Reviewer’s report

Title: Establishment of Rat Ankle Post-Traumatic Osteoarthritis Model Induced by Malleolus Fracture

Version: 0 Date: 13 Jun 2017

Reviewer: John Albright

Reviewer's report:

This is a basic science study about arthritis model being produced in two-month old male SD rats randomized into two groups of 19. In one group, a malleolus fracture dislocation and immediate reduction was performed. In the other group the same fracture was also created without dislocation and the opposite ankle served as a non-operative control. Appropriate radiographic histologic studies were performed on all ankles demonstrating that all fractures were healed at 8 weeks post-surgery but there was evidence of osteoarthritis radiographically and histologically as well as histochemistry in both study groups in the fractured ankle. This study does provide a model for creating osteoarthritis in a joint that does not normally have arthritis in the clinical situation unless there has been a history of fracture. Therefore, it is a good basic model for future studies. This model however, does need some further description of a few areas to make it perfectly clear what was done, and exactly how there was no difference between groups. The most important feature is perhaps best covered with a pen and ink drawing of exactly where and what course the fracture took place. Furthermore, it is unclear to this reviewer if complete stability was gained at the time of surgery in either group. Certainly walking on a malleolar fracture in the human situation may lead to disaster depending on the location and angle of the fracture site.

Were these rats weight bearing at all post-surgery? Are the x-rays obtained that display joint space narrowing, are they weight bearing x-rays? Was there any deformity that occurred or should have occurred documented clinically or radiographically? In discussion, please cover the fact that rats have open growth plates and cover the implication positive or negative on using the rat as a model.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes
Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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