Loosening, revision and function of the cemented hip arthroplasty

Herbert Franzén

Department of Orthopedics, Lund University Hospital, Lund, Sweden

The goal of total hip replacement (THR) with a prosthesis is to improve the quality of life in the patient with hip disease. Loosening of the prosthesis is the most common cause of deterioating long-term results. Reaction to wear debris and stress-shielding giving rise to resorption of bone are usually blamed for this deterioration.

There was no correlation between migration of the prosthetic compenents and wear of the acetabular cup in 14 patients after 3 years. This opposes the opinion that early migration is caused by wear products. The relation between bone loss and loosening was studied in 11 cases operated on with a mega prosthesis. In 8 cases there was severe cortical atrophy, but only one femoral component was loose. Consequently, stress-shielding does not cause loosening. The failure rate after revision is high. Early migration after revision was found in 21/24 cemented stems, in 5/5 stems operated on with impacted bone allograft and cement and in 15/17 cemented acetabular components. The migration was greater in cases with severe bone loss. When bone grafts were used, there was partial restoration of the bone stock, but the migration was not increased. The high failure rate after revision can be explained by lack of initial fixation. Bone grafts may facilitate a next revision. Arthrosis of the hip reduces the quality of life as measured by the Nottingham Health Profile (NHP) questionnaire, but it is restored one year after a THR. 49 patients operated on with a THR were examined after five years and patients with loosening had impaired NHP scores. In another study of 187 patients, impaired NHP scores were found 10-20 years after a THR, indicating impending failure more often than previously believed.