

HIGH TIBIAL OSTEOTOMY & GUIDE



Tibia Limb Correction Guide

About case



Anterior View



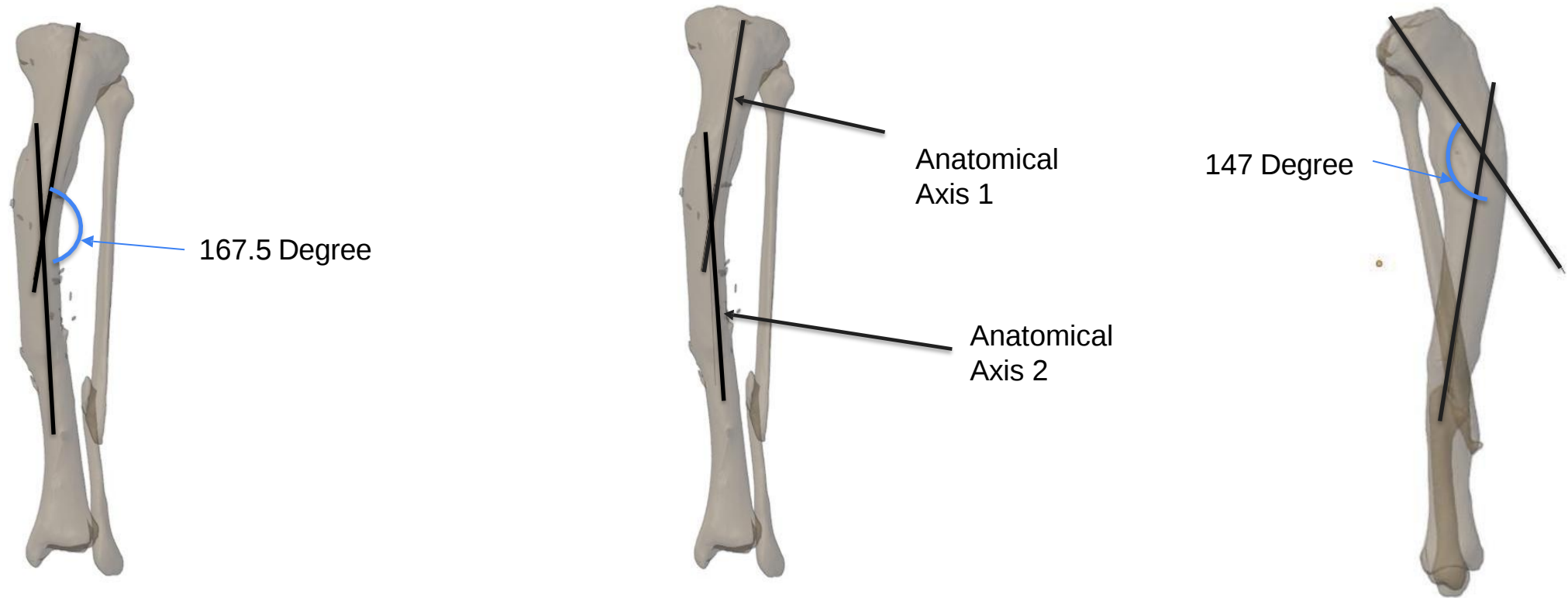
Lateral View



Medial View

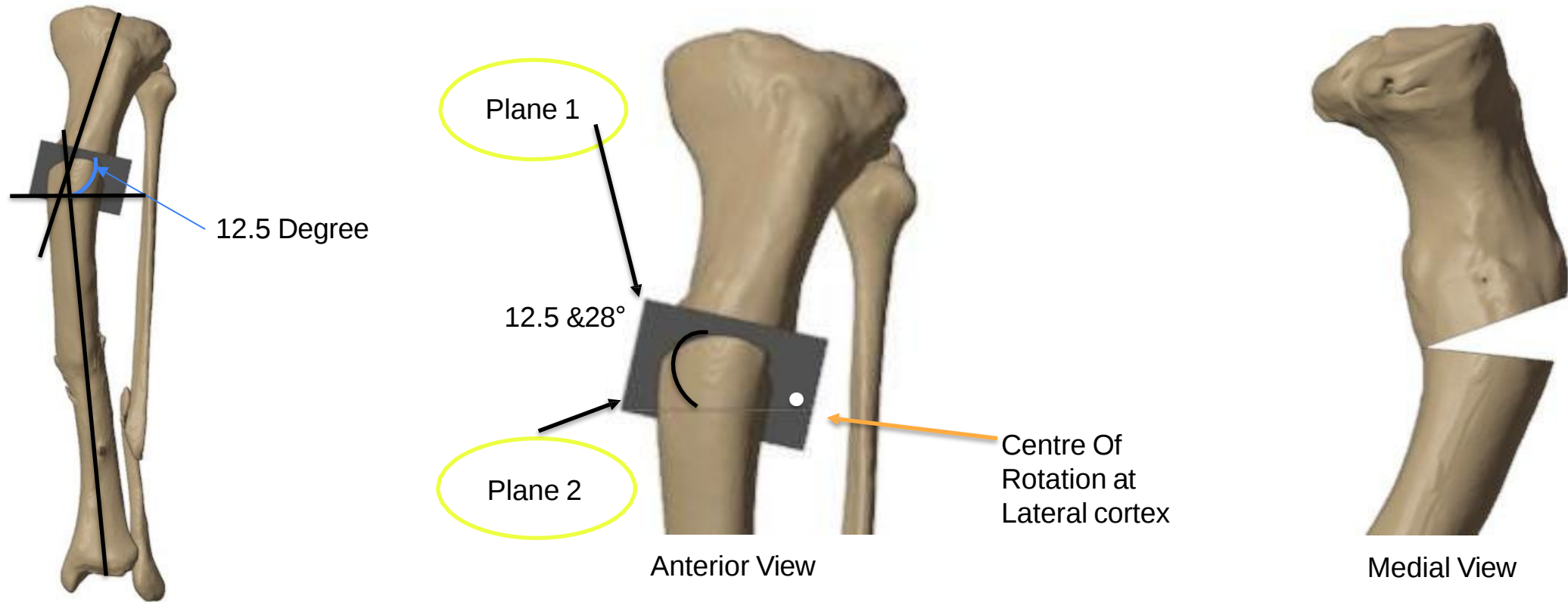
- A 20-year-old male patient presented with progressive pain in the left leg, difficulty in walking, and a visible lower limb deformity.
- CT imaging and 3D reconstruction revealed a post-traumatic deformity of the left leg, enabling accurate surgical planning and the design of a patient-specific cutting guide for precise osteotomy

