

TREATMENT OF HUMERUS NON-UNION USING MONORAIL GRADUAL COMPRESSION: A CASE SERIES.

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Introduction: Eventhough the incidence of humerus non-union is uncommon, the treatment still pose a great challenge to orthopaedic surgeons. In our experience, humerus non-union causes pseudoarthrosis and upper limb disability. The current trend of management is to use compression plating and autologous bone grafting, however the rate of post-operative non-union still persist likely due to the absence of axial loading. Here, we successfully treated 3 patients using monorail external fixator combined with gradual compression to achieve bone union. Thus we advocate this novel method to promote bone union and consolidation in cases of humerus non-union, without the need of compression plating.

Discussion: We present three patients who had post-traumatic humerus non-union, aged 36 (midshaft), 25 (proximal third), and 66 years old (distal third). They were subjected to bone chipping, monorail external fixator and gradual compression over a period of 10 days at a rate of 1mm/day to mimic the axial loading. All three had successful bone consolidation at 12 weeks post-operatively, early removal of monorail and restored good upper limb functions. This report will further discuss on the challenges using this method, consolidation rates, and comparison to other internal implants to manage humerus non-union.

Conclusion: The use of monorail gradual compression is sparsely described in the literature. It is a novel method of managing complex, long-standing humerus non-union, without the need of compression plating or bulky Ilizarov external fixator. This method is also evidently able to restore good upper limb function, alleviate pain through out the treatment, and ultimately improves the quality of life.