AGGRESSIVE GRANULOMATOSIS FROM POLYETHYLENE FAILURE IN AN UNCEMENTED KNEE REPLACEMENT

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Fragmentation of the polyethylene components of an un cemented total knee replacement caused extensive bone lysis though the components remained securely fixed to the bones.

To our knowledge aggressive granulomatosis has not previously been reported after knee arthroplasty.

CASE REPORT

In 1985, a 74-year-old woman with primary osteoarthritis underwent a total knee arthroplasty which included resurfacing of the patella (PCA, Howmedica). The alignment of the leg and the position of the implants were satisfactory. All components were un cemented. The initial postoperative course was excellent. However, after four years she developed progressive pain on weight-bearing and radiographs demonstrated extensive bone lysis around the femoral, tibial and patellar components (Figs 1 and 2). At operation, we found fragmentation of the polyethylene of the tibial plateau and to a lesser extent, of the patellar button (Fig. 3). The metal femoral and tibial components were securely fixed to the bones and, on removal, showed areas of bony ingrowth. The bone around the prosthesis was extensively replaced with caseous material which consisted of necrotic tissue mixed with fibrin and fibrous tissue. There was a florid foreign-body type giant-cell reaction around irregular birefringent flakes of exogenous extracellular material. This material had the fine fibrillary surface...
Massive polyethylene failure has been described in two PCA total knee replacements (Lindstrand, Ryd and Stenström 1990) and in a unicompartamental PCA prosthesis (Christensen, Christiansen and Johansen 1990). In these cases all the components remained firmly fixed to bone and the polyethylene debris had produced only a synovial reaction, with no evidence of bone lysis.

In our case an extensive lytic bone reaction occurred in response to the polyethylene particles. This took the form of a granulomatous foreign-body reaction, aggressive in its rapidity and extent, but not interfering with the fixation of the prosthesis. We believe this to be the first reported case of aggressive granulomatosis following total knee arthroplasty.

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REFERENCES


