



# **TIBIALIZATION OF FIBULA, CONQUERING TIBIA NONUNION WITH LARGE BONY DEFECT**

**PRESENTER: NOORHUDA ABDUL MUTALIF**

NOORHUDA AM<sup>1</sup>, MOHD HAZRUL HAZWAN BH<sup>2</sup>, SHANMUGAPRAGASH G<sup>3</sup>, MUHAMMAD LUQMAN N<sup>4</sup>,  
NAZRI MY<sup>6</sup>, AHMAD FADZLI S<sup>6</sup>, AKMAL AZIM AA<sup>7</sup>

1-6 ORTHOPAEDIC, TRAUMATOLOGY & REHABILITATION DEPARTMENT, SULTAN AHMAD SHAH MEDICAL  
CENTER, MALAYSIA.

7 PLASTIC AND RECONSTRUCTIVE SURGERY UNIT, SULTAN AHMAD SHAH MEDICAL CENTER, MALAYSIA

## HISTORY

47-year-old lady presenting with history of right tibia fracture in childhood, that was complicated with osteomyelitis at the age of 3 years old.

She had multiple debridement done resulting with bone loss.

She had recent acute trauma to the right knee, and worsening bowing of the right leg which brought her to the attention of reconstructive orthopaedic surgery team.

## EXAMINATION

On examination, she is walking with a short limp gait.

There were longitudinal scars over anteromedial and lateral aspect of the leg.

The right knee is hyperextended at about 10 degrees with valgus deformity and multi ligamentous laxity.

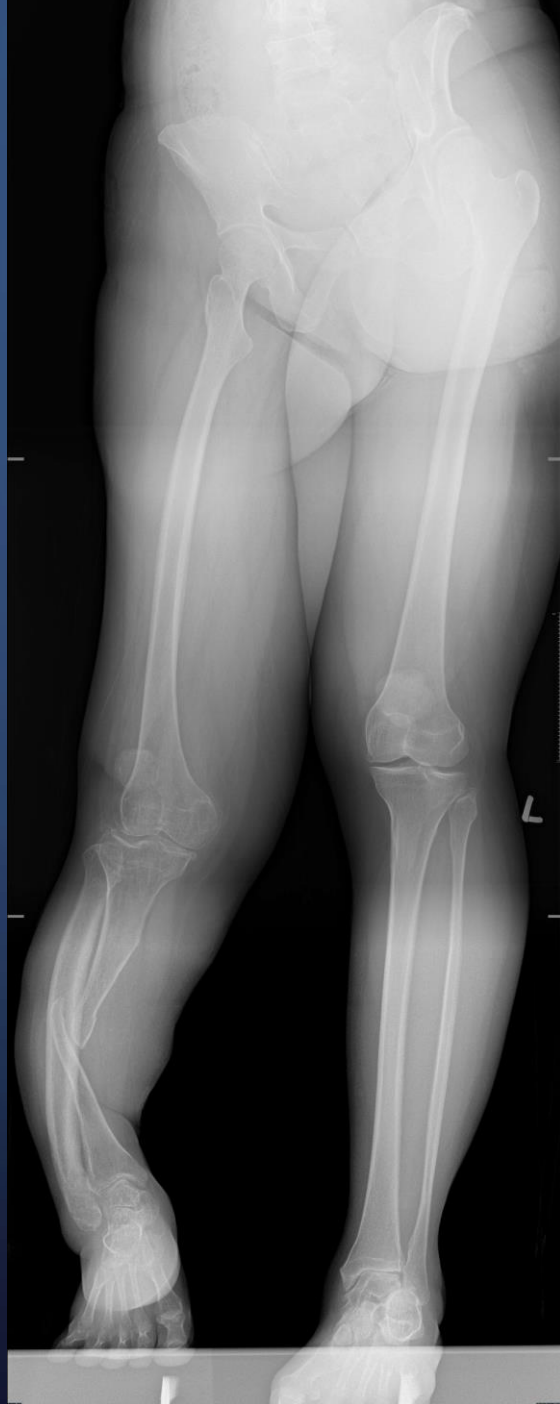
The right tibia is 10cm short.

