Prophylactic Bypass double osteotomies in the Management of congenital Anterolateral Bowing of the Tibia

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INTRODUCTION:

Congenital anterolateral bowing of the tibia has the possibility of impending fracture and the development of pseudarthrosis of the tibia. Congenital pseudarthrosis of tibia is one of the most difficult orthopedic conditions to treat. Irrespective of the method of treatment used, results of all methods have been variable with high Refracture rates with all of the methods. The best management of such a case is to prevent the fracture from occurring. The purpose of this study was to evaluate the results of performing a prophylactic bypass Double osteotomies to correct the mechanical axis of the tibia to stop progression of the deformity and to prevent fracture and pseudarthrosis.

METHODS:

This technique was performed on 14 patients with Congenital anterolateral bowing of the tibia (Crawford type II) from June 2015 to Feb. 2021. With average age was 5.2±2.34 years. The main follow up was 6.3 years.

Radiological evaluation was performed using long film and the following parameters; mMPTA, mLDTA, PPTA, ADTA were assessed and the location and magnitude of the CORA were calculated, we ignored the true CORA which was located at the sclerotic unhealthy segment of the tibia and two oateotomies were performed one above and the other below the unhealthy segment. The fixation was done by three rings of circular external fixator. RESULTS:

All patients had a complete union of both osteotomies of the tibia with good alignment and leg length discrepancy, except in one patient reported refracture of the distal osteotomy .There was improvement of the mechanical axis of the tibia with the mean of mMPTA,mLDTA,PPTA, ADTA changed to (87),(87),(80),(.92) respectively. Complication with residual valgus deformity of the proximal tibia was reported in two cases and was treated later on with hemiepiphyseodesis by 8 plate. DISCUSSION AND CONCLUSION:

There are two facts about the natural history of the disease which are well known ; First, there is no chance of spontaneous correction of the bowing. Second, once a fracture has occurred, there is very low chance for spontaneous healing and even surgical intervention is associated with high failure rate, Therefore, all efforts should be directed to avoid bone breakage. The literature presents 2 well-known ways to prevent fractures: orthosis and prophylactic bypass grafting . They may be somewhat successful in preventing fracture but not in preventing the progression of deformity and development of secondary deformities. We believe it is important to correct the mechanical axis of the bone to stop progression of the deformity.

prophylactic bypass Double osteotomies for treatment of congenital anterolateral bowing of the tibia can correct the mechanical axis of the bone and reduce the moment on the deformed segment of the tibia to stop progression of the deformity and to prevent fracture and pseudarthrosis.