

Osteolytic changes around biodegradable cement restrictors in hip surgery

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Background and purpose - Biodegradable cement restrictors are widely used in hip arthroplasty. Like others, we observed osteolytic reactions associated with a specific cement restrictor (SynPlug; made of PolyActive) and reviewed our patients. **Patients and methods** - We identified 703 patients with suitable radiographs from our database (2007 to 2012) who underwent cemented hip arthroplasty and received a SynPlug biodegradable cement restrictor. We reviewed all available radiographs to determine the incidence, severity, and progression of osteolysis. Mean postoperative follow-up was 1.8 (1-7) years. **Results** - 1 year after implantation, the femoral cortex showed thinning by 12% in the anterior-posterior view and by 8% in the axial view. This had increased to 14% and 12%, respectively, at the latest available follow-up postoperatively (at a mean of 4 years). Cortical thinning of less than 10% was found in 37% of patients, but cortical thinning of 10-30% was found in 56% of patients. In the remaining 7%, a reduction of more than 30% of the original cortical thickness was observed. **Interpretation** - Osteolytic changes associated with the SynPlug biodegradable bone restrictors are inconsistent and highly variable. While some patients showed increased weakening of the femoral cortex with the potential risk of periprosthetic fracture, in others the degree of osteolysis only increased slightly or stabilized after 2 or more years. Any cortical bone loss after total hip replacement should be avoided, so the use of PolyActive biodegradable cement restrictors should be discontinued. Patients with a PolyActive cement restrictor in place should be followed up closely after surgery.

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