TRIPLANE SALTER HARRIS TYPE I AND III OF DISTAL FEMUR FRACTURE: A RARE FRACTURE PATTERN TREATED WITH OPEN REDUCTION AND POLY LEVOLACTIC ACID SCREW FIXATION

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Introduction: Triplane fracture is defined as fracture in the sagittal, coronal and axial planes and commonly described in distal tibial fracture. Fractures involving the distal femoral growth plate account for <1% of all fractures in children.

Discussion: A 10-years old girl presented with right knee pain and swelling following a motor vehicle accident. She is a healthy child with no co-morbid, her height is at the level of the mother's ear and she has not attained her menarche. The child is obese with BMI of 28.5. The right thigh and knee were deformed, swollen, and no open wounds. Plain radiograph of the right knee showed displaced intra-articular fracture of the lateral condyle of the right femur. CT scan showed peri-physeal fracture pattern in all 3 planes; distal femoral Salter-Harris type I physeal separation in the sagittal plane, inter-condylar Salter-Harris type III injury in axial plane, and displaced anterior half of the lateral femoral condyle in coronal plane. Under general anesthesia, an anterior lateral parapatellar approach was performed. The anterior fragment of the lateral condyle was reduced anatomically, and inter-fragmentary compression achieved with a cannulated 4.5 mm bioabsorbable poly-levolactic-acid (PLLA) screw. Then, the intercondylar fragment was anatomically reduced and fixed with two PLLA screws. Finally, the epiphysis was secured to the metaphysis with 2 Kirschner wires crossing the physis in a cross pattern and left embedded. An above-the-knee fiberglass cast was applied. K-wire removal and manipulation under anesthesia were done at 6 weeks. The gentle range of motion with progressive weight-bearing was allowed. At 9-month after the injury, the knee range of motion was 0 to 120 degrees and limb length was equal. Radiographic showed good alignment and union.

Conclusion: We emphasize the importance of anatomical reduction to reduce the risk of growth disturbance and the advantage of using PLLA screws in pediatric fracture.