Reviewer's report

Title: Implant Based Differences in Adverse Local Tissue Reaction in Failed Total Hip Arthroplasties: A Morphological and Immunohistochemical Study

Version: 1 Date: 11 June 2014

Reviewer: Marla Steinbeck

Reviewer's report:

This is a well-written manuscript on a subject that is of major interest. The statistical analyses are appropriate. There are a few minor concerns and only one major concern in regards to the immunohistochemical data.

Minor Essential Revisions

Introduction

1. Is the following sentence correct that no biologic testing was done before marketing? Is there a reference to support this statement? The unintended consequence of these implant modifications has been an increasing number of new interacting surfaces of different biomaterials, subject to short-term mechanical and no biologic testing before worldwide marketing and use.

2. In the sentence that starts with Retrieved periprosthetic tissue from affected patients… Did the authors mean to say abraded metallic debris rather than abrasion metallic debris?

Methods

3. In the sentence Between April 2012 and June 2013, all patients with the diagnosis of ALTR… How was the diagnosis made? What were the ALTRs for these patients?

4. What was the metal composition for the metallic sleeve in the Smith & Nephew MOM implant? This information should be provided.

5. Consider revising the following sentence; Exclusion criteria included previous revision… it isn’t clear what is meant by less than 5 blocks with > 75% necrosis.

6. Consider revising the sentence starting with Photographs of each implant… It isn’t clear what you mean by suitable.

Results

7. Why were numbers only provided for the DMN group?

Major Compulsory Revisions

8. My only major concern was how the immunopositive cell data was presented. Expressing the data as % positive/total cell number skews the results, as total cell number would include fibroblasts as well as immune cells. It would be more
appropriate to present the data as % positive/mm³ tissue area. This will most likely change the final outcome of the immunohistochemical results and conclusions.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.