Rate of correction of angular deformities of the knee in skeletally immature patients by Eightplate temporary hemiepiphysiodesis

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Abstract:

Abstract Introduction: Angular deformities of the pediatric knees result in pain, gait disturbance, early joint degeneration, and cosmetic problems. Most of them are physiological and resolve spontaneously before the age of eight years. Persistent angular deformities must be corrected. Different methods are used to correct these deformities; Osteotomy, stapling, percutaneous drill technique and transphyseal screw. These all were reported with several complications. 8-Plate temporary hemiepiphysiodesis is a new idea yielding good results with less complications. The purpose of this study is to evaluate the rate of correction of angular deformities by eight-Plate hemiepiphysiodesis. Methods: twenty-three patients (50 physes, 35 limbs) underwent treatment between January 2016 and June 2017 with average follow-up after plate implantation of 8.2 months (range, 3 - 18 months). Rate of correction of this intervention was calculated. Results: Average age at eight-Plate implantation was 5.7 ± 3.1 years (age range, 3 years to 12 years). Mechanical tibiofemoral angle changed by an average 12.3° ± 7°, (range 3° to 26.67°) or 1.7° ± 1.1°/month, (range 0.14° to 4.5°/month). Mechanical lateral distal femoral angle changed by an average 8.6° ± 2.8° (range, 4° to 14°) or 1.3° ± 0.6°/month (range, 0.6° to 2°/month). Medial proximal tibial angle changed by an average 8.6° ± 6.1° (range, 3° to 20°) or 1° ± 0.7°/month (range, 0.4° to 2.6°/month). Conclusion: 8-Plate hemiepiphysiodesis is an effective method for correcting angular deformities of the knee in skeletally immature patients.

Keywords:

Eight-plate, Hemiepiphysiodesis, Guided growth, Knee angular deformities, Epiphysiodesis, Pediatric Knee

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