A 57-year-old man presented to the authors’ department with pain over the right hip joint over a 3-month period. External magnetic resonance imaging showed a structure in the right acetabulum that was highly suspicious for a bone sarcoma. External 3-phase bone scintigraphy substantiated the suspected diagnosis. A computer tomography-guided biopsy was performed. Microbiologic examination showed a *Staphylococcus aureus* strain. Histopathologic findings showed chronic fibrous osteomyelitis. Because of doubts about these findings made by radiologists, open biopsy with retrieval of bony samples from the acetabulum and hip joint puncture was repeated. At that time, the serum C-reactive protein level was 48.8 mg/dL and the white blood cell count was 5600×10⁶/L. Microbiologic examination showed a *S. aureus* and a *Staphylococcus epidermidis* strain in both regions. Results of blood cultures were negative. Based on these findings, the decision was made to perform a septic femoral head and neck resection. After meticulous debridement, necrosectomy, and pulsatile lavage, a gentamicin and vancomycin–impregnated cement spacer was implanted. Postoperatively, systemic antibiotic treatment with cefuroxime and rifampicin was administered for 4 weeks, followed by 2 weeks of oral antibiotics. Mobilization was allowed under toe-touch bearing of the operated extremity. The further postoperative course was uneventful. Prosthesis implantation was performed after 3 months. White blood cell count and C-reactive protein values were normal at the time of surgery. Histologic and microbiologic examination of tissue samples taken intraoperatively showed no evidence of persistent infection. At follow-up after 1 year, the patient had no complaints and has no local or systemic signs of infection.
Pelvic and especially acetabulum osteomyelitis is an entity that usually affects pediatric patients. In children, the most common focus of pelvic osteomyelitis is the ilium (38%-40%), followed by the ischium (19%-28%), pubis (14%-15%), and acetabulum (7%-12%). The correct diagnosis is difficult to make and is often delayed. Typical signs and symptoms of pain, swelling, warmth, and redness are not easily localized. Pain may be referred to the hip, knee, lower back, and abdomen. Laboratory findings, including white blood cell count, erythrocyte sedimentation rate, and C-reactive protein level, are typically elevated but are nonspecific.

In the current report, the authors describe a rare case of acetabulum osteomyelitis in a 57-year-old man that initially mimicked bone sarcoma and was accompanied by secondary septic hip arthritis.

**Case Report**

A 57-year-old man presented to the authors’ department with pain over the right hip joint over a 3-month period. External magnetic resonance imaging (MRI) showed a structure in the right acetabulum that was highly suspicious for a bone sarcoma (Figure 1). External 3-phase bone scintigraphy substantiated the suspected diagnosis (Figure 2). The patient’s medical history was negative with regard to infections before the onset of symptoms. Arterial hypertension and diabetes mellitus type II were the only comorbidities.

Computed tomography-guided biopsy was performed. Microbiologic examination showed a *Staphylococcus aureus* strain. Histopathologic findings showed chronic fibrous osteomyelitis. Because of doubts about these findings made by the radiologists, open biopsy with retrieval of bony samples from the acetabulum and an additional hip joint puncture was repeated. At that time, serum values of C-reactive protein were 48.8 mg/dL and the white blood cell count was 5600×10⁶/L. Microbiologic examination showed a *S aureus* and a *Staphylococcus epidermidis* strain in both regions. Blood culture results were negative.

Based on these findings, the decision was made to perform septic femoral head and neck resection. Intraoperatively, a large destruction of the lateral border of the acetabulum was evident (Figure 3). After meticulous debridement, necrosectomy, and pulsatile lavage, a gentamicin and vancomycin–impregnated cement spacer was implanted (Figure 4). Postoperatively, systemic antibiotic treatment with cefuroxime and rifampicin was administered for 4

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**Figure 1:** Preoperative T1-weighted (A) and T2-weighted (B) magnetic resonance imaging scans showing distinct osteomyelitis of the acetabulum (arrows).

**Figure 2:** Preoperative 3-phase bone scintigraphy (technetium 99m) scan showing massive enhancement in the right acetabulum that is highly suggestive of bone sarcoma. Abbreviations: LDR, left dorsal right; RVL, right ventral left.
weeks, followed by 2 weeks of treatment with oral antibiotics. Mobilization was allowed under toe-touch bearing of the operated extremity. The rest of the postoperative course was uneventful.

Prosthesis implantation (Figure 5) was performed after 3 months. White blood cell count and C-reactive protein values were normal at the time of surgery. Histologic and microbiologic examination of tissue samples taken intraoperatively showed no evidence of persistent infection. At follow-up after 1 year, the patient had no complaints and no local or systemic signs of infection.

**DISCUSSION**

Acetabulum osteomyelitis is rare in adults. A literature search showed only 2 case reports, of which 1 patient had tuberculous osteomyelitis. Secondary hip arthritis as a result of acetabulum osteomyelitis is also rare. To the best of the authors’ knowledge, the current case is the first to describe acetabulum osteomyelitis in an adult patient followed by secondary septic hip arthritis.

Correct and early diagnosis of acetabulum osteomyelitis can be difficult. Clinical, laboratory, and radiographic findings are similar to those seen in septic hip arthritis. Bone scintigraphy may help, but negative or “cold” scans may occur in the presence of documented osteomyelitis because of infarction of the involved area. The imaging modality of choice to confirm the diagnosis is MRI, with sensitivity of 97% and specificity of 92%. An MRI scan accurately depicts edematous, diseased bone and distinguishes between diseased bone and normal bone. However, differentiating reactive bone marrow edema from osteomyelitis is difficult because both entities have similar signal characteristics. Therefore, the extent of osteomyelitis could be overestimated because of reactive marrow edema and hyperemia adjacent to the lesion.

These diagnostic problems were also evident in the current case, where osteomyelitis was initially misinterpreted as bone sarcoma. It is important for orthopedic surgeons to bear this differential diagnosis in mind. Therefore, bone and tissue samples should be sent for histologic and microbiologic examination simultaneously. With this diagnostic procedure, valuable time can be saved and patients can be treated promptly.

The most common pathogen in pelvic osteomyelitis in children is *S. aureus*. Similar to these findings, 2 staphylococci species were identified in the current case. However, atypical pathogens, such as *Mycobacterium tuberculosis*, may also be responsible for such rare infections.

Treatment modalities for adults are undefined because of the rare occurrence of the disease. In children, in most cases, acetabular osteomyelitis responds successfully to antibiotic treatment alone. Surgical treatment is indicated only when subsequent septic arthritis occurs. In the current case, the positive identification of 2 bacterial strains in the joint fluid left no choice other than septic head and neck resection and implantation of an antibiotic-loaded spacer, although MRI did not show involvement of the femoral head.

**CONCLUSION**

The current study is the first to report acetabulum osteomyelitis with subsequent involvement of the hip joint. Physicians should be aware of the diagnostic difficulty of this entity.
REFERENCES


