

The Pelvic Support Osteotomy After Type IVA Septic Arthritis of the Hip

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ABSTRACT

Introduction: A misdiagnose and inadequate treatment of neonatal septic arthritis of the hip has multiple sequelae and causes a severe disability. The aim of this study is evaluation of treatment of residual deformity after type IVA neonatal septic arthritis of the hip by Pelvic support osteotomy. **Case presentation:** A 11-year-old, white girl, was treated surgically by pelvic support osteotomy. The patient underwent two surgical interventions. The first operation consists in lengthening of the left femur for 6 cm with monolateral lengthening external fixation device. The second operation consists in pelvic support osteotomy of the left femur and lengthening for 4 cm. The limb was well aligned after healing, with the axis aligned under the medial wall of the acetabulum. **Conclusion:** Pelvic support osteotomy can successfully correct a Trendelenburg-Duchenne gait and simultaneously restore knee alignment and correct lower-extremity length discrepancy.

Key words: Osteotomy, septic, arthritis, hip, pelvic.

1. PURPOSE

Septic arthritis of the hip joint in childhood is a bacterial infection of the synovium and subsequently of all the structures within the joint and represents a therapeutic emergency (1). The sequelae of septic arthritis of the hip in the newborn are diverse and represent a complex problem (2). Effective management of sequelae of septic hip in infancy still remains a challenging goal for the orthopedic surgeons (3-5). The pelvic support osteotomy is a double level osteotomy of the femur with the aim to stabilize the pelvis. We present a technique of the Ilizarov pelvic support osteotomy using internal fixation for proximal valgus osteotomy and monolateral external fixation technique for distal femoral osteotomy and elongation (6, 7, 8).

2. CASE PRESENTATION

Here we are presenting a very complex case of septic arthritis of the hip at neonatal period that was born in 1998 at term in a refugee camp in North Albania, after fleeing from Kosovo's War (4). Diagnosis and treatment of this case with neonatal septic arthritis of the hip was delayed due to lack of adequate diagnosis and treatment in such circumstances (3). The septic arthritis was diagnosed late after the war, after chondrolysis and osteolysis of femoral head. A 11-year-old girl suffered septic arthritis of the left hip at the neonatal period and presented now in our hospital with a painless limp, pelvic instability, positive Trendelenburg-Duchenne sign and with 10 cm of shortening of left femur. A useful radiographic classification of such sequelae has been given by Hunka et al and later modified by Choi et al. The hip was classified as Type IVA (destruc-

tion of the femoral head and neck, with small medial remnant of the neck) with severe limb-length discrepancy, acetabular dysplasia, premature closure of the triradiate cartilage, and marked proximal migration of the femur. Therefore, an pelvic support osteotomy was planned as only reasonable treatment option for improving the gait, equalization the length limb and functional stabilization of the left leg. Magnetic resonance imaging (MRI) was not done because the patient was not able to provide it. The patient underwent two surgical interventions. The first operation consist in lengthening of the left femur for 6cm with monolateral external fixator (6). The second opera-



Figure 1. X-ray of the hips at 8 years. Severe destruction of the femoral head and neck. Coxa breve with dislocated remnant of femoral head and neck.

tion consist in pelvic support osteotomy of the left femur and lengthening for 4 cm (7). The proximal subtrochanteric valgus extension osteotomy was fixed with special angulated plate and for the distal lengthening osteotomy monolateral external fixator was used. The external fixator was held for 5 months. The follow-up from the first surgery was 5 years. Outcomes were evaluated clinically and radiographically. The clinical evaluation included gait analysis and the use of a modified Harris hip score.



Figure 2. Postoperative X-Ray after pelvic support osteotomy and second lengthening of the femur.

3. RESULTS

The left lower limb was well aligned after healing, with the axis aligned under the medial wall of the acetabulum. Postoperative range of motion of the left hip was: flexion 80 degrees, abduction 20 degrees, adduction 15 degrees, internal rotation 20 degrees, and external rotation 25 degrees. Her leg lengths were brought within



Figure 3. Flexion of the left hip was limited in 80 degrees.

an acceptable range, and she had a negative Trendelenburg-Duchenne test at follow-up. At the time of follow-up, five years, the mean lower-extremity length discrepancy had improved from 10 cm before surgery to 0.5 cm. postoperatively. The modified Harris hip score had improved from 50 points to 72 points. The left lower extremity was well aligned, with a pelvic mechanical axis angle of 87 de-



Figure 4. Three years postoperatively remodeling of the proximal osteotomy site of the left femur because of remodeling potential.

grees. The deviation of the mechanical axis was 4 mm in a lateral direction.

4. CONCLUSION

Pelvic support osteotomy can successfully correct a Trendelenburg-Duchenne gait and simultaneously restore knee alignment and correct lower-extremity length discrepancy. When the procedure is performed on a young patient, remodeling of the proximal osteotomy site and improvement of lower-extremity length discrepancy should be expected. Adequate management of sequelae of septic arthritis in neonates still remains a challenging goal for orthopedic surgeon.

CONFLICT OF INTEREST: NONE DECLARED.

REFERENCES

1. Softic I, Sadic S, Custovic S. Septic arthritis in a ten day old newborn: How long to wait for articular drainage? *Paediatrics Today*. 2014; 10(1): 51-54.
2. Bytyqi C, Qorraj H, Bytyqi D. Treatment of neonatal septic arthritis sequelae of hip: a case report. *Cases Journal*. 2009; 2: 6332.
3. Rutz E, Spoerri M. Septic arthritis of the paediatric hip-A review of current diagnostic approaches and therapeutic concepts. *Acta Orthop Belg*. 2013; 79: 123-134.
4. O'Hanlan KP, Lerner EB. Post-war development of emergency medicine in Kosovo. *Emerg Med J*. 2007; 24: 18-21.
5. Choi IH, Pizzutillo PD, Bowen JR, Dragann R, Malhis T. Sequelae and reconstruction after septic arthritis of hip in infants. *J Bone Joint Surg Am*. 1990; 72: 1150-1165.
6. Inan M, Bowen RJ. A pelvic support osteotomy and femoral lengthening with monolateral fixator. *Clin Orthop Relat Res*. 2005 Nov; 440: 192-198.
7. Rozbruch SR, Paley D, Bhava A, Herzneberg JE. Ilizarov hip reconstruction of late sequelae of infantile hip infection. *J Bone Joint Surg Am*. 2005 May; 87(5): 1007-1018.