

Deformity correction (upper tibial bone defect due to osteomyelitis) in lower limb using Ilizarov technique

Abstract

Here we are presenting a massive bone defect of upper tibia and 7 cm limb length discrepancy due to long standing osteomyelitis, which was treated successfully using Ilizarov technique and frame.

Keywords: non-union, deformity, osteomyelitis, Ilizarov

Volume 12 Issue 5 - 2020

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Received: October 12, 2020 | **Published:** October 30, 2020

Brief clinical history

A 21 years old female suffered from osteomyelitis of the left Tibia at the age of 7 and underwent 4 operations up to the age of 12. At 17

years she experienced severe left knee pain with limping gait while walking without any prior event and was referred to Bari-Ilizarov Orthopaedic Centre for treatment.

Preoperative clinical photos and radiographs (Figures 1–7)

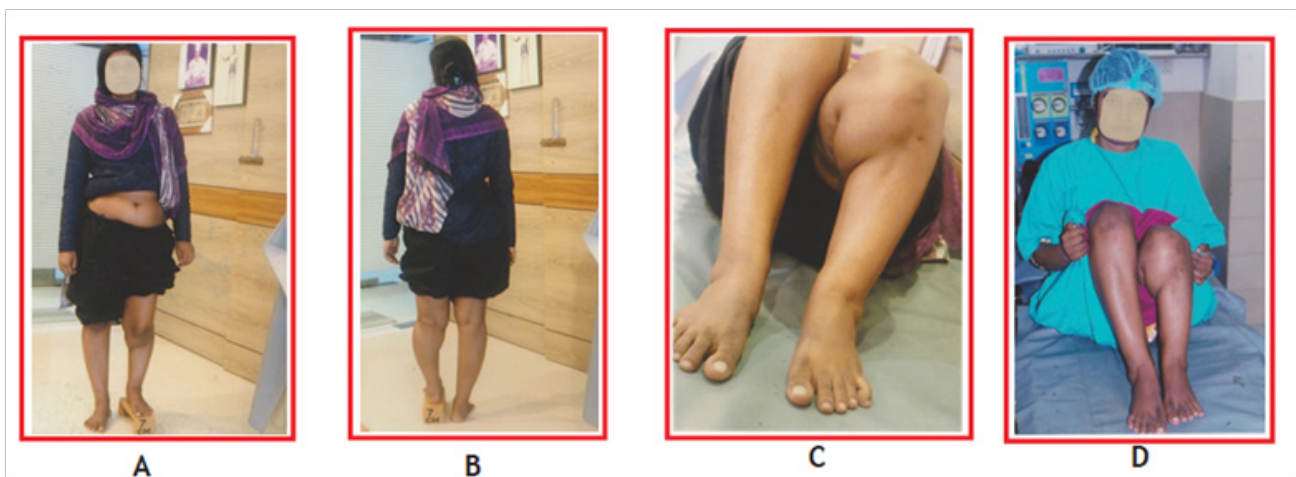


Figure 1 Preoperative clinical photos.

Pre-operative problem list

- Massive bone defect.
- 7cm. limb length discrepancy.
- Deformity.

Treatment strategy

Two or three steps surgery is sometimes needed for deformity correction and limb lengthening using Ilizarov technique, which is a

fantastic tool for this kind of difficult deformities.¹⁻⁵

Step 1: Deformity correction and limb lengthening using Ilizarov technique of distraction histoneogenesis.

Step 2: Osteotomy of fibular true apex deformity and migrated proximal part is pulled down and fixed with olive wire.

Step 3: Two level corticotomy and lengthening of tibia and to achieve union in the proximal tibia.

Step 4: No bone graft is needed.

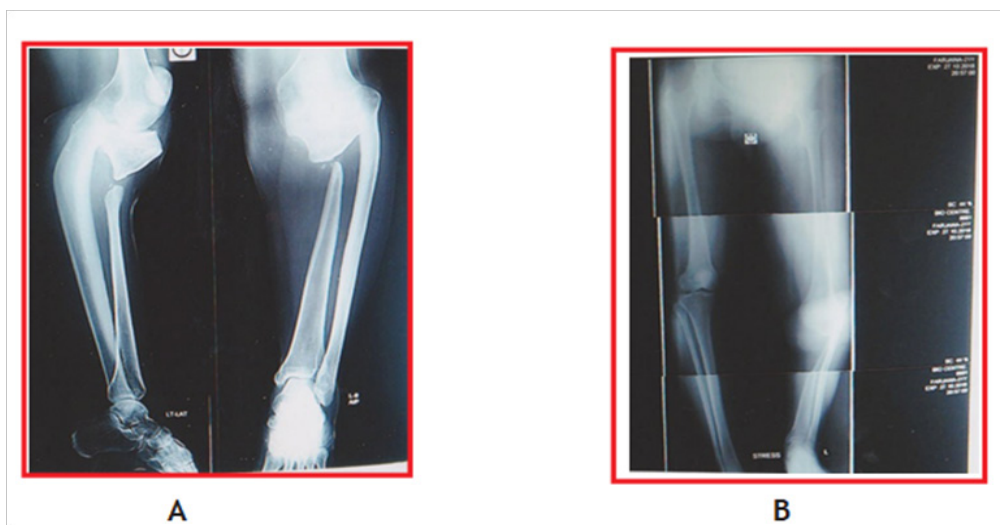


Figure 2 Preoperative radiographs.