The right ankle is in fixed equinus.



Xray at presentation

Radiographic examination revealed atrophic non-union of midshaft right tibia, hypertrophic right fibula, and anterolateral bowing of the fibula. Diameter of fibula is comparable to diameter of mid-diaphysis of tibia



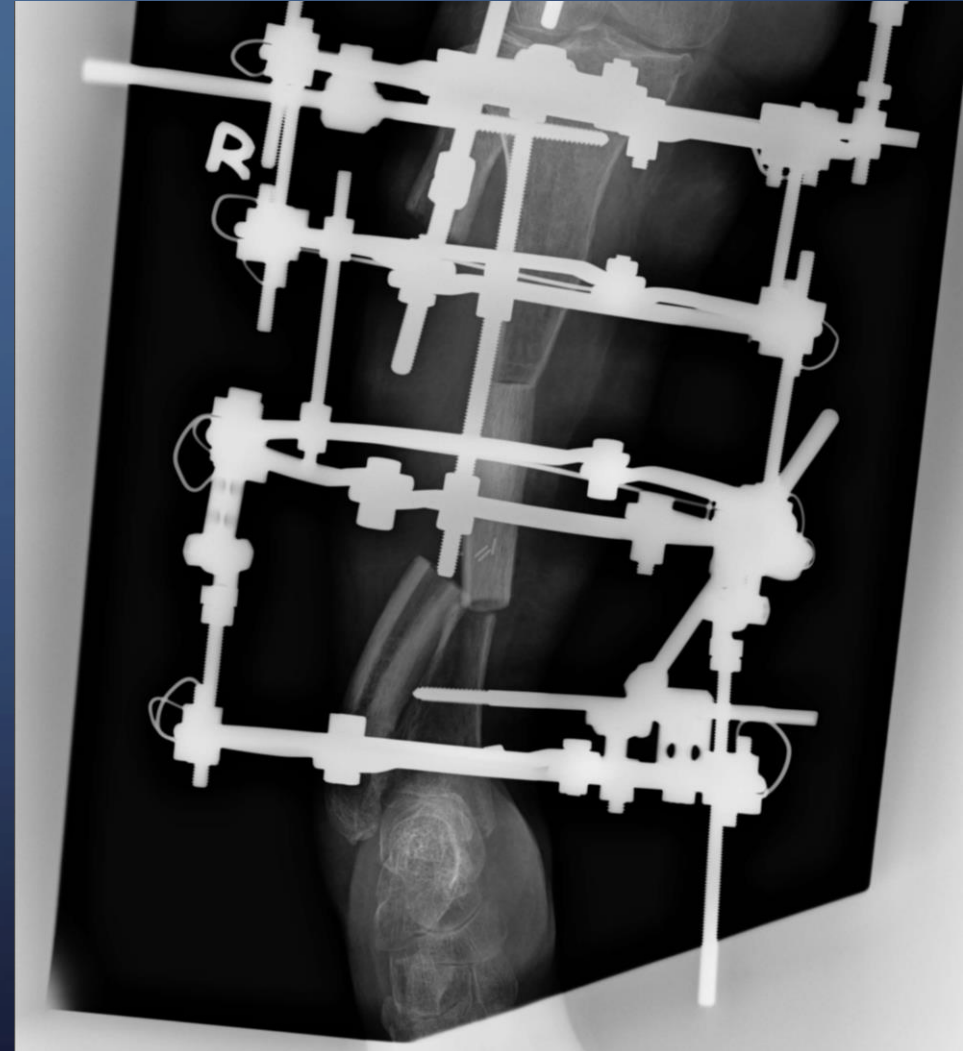
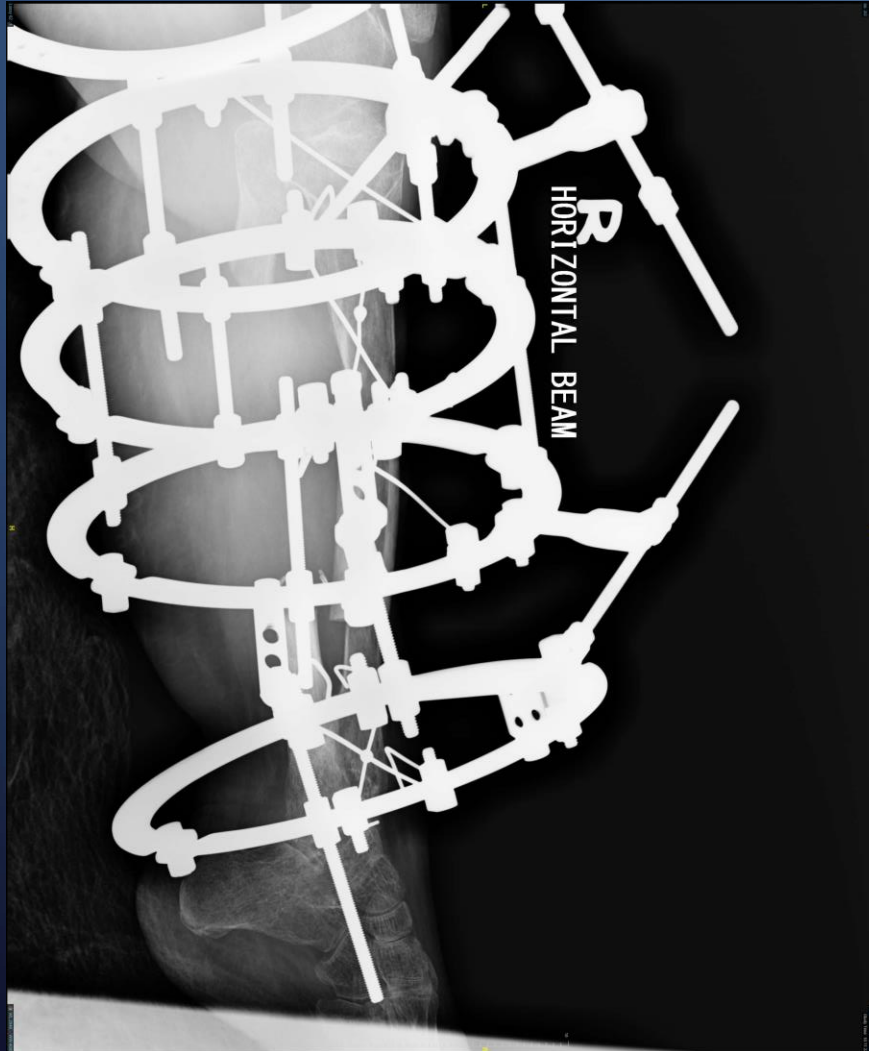
Long limb view at presentation:

