



Characterization of wear debris released from alumina-on-alumina hip prostheses: Analysis of retrieved femoral heads and peri-prosthetic tissues

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Type de publication	Article de revue
Auteur	Rony, Louis [1], de Sainte Hermine, Pierre [2], Steiger, Vincent [3], Mallet, Romain [4], Hubert, Laurent [5], Chappard, Daniel [6]
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Résumé en anglais	<p>We analyzed by SEM three alumina-on-alumina femoral heads obtained from three patients who underwent revision for an aseptic loosening of the acetabular component. In parallel, the peri-prosthetic tissues were analyzed histologically in search of wear debris coming from the ceramic. Stripe wears, abrasive streaks, craters, and areas with extensive biomaterial removal were evidenced on the three femoral heads by SEM. In the altered area, the structure of the ceramic composed of minute polyhedral grains packed together was evidenced. In the peri-prosthetic tissues, the alumina particles were present in different forms: large particles appeared transparent and birefringent, small particles engulfed by the macrophages had a light brown tint and were not birefringent. Large particles corresponded to the grains observed by SEM. EDS microanalysis confirmed the presence of aluminum oxide in these particles. Alumina debris are difficult to identify microscopically due to their pleomorphism.</p>
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- [1] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=26733>
- [2] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=27521>
- [3] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=23951>
- [4] <http://okina.univ-angers.fr/romain.mallet/publications>
- [5] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=4536>
- [6] <http://okina.univ-angers.fr/daniel.chappard/publications>
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- [19] <http://dx.doi.org/10.1016/j.micron.2017.11.002>
- [20] <https://www.sciencedirect.com/science/article/pii/S0968432817303736?via%3Dihub>
- [21] <http://www.ncbi.nlm.nih.gov/pubmed/29125996?dopt=Abstract>

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