Reviewer's report

Title: Assessment of a Novel Biomechanical Fracture Model for Distal Radius Fractures

Version: 1 Date: 5 June 2012

Reviewer: Toshiyasu Nakamura

Reviewer's report:

Assessment of a novel biomechanical fracture model for distal radius fractures

The authors tried to establish a more clinically similar model to distal radius fracture in biomechanical cadaver model in this manuscript. For this purpose, they used polyaxial volar locking plate to fix the smaller fragment instead of conventional larger "gold standard" fracture model. They claimed that their novel model indicated a smaller amount of stiffness and larger translation with load applied than conventional model.

As the authors did not mention about the fixation angle of screws with relative to the plate and this reviewer considers that this difference between the novel and conventional model did come from fixation force between the screws and plate, i.e. the novel model required more oblique fixation of the screws than more vertical fixation in conventional model. Please clarify this.

Did the amount of the fragment influence to loss of stiffness in the novel model? Smaller amount of the fragment decreased total friction between the fragment and plate. The conventional model has larger bone mass which indicated larger friction force between the fragment and the plate. Please explain.

Background, line 15, page 3, this sentence needs reference (maybe 19).

Materials and Methods, line 12, page 6. The authors used t-test for comparison. Multiple comparison needs one-way ANOVA.

Discussion

Limitation of the study is usually stated in the last or second last paragraph. Please revise.

Please state that future precise use of this model in biomechanical study in discussion session. If not, this reviewer cannot understand what the authors would like to claim.

Again, smaller fragment in this model may limit the selection of plate in biomechanical study. Only polyaxial locking plate can be used for this model or reduced screws can fix the smaller fragment in the conventional monoaxial locking plate. May this limit further variety of future studies?
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:
I declare that I have no competing interests' below