No deformities over pelvis, bilateral femur and left tibia/fibula

Obvious shortening of the right tibia with varus angulation of right tibia

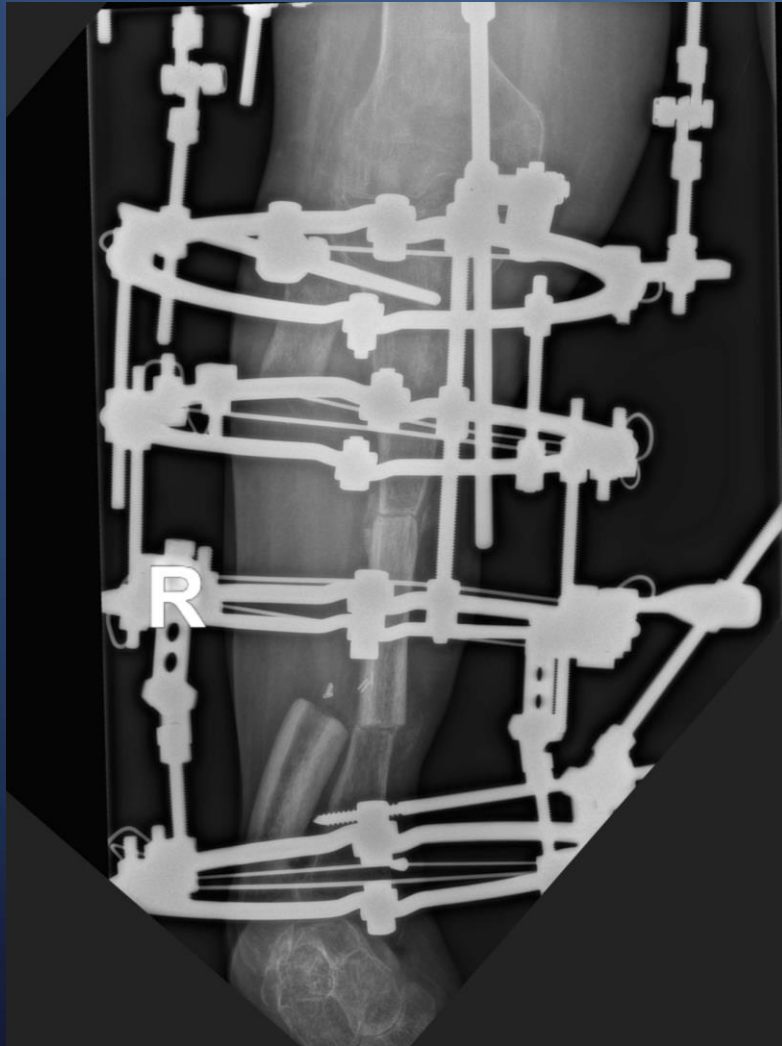
Patient standing tip-toeing over right lower limb

7cm vascularised fibula graft was transposed onto the right tibia and stabilized using 2mm intramedullary Kirschner wire temporarily and Ilizarov external fixator, considering poor soft tissue condition





