

## Two Is Better Than One: Orthogonal Biplating Construct For Complex Distal Femur Metaphyseal Fractures

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### INTRODUCTION:

Distal femoral fractures accounts for 3-6% of all femoral fractures with bimodal distribution accounting for patients above 60 years old which includes both osteoporotic fractures or periprosthetic fractures, and high energy trauma involving motor vehicle accidents in the younger population. The main stay of treatment is no different from treating any other fractures which includes stable fixation, early mobilization and early return to function. In some complex fractures may pose a challenge in surgical decision such as choosing the appropriate approach, implants and fracture fixation construct.

### REPORT:

We report a case involving a 36 year-old-gentleman, who was involved in a high energy trauma in which his right knee collided with a road divider. Post trauma, the patient presented to the emergency department with an open fracture right supracondylar femur with intercondylar split (Gustillo Anderson Class 3A). The patient underwent emergency surgical debridement via midline approach to the knee and a high tibial pin insertion for temporary traction. A computed tomography scan was done for preoperative fracture fixation planning. On post trauma day 10, the patient had underwent open reduction and internal fixation via previous midline approach to the knee with a biplating distal femur LCP with an orthogonal construct and bone substitute insertion for the void metaphysis. On the 2<sup>nd</sup> post operative day, patient was taught bedside knee range of motion exercise and was discharged well. At one month post operatively, wound was well healed but the range of motion of right knee was limited and stiff as patient did not adhere to strict physiotherapy. Strict physiotherapy follow ups focusing on quadriceps strengthening and range of motion

exercises enabled the patient to achieve 0-90 degree flexion at the 2nd month post operatively. Callus was evident on x-ray and patient was allowed partial weight bearing with crutches. At the 3<sup>rd</sup> month of follow up, the patient was able to achieve 0-110 degree of active knee flexion with both clinical and radiographic union, hence was allowed light duty and subsequently returning to his daily activities.



**Figure 1:** CT right knee (left) and xray post operation (middle, right)



**Figure 2:** Physical photo of patient on ROM of right knee during 2<sup>nd</sup> month follow up

### CONCLUSION:

Orthogonal biplating construct is an option to provide stable fracture fixation in complex distal femur fractures. A stable fracture fixation facilitated with focused early aggressive physiotherapy provides good functional outcome.

### REFERENCES:

Stoffel, K., Sommer, C., Lee, M., Zhu, T. Y., Schwieger, K., & Finkemeier, C. G. (2022). Double fixation for complex distal femoral fractures. *EFORT Open Reviews*, 7(4), 274-286. <http://doi.org/10.1530/eor-21-0113>