

Late hip subluxation due to a sequel of neonatal hip septic arthritis: A case report

Geç dönemde kalça yarı-çıkığına neden olan yenidoğan kalça septik artriti: Olgu sunumu

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ABSTRACT

Although there are major contributing factors causing developmental hip dysplasia, it is a well known fact that septic arthritis may cause hip subluxation, and developmental hip dysplasia. In this case report, a 28-day-old female patient whose ultrasonographic findings were found to be normal during neonatal period after detection of septic arthritis of the hip secondary to *Candida spp.*, and who later developed hip subluxation of the affected hip is presented. It is emphasized that hip dysplasia, which is one of the rare complications of the septic arthritis, should be taken into consideration especially in patients with complaints of limping and yet the importance of close follow-up of patients with a history of septic arthritis for the risk of hip dysplasia and subluxation.

Keywords: Septic arthritis, Neonatal septic arthritis, Septic subluxation, Complications

ÖZ

Gelişimsel kalça displazisinin etiolojisinde belli başlı faktörler olmakla birlikte, septik artritin de kalça yarı-çıkığına subluksasyon ve gelişimsel kalça displazisine neden olduğu bilinmektedir. Bu olgu sunumunda, üçüz eşi ve prematür olarak dünyaya gelen bir olguda *Candida spp.*'nin etken olarak tespit edildiği yenidoğan kalça septik artritten sonraki klinik ve ultrasonografik kontrolleri normal olmasına karşın, ileriki takiplerinde etkilenen kalçasında yarı-çıkık gelişen hasta sunulmaktadır. Kalça septik artritinin ender bir yarı-çıkık nedeni olduğu ortaya konarak özellikle öyküsünde kalça septik artriti bulunan hastaların yakın takip edilmesi ve topallama yakınmalarının önemszenmesi gerektiği vurgulanmaktadır.

Anahtar kelimeler: Septik artrit, Yenidoğan septik artriti, Septik subluksasyon, Komplikasyon

INTRODUCTION

Septic arthritis is an orthopedic emergency which is encountered most commonly in children less than fifteen years of age and requiring prompt diagnosis and efficient treatment to prevent permanent joint deformities. Delayed diagnosis and inefficient treatment might lead to some complications^{1,2}.

Septic arthritis is one of the causative conditions leading to hip dislocation or subluxation among other well-known etiologic factors^{2,4-6}.

We hereby present a case who had normal findings

of hip ultrasonography in control visits following neonatal septic coxarthrititis, and consecutively developed subluxation in the affected hip.

CASE REPORT

A 28-day-old female baby who was born at the 35th week of gestation without family history of developmental dysplasia of the hip (DDH). However as one of the triplets. She was brought to the outpatient clinic after her mother noticed restricted range of motion of the right hip while diapering. Her erythrocyte sedimentation rate was 67 mm/hour and a C-reactive protein (CRP) value was 17 mg/dl (normal, 5 mg/dl).

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She also had leukocytosis of $14000/\text{mm}^3$ and left shift. Her body temperature was 38.5°C . Joint debridement through anterior incision was performed on the same day after detection of purulent synovial fluid in joint puncture. Intraoperatively significant pus was detected in the hip joint. Neither chondrolysis nor osteolysis of the femoral head was detected. Empiric intravenous treatment was achieved with cephazolin at a proper dose of 100 mg/kg/day . The treatment was maintained after the procedure, as the culture showed growth of methicillin-sensitive staphylococcus aureus.

Pelvipedal casting in neutral position was performed, postoperatively. In the postoperative day 5, the patient was started on fluconazole treatment at a dose of 6 mg/kg/day after elevation of CRP values and the growth of *Candida* spp. in intraoperative culture media. The patient was followed in hospital until the CRP values turned negative following the removal of drain on the postoperative 12th day due to decreased discharge. Oral cephazolin treatment was continued for six weeks and oral fluconazole treatment for six months.

The pelvipedal cast was removed when the patient was three months old and hip ultrasonography showed that the both hips were in correct position; with alpha angles of 60 degrees at both hips and beta angles with 44 degrees at right, and 41 degrees at left hip estimated according to the Graf method (Figure 1).

The patient who was not brought to her visits regularly after three months of age, was presented to our outpatient clinic two years later due to limping which existed for several months. On physical examination discrepancies between two extremities were not detected, however she had subluxated (Type II in Tönnis classification) right hip (Figure 2). At the age of twenty seven months, she underwent closed reduction without opening the capsule and acetabular coverage was provided through Pemberton pelvic osteotomy which was performed via previous anterior incision. Fixation was made by pelvipedal casting after the surgery (Figures 3).

