

Our Experience In Treating Chronic Osteomyelitis With Segmental Bone Defect Using Monorail And Ilizarov External Fixation In District Setting

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INTRODUCTION:

Distraction osteogenesis is one of the method in treating segmental bone defect after radical debridement of chronic osteomyelitis foci. The aim of this study was to summarize our experience with distraction osteogenesis performed using monorail and ilizarov external fixation for the treatment of bone defect and limb shortening resulting from radical debridement of chronic osteomyelitis.

METHODS:

Ten patients whose aged ranged from 15 to 51 years old (with mean age of 25 years old) underwent radical wound debridement resulting from chronic osteomyelitis of femur (5 patients) and tibia (5 patients). The segmental bone defect was then reconstructed with distraction osteogenesis technique by using monorail (7 patients) and ilizarov devices (3 patients); done either with bone transport (3 patients) or lengthening method (7 patients). All patients required bone graft added to the distraction site for acceleration of consolidation period, where 4 patients were added with synthetic bone graft. Risk factors affecting bone union were identified, which are open fracture (5 patients) and smoking (2 patients). Throughout the process, patients experienced complications such as delayed consolidation (4), non-union at docking site (6), malunion (4), infected bone graft donor site (1), revision of fixation(4), pin site infection (3), limb length discrepancy (3), and joint stiffness (2) after the distraction. At the end of follow-up, range of motion of joint involved and radiological assessment were evaluated.

RESULTS:

The mean segmental bone defect was 7.6 cm (range 4-17 cm) in femur and 5.6 cm (range (4-7 cm) in tibia. Therefore, 1mm distraction done daily according to each length of bone loss.

Consolidation period for ilizarov cases are around 6 months (4-10 months), while monorail cases are 13 months (9-19 months). Patients with ilizarov are kept non-weight bearing around 8-17 months (mean 12 months), while monorail patients 5-19 months (mean 7 months) with joint mobilization exercises. Partial weight bearing is started around 12-21 months (mean 15 months) in ilizarov group and 7-29 months (mean 17 months) in monorail group from date of fixation, prior allowing full weight bearing. Among the common organisms found in this study are Staphylococcus Aureus (4 patients), Pseudomonas Aerugenosa (2 patients), others such as Acinetobacter Baumanii, Enterococcus Faecalis and Methycillin Resistant Staphylococcus Aureus (1 patient respectively). At the same time, 4 patients had no growth at all.

DISCUSSIONS:

Patients with monorail group were more comfortable with less postoperative pain and more compliant to treatment, compared to ilizarov group. However, early weight bearing and consolidation are better seen in ilizarov group, hence reducing length of fixation and treatment.

CONCLUSION:

The monorail and ilizarov fixation are quite versatile tools in the armamentarium of orthopaedic surgeon and one of the best option for the treatment of bone loss or gap, limb length discrepancy and deformity simultaneously.

REFERENCES:

1. Chandra PP et. al. Comparative study of the results of compound tibial shaft fractures treated by Ilizarov ring fixators and limb reconstruction system fixators 2015; Chinese Journal of Traumatology 18 (2015) 347e351