An Interesting Course After Osteomyelitis of the Proximal Metaphysis of the Femur in an Infant
A Case Report

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We encountered an interesting case of acute osteomyelitis of the proximal metaphysis of the femur with arthritis of the hip joint in a one-month-old girl. Conservative treatment with antibiotics was performed and the outcome at 11 years after the onset of osteomyelitis was satisfactory.

Acute osteomyelitis of the proximal metaphysis of the femur is not rare and is usually complicated by purulent arthritis of the hip joint that eventually leads to severe osteoarthrosis. We describe an interesting course of acute osteomyelitis of the proximal metaphysis with arthritis of the hip joint in an infant. After conservative management over the course of 11 years the patient has good joint congruity despite mild acetabular dysplasia.

Case Report

The patient was admitted to our hospital 40 days after birth with swelling and loss of right leg movement. She had suffered a moderate fever (around 38°C) for 4 days at 33 days after birth, but subsequently the fever resolved with antibiotics prescribed at the children’s hospital. Moreover she could not move her right leg after that time. At the time of her admission, radiographs showed both a subperiosteal reaction, a mottled region of the proximal femur, and some bone reaction in the acetabular bone (Fig.1). The femoral head also showed a lateral subluxation. At the time of admission her fever recurred and a swelling of her right thigh was remarkable. Laboratory findings showed an increase in the white blood cell count (26,400/mm³) and an acceleration of the blood sedimentation rate (114 mm/hour). Immediately after the admission antibiotics were given for the second time.

On the first day of her admission, the administration of cefmetazole (750 mg/day) and fosfomycin (750 mg/day) were begun. At two days after the beginning of antibiotics therapy the fever did not resolve and the patient’s white blood cell count increased. Though the result of blood culture contradicted sepsis and a bacterial culture of fluid aspirated from the patient’s hip joint showed a negative result, the antibiotic regimen was altered to minocycline (21 mg/day) and vancomycin (200 mg/day). After one week of antibiotic therapy, her fever resolved and she began to move her right hip without pain.

She was able to walk at the age of one year and two months. At that time, radiographs showed both a discontinuity of the femoral neck and a comparatively large defect in the superomedial portion of the greater trochanter (Fig. 2).

At the age of 5 years, she could participate in sports. Radiographs showed coxa vara and gradual bone formation between the arch of Adams and the lesser trochanter. Moreover, the defect in the superomedial portion of the femoral neck was filled with mottled bone.

At the latest follow-up, she was 12 years old and had no symptoms in her hip joint. Although there was slight shortening of her right lower limb by one centimeter, this caused no problems in daily life. Radio-
graphs showed mild acetabular dysplasia, coxa vara, and shortening of the femoral neck (Fig. 3). Never-theless the joint space was well preserved and good joint congruence was noted.

Discussion

Acute osteomyelitis of a proximal metaphysis of the femur is not rare in infants and is often complicated by purulent arthritis of the hip joint because the joint capsule partially covers the proximal metaphysis.\textsuperscript{1} Hematogenous pyogenic osteomyelitis in infants is mainly treated by the administration of antibiotics, as long as purulent arthritis has not developed. We did not perform a surgical procedure such as drainage and capsulotomy because there was no identification of bacteria in the joint fluid and antibiotic therapy aided the early resolution of fever.

In patients with this condition, ultrasonography should used to evaluate whether the infection has spread from the site of osteomyelitis into the joint cavity. Morrey\textsuperscript{2} has stated that if the clinical response to antibiotics is good and no bone destruction has occurred, surgical intervention may not be necessary. Moreover, he concluded that the prognosis is poor when osteomyelitis is associated with joint involve-ment and the patient shows no obvious improvement even with long-term antibiotic therapy.\textsuperscript{2}

Although the radiographs in this case showed dis-continuity of the femoral neck and a comparatively large defect in the superomedial portion of the greater trochanter at one year after onset, the patient had neither hip pain nor disturbance of her daily activities. Fortunately, both joint congruity and the joint space were preserved throughout the course, despite disturbance of growth at the femoral neck. At the last follow-up, radiographs showed mild acetabular dys-plasia, shortening of the femoral neck, and a high po-sition of the greater trochanter. Though these find-ings might be suggestive of progression to secondary osteoarthritis of the hip joint with acetabular dyspla-sia, we consider that conservative treatment has been successful in preserving the morphology of the hip joint in this patient thus far.
Conclusion

We cannot specify the reason why this patient escaped from experiencing destructive changes in her hip, nevertheless we suppose that arthritis in her hip joint might be a reactive condition following osteomyelitis of the proximal femur rather than purulent arthritis.

References