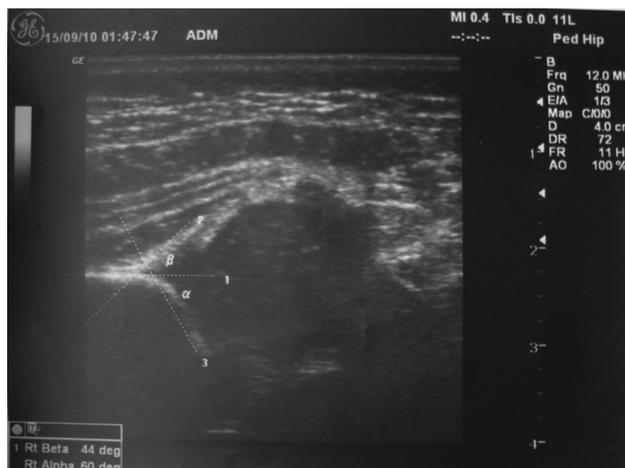


Figure 1. Right hip ultrasonography at third month. It is seen that both the alpha and beta angles are normal.



Figure 2. Two year-old patient's pelvic antero-posterior X-ray indicates type-II right hip subluxation according to Tönnis classification.



Figure 3. Pemberton osteotomy is observed in pelvic antero-posterior X-ray in early postoperative period.



Figure 4. It is seen that both hips are in normal location and the acetabular development is normal in the antero-posterior pelvic X-ray in postoperative fifth year.

On early postoperative radiograms the epiphysis of the femoral head was in lower internal quadrant and acetabular index (AI) angle was measured to be 16° (Figure 3). At the first postoperatively year the AI angle was 16° , which was later regressed to 11° at the end of the fifth year (Figure 4).

Written informed consent was obtained from the patient's family for publication of this case report and accompanying images.

DISCUSSION

The incidence of DDH which was suggested to be 1/1000 live births, while in certain orthopedic references its incidence is predicted to be around 5-15/1000 live births in Turkey³.

There are more than one factor in the etiology of DDH. These can be classified as mechanical structural factors (connective tissue laxity, capsular structure and labrum, acetabular structures such as, pulvinar, ligamentum teres, transverse acetabular ligament), genetics (race characteristics and sex), and mechanical environmental factors (oligohydroamniosis, breech presentation, first delivery, position after the delivery). In previous studies it was suggested that

the septic arthritis can also play a role in the etiology of hip subluxation among with these factors^{2,4-7}. Moreover; it is well known that septic arthritis especially in neonatal and infancy periods, has more unfavorable effects in the long-term leading to possible hip dysplasia later on⁵⁻⁸. Our case supports this assumption by showing normal ultrasonographic findings in the third month however developing hip subluxation during the long-term follow-ups. At the same time, lack of family history of DDH, being the only one with hip abnormalities among other siblings strengthen the argument of hip subluxation developed secondary to septic arthritis, in addition to genetic and environmental factors in this patient.

Factors affecting the prognosis of neonatal septic arthritis are delayed diagnosis and treatment, premature delivery and high virulence of the organism². Unfavorable prognosis in our case might be due to premature delivery and Candida arthritis. According to the classification system, which was first developed by Hunka et al.¹⁰ and updated by Choi et al.² for hip deformities in patients with septic arthritis; this case is consistent with Type I-b due to preoperative "mild coxa magna". Although Type I-b does not require treatment², our case underwent acetabular osteotomy due to development of subluxation. This might be important in defining the missing points in Hunka and Choi classifications. Yet femoral head subluxation might interfere with acetabular development in the long-term. However, these classifications don't mention any acetabular deformities which might develop².

Satisfactory findings in physical examination and x-ray, as well as regression in AI angle in postoperative fifth year have shown the normal favorable development of acetabulum.

It is reported that replacement of hip without capsulotomy in type II subluxation is an effective treatment⁹. In this case report, it is well observed that the effective treatment is achieved by pelvic osteotomy. However follow-ups should continue as the developmental process goes on.

CONCLUSION

This case report highlights the importance of long-term close follow-up of the patients with hip septic arthritis especially in neonatal and infancy periods for the risk of subluxation and dislocation which might later develop in the course.

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