Bony union was expedite using iliac bone graft 2 months later



Union achieved well within 1 year from surgery

TA percutaneous lengthening done



PRE



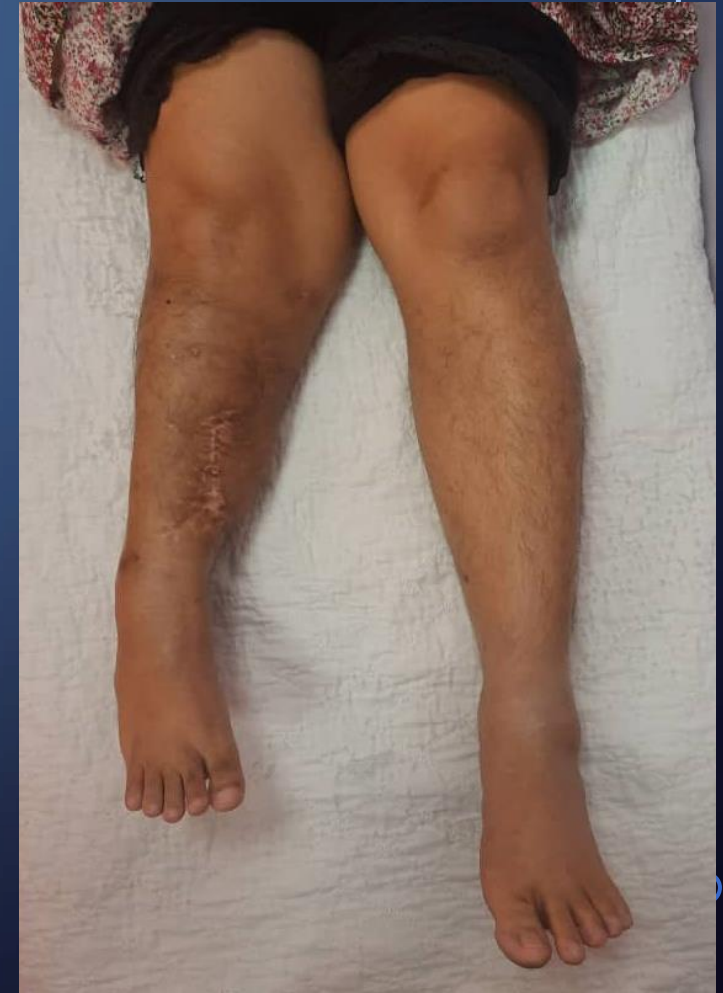
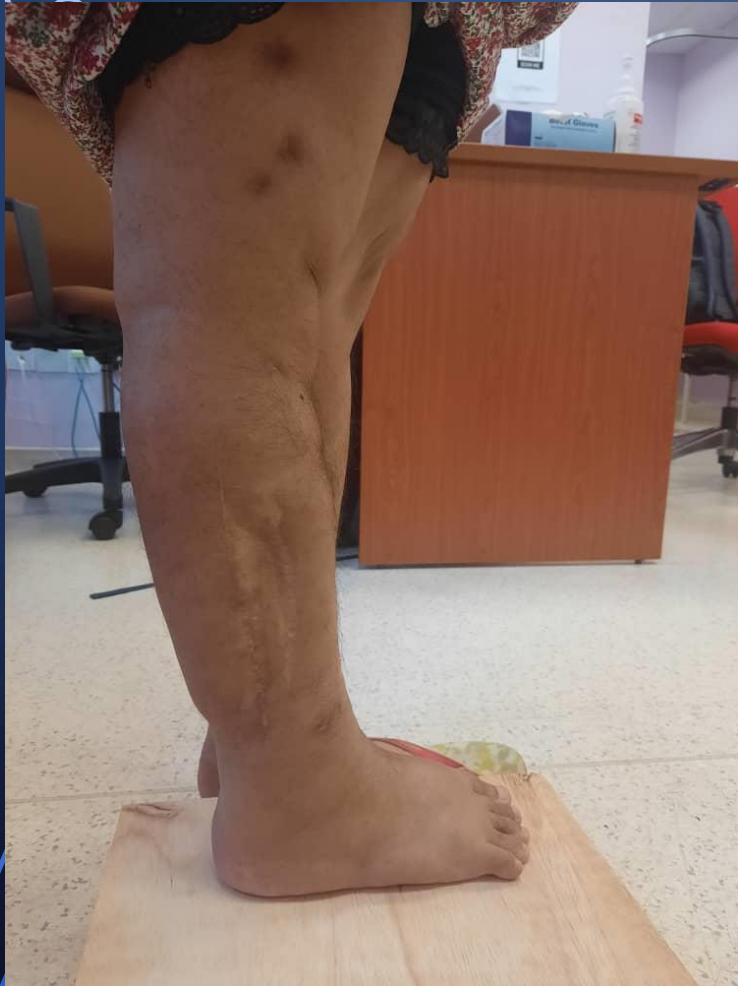
POST



Malunited and short  
right tibia – for second  
stage correction



## RECENT CLINICAL PICTURES



## CONCLUSION

- A better functional outcome could have been achieved following a limb lengthening procedure once union achieved, which patient refused.
- The utilization of hypertrophied vascularized fibular graft in conjunction with Ilizarov external fixator provides excellent mechanical and biological advantage.
- Ipsilateral fibula graft avoided morbidity to the contralateral limb.
- A good opportunity seized in managing a longstanding tibia non-union with large bony defect in adult patient.

The background is a dark blue gradient. In the four corners, there are white line-art illustrations of circuit boards or neural networks. These designs consist of straight lines of varying lengths that connect to small white circles, resembling nodes or components in a network.

Corresponding author emails:

[mshuda88@gmail.com](mailto:mshuda88@gmail.com)

[nazriyusof@iiium.edu.my](mailto:nazriyusof@iiium.edu.my)