

## Hip Septic Arthritis: A Rare Complication

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### Abstract

The authors report a rare complication of septic hip arthritis in a 4-year-old child. It is a detachment with sliding of the proximal femoral epiphysis in the thigh. This complication results from metaphyseal osteomyelitis. After 2 years of follow-up, the patient has very disabling sequelae. It is a therapeutic challenge.

**Key words:** Septic hip, detachment, migration, sequelae.

### Introduction

Septic arthritis of the hip is a bacterial joint infection. It is an orthopedic emergency whose diagnostic and therapeutic delay leads to severe complications. In children, before the advent of antibiotics, mortality was very high [1, 2, 3, 4]. Currently, the prognosis is mostly functional with devastating consequences on hip development [5]. The case we report is a rare complication of this joint infection.

### Observation

A 4-year-old child was admitted to the hospital for the left hip pain without trauma. This pain appeared in a febrile context with functional impairment. On physical examination, the left thigh was swollen and warm. The hip was in flexion, abduction, and external rotation. X-rays of the pelvis and femur (anteroposterior and lateral) showed a pure epiphyseal detachment of the proximal femur with migration of the epiphysis in the upper third of the left thigh (Fig. 1). Leukocytosis was of 33,000 elements/mm<sup>3</sup> with neutrophilic predominance. Erythrocyte sedimentation rate (ESR) and C-reactive protein (CRP) were elevated. Hip arthrotomy and debridement of the thigh were performed. This surgical procedure evacuated 350 ml of yellowish pus, of which a cytobacteriological examination isolated *Staphylococcus aureus*. The epiphysis was not reduced because of the high degree of soft tissue and articular infection. The lower limb was immobilized by a spica cast for

4 weeks. Appropriate antibiotherapy (amoxicillin-clavulanic acid) at a dose of 80 mg/kg/day in three doses was administered

parenterally for 1 week and orally for 3 weeks (150 mg/kg/day in four doses) until normalization of the white blood cells level, ESR, and CRP. After 2 years of follow-up, the child presented a left thigh atrophy and leg length discrepancy of 5 cm. This shortening required a shoe raise. X-rays showed significant remodeling of the hip joint (Fig. 2).

### Discussion

The incidence of septic arthritis varies from continent to continent. It is estimated in Africa at 1/20,000 children [6] while in Western Europe, it is between 4 and 10/100,000 at any age [7]. Currently, the severity of this infection is much more related to its morbidity than to its mortality since the introduction of antibiotics and the practice of emergency arthrotomy [8]. The hip is one of the most affected joints with *S. aureus* being the most commonly implicated germ [5, 9]. This germ was isolated in our patient. Invasion of the synovial space by *Staphylococcus* will result in the formation of a purulent effusion in the joint cavity. Our observation shows that this invasion was by a spread from osteomyelitis developed at the level of the proximal femoral metaphysis. The germ has penetrated directly into the joint because the metaphysis is intra-articular, thus leading to the contamination of the hip joint. The closed nature of the joint and the nature of the articular fluid form a favorable environment for seeding and bacterial development. Bacterial multiplication is fast and destroys the synovial membrane in a short time. Catalytic enzymes released by the destroyed intra-articular elements cause the degradation of the articular cartilage. It is proved that after a few hours or even a few days the degradation lesions appear [10, 11, 12]. The intra-articular pressure will increase compromising the vascularization of the proximal femur and leading to rupture of the hip stabilization means with articular dislocation. The articular fluid becomes purulent and will

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**Figure 1:** Epiphyseal detachment and migration into the thigh.



**Figure 2:** Important destruction of the hip joint with complete remodeling of the proximal femur.

then diffuse in the thigh if no treatment is undertaken urgently. It is the case in our patient: Epiphyseal detachment occurred with migration of the epiphysis into the thigh. We think that this is the third case reported in the literature after those observed by Aho [13] and Ebrahimzadeh et al. [14], respectively, in children aged 2½ and 7 years. Aho described this as an epiphysis that swims in a tank or lake of pus. Other cases of pure septic detachment have been reported but without migration of the epiphysis [15, 16, 17, 18, 19].

Our case enlightened two therapeutic problems:

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- The first problem occurred during the initial management. Should we reduce the upper femoral epiphysis in a septic articular cavity? The option to remove the epiphysis was taken.
- The second problem was observed at the stage of sequelae. Clinically, the shortening of the lower limb was 5 cm. The X-rays show an important destruction of the hip joint with complete remodeling of the proximal femur. These features might be described as a "phantom hip." Several classifications of septic hip arthritis sequelae provide a surgical orientation [20, 21, 22]. The images obtained can be classified as Cho Type IV A and Hunka Type IV B or II B according to Folio. Magnetic resonance imaging would be of great help in assessing the remaining size of the femoral neck to better refine the therapeutic indication.

## Conclusions

Septic arthritis of the hip in children is a diagnostic and therapeutic emergency. Any delay in the management exposes to serious complications providing severe functional disability. This observation is a real therapeutic challenge.

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## How to Cite this Article

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