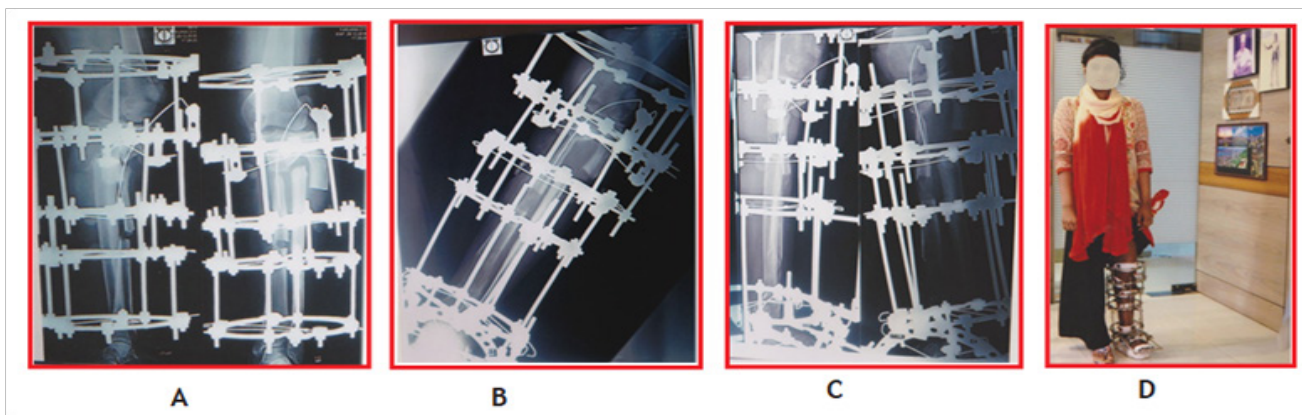


Figure 3 Placement of Ilizarov frame.

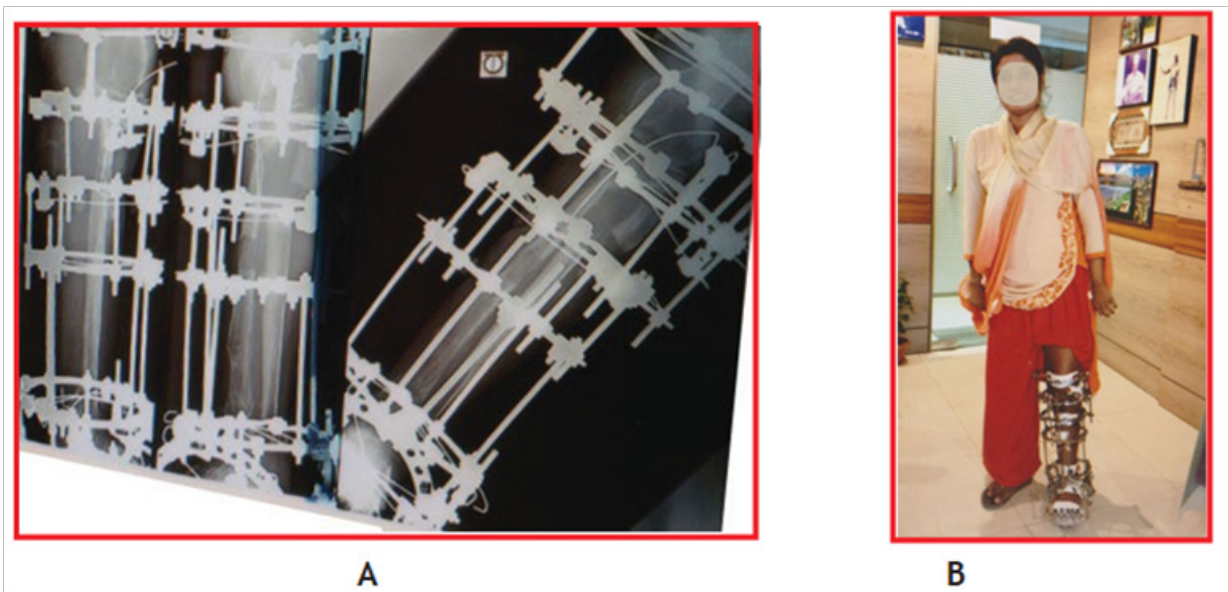


Figure 4 After deformity correction and lengthening of tibia at 2 levels.

