

## Severe Rigid Equinovarus Deformity Correction using Multiplanar Hexapodal Ring Fixator: A Success Story

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### INTRODUCTION:

Acquired ankle equinus deformity can arise from severe traumatic injury or soft tissue infection. Various surgical techniques such as osteotomies, talectomy, and arthrodesis have been used for open acute correction. However, there are concerns about the risk of skin complications, neurologic alterations, secondary limb discrepancy, and bone loss. To mitigate them, gradual correction using a multiplanar ring fixator has been suggested as an alternative.

### CASE REPORT:

A 35-year-old male patient with newly-diagnosed Type 2 Diabetes Mellitus was referred to us with a rigid equinovarus deformity on his right lower limb. He had previously undergone multiple extensive debridements due to necrotising fasciitis, resulting in a non-healing wound with exposed bone. Consequently, a severe equinovarus deformity developed in the ensuing 1-year period, illustrated in Fig. 1A and 1B.



Fig. 1A (left): Right lower limb severe rigid equinovarus, Fig. 1B (right): Radiograph to assess equinus angle and apex

The patient underwent gradual correction of the equinus deformity using TL-Hex multiplanar ring fixator, consisting of a proximal double ring at distal tibia and a foot plate parallel to the sole adjoined with 6 hexapodal struts. (Fig.2) The correction was programmed at a rate of 1mm/day using the TL-Hex software to achieve plantigrade hindfoot. The wound condition had improved post-operatively within 6 weeks post-application.

The correction of severe rigid equinus using a multiplanar ring fixator is challenging but effective. It can achieve a plantigrade foot within 5-6 weeks<sup>(1)</sup>, and avoids the steeper learning curve associated with a classic Ilizarov frame as the 6-strut configuration eliminates the need for meticulously placed hinges<sup>(1,2)</sup>.

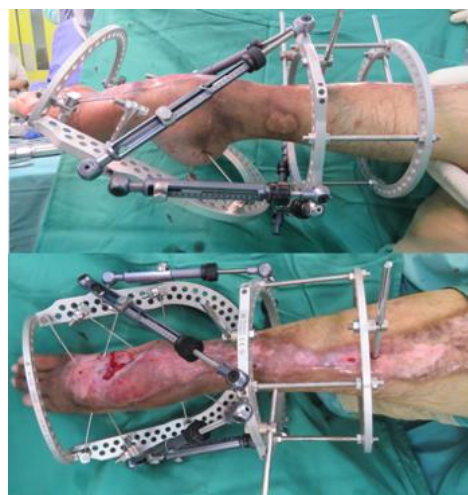


Fig. 2: TL-hex ankle frame construct

### CONCLUSION:

In conclusion, the usage of TL-Hex has demonstrated outstanding functional, radiological, and satisfaction outcomes for the patient in this study.

### REFERENCES:

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2. Ferreira RC, Costa MT, Lotti C, Pistorello L. Minimally invasive surgery using the circular external fixator to correct neglected severe stiff equinovarus foot deformities. *Foot Ankle Orthop.* 2018