Circular Frame foot Deformity Correction

Hatem A. Kotb¹ ¹Dr. Hatem Kotb INTRODUCTION:

Complex feet deformities decrease function and pose a challenge in management. Dynamic external fixation is a known tool in the correction of complex feet deformities. We report long term follow up of circular frame complex foot correction. METHODS:

Circular frame was used to correct severe neglected and relapsed idiopathic congenital club feet, paralytic feet, rocker bottom feet, deformed feet associated with syndromes, fibular and tibial hemimelia's, and post traumatic and burn deformities.

Patients were managed either by distraction osteotomies or soft tissue distraction (bloodless technique). Clinical, functional and radiographic evaluation was performed pre- and post-operatively.

Follow up results were graded according to Ognesyan et al., Classification. Functionally, mobility, walking distance, coping with peers, one leg stance and hopping were evaluated.

RESULTS:

69 annular frame operative procedures (14 were distraction osteotomies and 55 were by soft tissue distraction) were used to correct 62 deformed feet in 51 patients. 12 feet had additional surgical procedures. 35 were males.

Mean age at operation was 12.3 ± 8.2 years. The mean fixation time was 2.7 ± 1.1 months. All feet were initially corrected except two (frames were removed before achieving correction upon the request of parents or patient). During fixation, pin track infection was the most common complication, with no major complications.

Eight feet were excluded due to inadequate follow up data. In the remaining 54 feet the mean follow up was 14.9 ± 4.7 years. During follow up, 2 feet relapsed twice, and annular fixator was reapplied two times and 3 feet needed reapplication of fixator once. At last follow up, there has been an increase in function; mobility, full walking distance, one leg stance, hopping and coping with peers. And according to Ognesyan et al., Classification, 44 feet (81.5%) had good results (fully plantigrade), 8 feet (14.8%) had satisfactory results (not fully plantigrade) and 2 feet (3.7%) had unsatisfactory results (relapsed).

DISCUSSION AND CONCLUSION:

Dynamic circular external fixation is an effective tool for correction of relapsed and neglected complex foot deformities; it can correct foot deformities, improve functional outcome, avoiding serious complications.