Clinical challenges



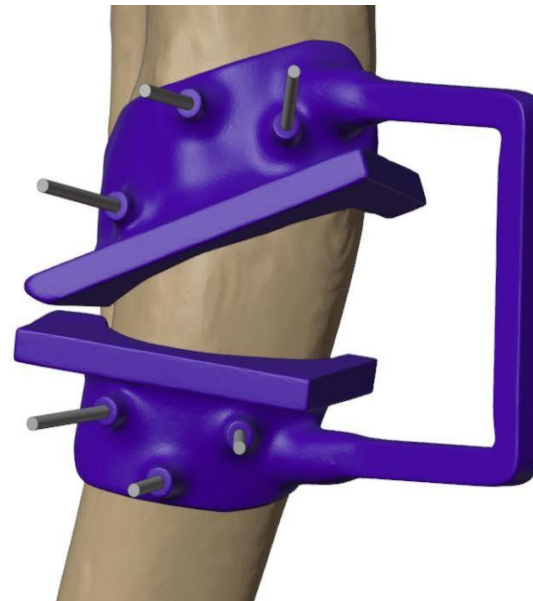
- The deformity required precise correction in multiple planes to restore normal alignment while maintaining limb length and rotational orientation.
- Prior tibial nailing and Ilizarov treatment altered the native anatomy, making conventional intraoperative assessment challenging.
- Previous high-energy trauma resulted in malunion and mechanical axis deviation, causing abnormal load distribution across the limb

Strategic planning beyond standard solutions

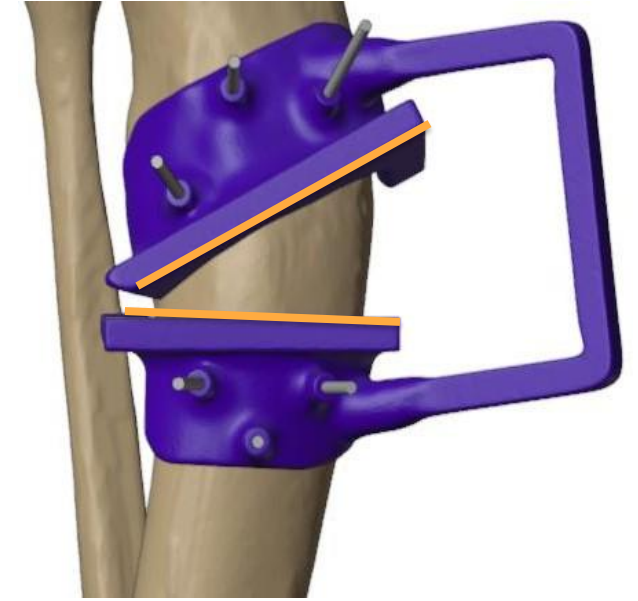


- The guide was engineered to conform precisely to the patient's bony anatomy, ensuring accurate intraoperative placement.
- Predefined osteotomy orientation and fixation strategy streamlined surgical execution and improved operating room efficiency.
- The guide minimized intraoperative guesswork and helped reproduce the virtual surgical plan with high precision.

Precision Through Case Planning – Cutting jig



K-Wire Placement



Cutting Plane

- To accurately execute the planned correction, a patient-specific 3D-printed cutting jig was designed based on the patient's CT scan and virtual surgical plan. The custom guide was tailored to fit the unique anatomy of the patient's left tibia, ensuring precise placement during surgery.
- The guide enabled accurate execution of the osteotomy at the planned location and correction angle, ensuring that the preoperative plan was translated reliably into surgery.

Clinical outcomes



- 3D virtual surgical planning combined with a patient-specific cutting jig enabled precise correction of a complex post-traumatic lower limb deformity, translating preoperative planning into accurate surgical execution while improving alignment, efficiency, and patient outcomes.