroiliac joint correspond to low signal foci on the MR and are consistent with sequestrum formation.

This case demonstrates the importance of recognizing an osseous sequestrum on MR imaging, which is a sign of advanced disease. In our anecdotal experience, postcontrast imaging best demonstrates the osseous sequestra, which appear as low signal, nonenhancing, intraarticular fragments. The patient's sacroiliac joint infection was refractory to IV antibiotic therapy given the presence of sequestra, which necessitates more aggressive treatment in the form of sequestrectomy. The patient was scheduled for treatment, but subsequently was lost to follow-up.

The case presentation can be found at doi: [10.1007/s00256-015-2310-6](https://doi.org/10.1007/s00256-015-2310-6).

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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