

Perbandingan stabilitas fiksasi interna antara unilateral lokal clover plate dengan sistem locking dan double plating pada fiksasi fraktur bicondylar tibial plateau: penelitian eksperimental dengan model tulang artificial

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Abstrak

Background data: The treatment of bicondylar tibia plateau fractures remains controversial. Lateral buttress plate and medial antiglide is favored by AOIASIF. Recently treatment of this fracture by less invasive stabilization system in the lateral side by using locked screw plate was gained acceptances by many surgeons. In Cipto Mangunkusumo Hospital local locked clover plate was designed, which is given better economics solutions.

Objective: To compare the fixation stability between single lateral local locking plate and double plating system that using lateral buttress and medial antiglide in the treatment of bicondylar tibial plateau fracture.

Design: One model (Synbone 1110, normal bone quality) tibia was used. Bicondylar tibia fracture model that design by Horwitz was used. Invite biomechanical axial loading, tested to the both group was tested.

Intervention: Five pairs of fracture model was used. Stabilization using lateral buttress/medial antiglide one third tubular in one group and unilateral local locking Clover plate (LCP) in other group. Five vertical loads levels were used (150 N, 300 N, 450 N, 600N and 750N). Irreversible (plastic) deformation was the main parameter of interest.

Main out come measures: Irreversible (plastic) deformation was the main parameter of interest. Failure was defined as more than 5 mm displacement in the particular surface in medial condyle.

Result: Vertical subsidence depended on the applied load but not on the method of fixation. The displacement of medial plateau was recorded. With confidence interval 95%, and P less than 0,05 was statistically significance. All the displacement was statistically no significantly difference $P > 0,05$ in five different level even the mean displacement was higher in the same loading in the local locked clover plate.

Conclusion: Single lateral local locked clover plate could give good stability in the treatment of bicondylar tibial plateau fracture that statistically no difference to double plating which using lateral buttress and medial antiglide, even though still need further investigation.