Reviewer’s report

Title: The biomechanical differences of rotational acetabular osteotomy, chiari osteotomy and shelf procedure in developmental dysplasia of hip

Version: 1 Date: 17 November 2013

Reviewer: Farzam Farahmand

Reviewer’s report:

This is a nice piece of work, addressing an important issue in orthopedics using a sound biomechanical methodology. The question in well defined and the methods are appropriate and well described. Also the results and discussion seem adequate in general.

Major comments:

1- I agree with the authors that the biomechanical studies on hip dysplasia procedures are rare. However, expect them to provide a short review of the existing literature, such as:

2- There is a need to describe the strain gauge measurements in more details. Where was the strain gauge attached to? To the articular cartilage, to a prosthetic femoral head, or what else? The strain gauges are usually sensitive to strains in the plane they are attached to. While here it seems that they have been used to evaluate the pressure that is applied to them perpendicularly. I am suspicious of the repeatability of the results of this type of application of strain gauges.

3- The use of terms “stress” and “strain” in the manuscript is misleading and not accurate. For instance in the abstract it is stated that “the stress around the femoral head was evaluated by strain gages”. Also, in Figure 4, the vertical axis is considered as relative stress while in the text it is obvious that it is a measure of relative strain.

Minor Comments:

1- In the caption of Figure 1, it is a motioning of femur prosthesis which seems irrelevant.

2- Some of the abbreviations used have not been previously defined in the
manuscript. For instance the term “EARO” in caption of Figure 3.

**Level of interest:** An article of outstanding merit and interest in its field

**Quality of written English:** Acceptable

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