New Techniques and Emerging Evidence #NT13

Hip and Femur

Photodynamic Bone Stabilization Device as Construct Augmentation in Geriatric Femur Fractures

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Purpose: The photodynamic bone stabilization device (PBSD) implant IlluminOss has gained attraction for percutaneous and intramedullary application in geriatric fracture care. Early applications have mostly been in non-weightbearing upper extremity injuries with relative success, but minimal lower extremity applications have been described. In the current study we review our experience augmenting geriatric femur fractures using the PBSD implant.

Methods: We performed retrospective chart review at a Level I academic trauma center of adults >65 years old who sustained periprosthetic or distal femur fractures treated with standard lateral locking plate and intramedullary PBSD augmentation. Patients had to have at least 3 months of radiographic follow-up to be included in the study. Primary outcome measurements included reoperation rate, Radiographic Union Scale for Tibia fractures (RUST) extrapolated to femur fractures, and complications.

Results: The average age was 79.0 ± 9.5 years with average follow-up of 7.3 ± 4.2 months. There were 6 interprosthetic, 6 distal periprosthetic, 4 proximal periprosthetic (Vancouver C), and 1 supracondylar femur fractures. Nine patients were immediately weightbearing versus 8 who were non-weightbearing secondary to concomitant injuries or intra-articular extension. At 3 months the average RUST score was 7.8 ± 2.3, which progressed to 10.7 ± 2.2 at final follow-up. There was 1 reoperation for a superficial hematoma.

Conclusion: In our series PBSD-augmented femur fractures all went on to union without complications or reoperations related to the PBSD implant. This study demonstrates successful use of PBSD IlluminOss as augmentation in geriatric femur fractures.