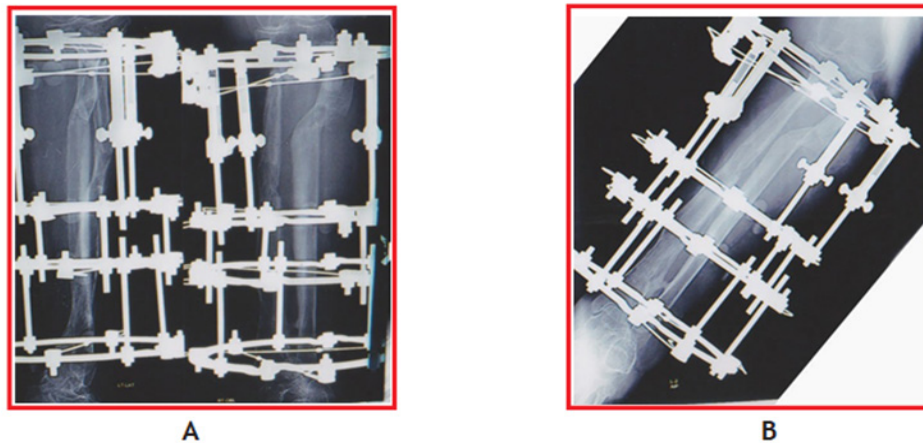


Figure 5 Radiograph of corrected tibial gap and deformity with full consolidation and Ilizarov apparatus in situ.

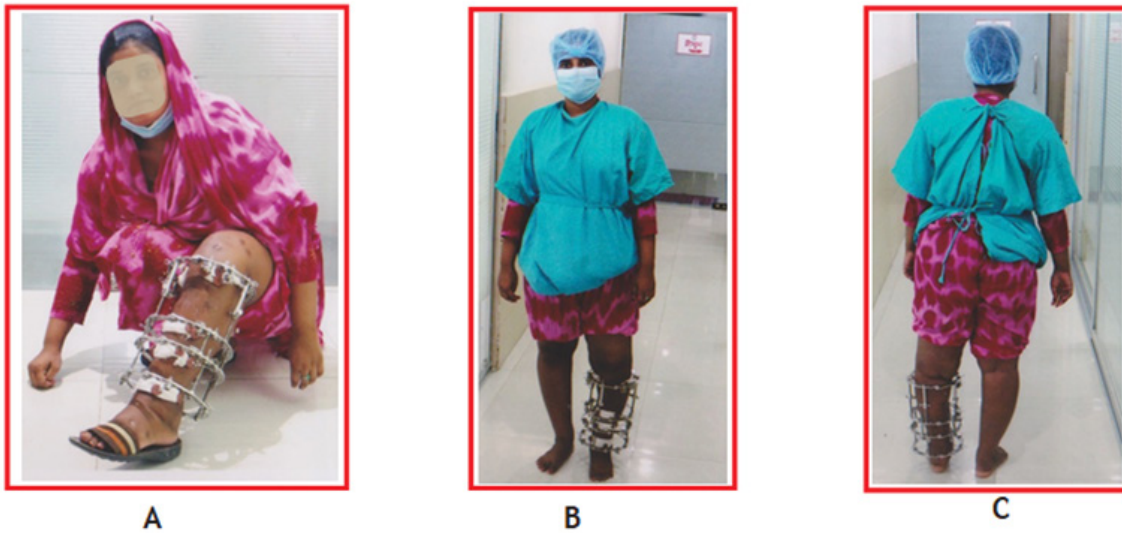


Figure 6 Before dismantling the Ilizarov frame, patient is in smiling mood in COVID-19.



Figure 7 Final Radiograph after removal of the frame of tibia fibula with full correction of the deformity and non-union.

Ilizarov's principles

Slow and steady traction on a living tissue creates a stress and which is metabolically activated and which stimulates histoneogenesis. Hypertrophic migrated fibula is osteotomized in the true apex of the deformity and proximal part is pulled down and is fixed with olive wire and with small incision nonunion site is opened and a guide wire is introduced in between the two fragments to maintain the alignment and axis. Two level corticotomy is done to achieve union and lengthening.⁶⁻¹⁰

Avoiding and managing problems

Massive bone defect, LLD and deformity can be simultaneously corrected by Ilizarov technique. To avoid any problems, Ilizarov ring construction should be planned elaborately and cautiously before performing the surgical intervention.

Acknowledgments

None.

Conflicts of interest

The authors declare there are no conflicts of interest.

Funding

None.

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