Reviewer’s report

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

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Reviewer: Jiri Gallo

Reviewer’s report:

This manuscript describes tissue response in aseptically failed total hip arthroplasty (THA). As the authors mention, this is the first report presenting details of morphologic and immunohistochemical analysis of adverse local tissue reaction (ALTR) in two classes of THA prostheses, and therefore is of value. However, I have some points that should be addressed or corrected by them.

Major compulsory revisions

1. The authors present analysis of tissues retrieved from patients in whom the implant failed very early after the surgery especially in case of MoP/CoC (time to revision was 21.3±8.4 and 43.6±13.8 months in Dual-Modular Neck THA and MoM THA, respectively). After exclusion of infection it remains relatively high probability that a technical mistake and/or poor design of the implant could be a plausible explanation for included cases. Under such suspicion the reported data refer rather to the premature mode of failure in a particular implant than to the mechanism of ALTR occurring in implants with much longer survivorship.

2. I think that data on controls should be briefly included into the manuscript (for instance into “Clinical demographics”).

3. Number of patient-, surgery-, implant-related variables can potentially influence the fate of THA making tremendously difficult interpretation of failure in an individual case. Among them number, size, and origin of the prosthetic particles are the most important in relation to the periprosthetic tissue response. Therefore, at least basic data for the type of polyethylene and its wear rate should be included to enable the reader to understand completely the presented histopathological findings. Currently, almost whole attention is focused on metallic debris while in the group with MoP and CoP the polyethylene particles could also play important role.

4. The immunohistochemistry suffers from problems common to this type of analysis; the authors should demonstrate the functionality of used monoclonal antibodies. I also believe that figures can be improved by inclusion of a “window” with higher magnification for specific cell population (marker) into some figures.

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.