

Rheumatoid Elbow Destruction and its Treatment with Souter Strathclyde Arthroplasty

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ABSTRACT (Academic dissertation) Elbow involvement is very rarely seen in the early years of rheumatoid arthritis, but 15 years after onset of disease approximately two thirds of patients have symptoms or/and radiological changes in their elbows. The severity of elbow deformity depends on the activity of synovitis, which may cause destruction of the cartilage, the bones and the ligaments. Surgical treatment of the rheumatoid elbow is not very common; approximately one hundred elbow replacements are performed in Finland annually and apparently, the number of synovectomies is even smaller. In Study I the incidence of involvement and nature of destruction of humeroulnar and humeroradial joints were evaluated in a prospectively followed cohort of 74 patients with seropositive and erosive rheumatoid arthritis. At the 15-year follow-up standard anteroposterior and lateral radiographs were taken of 148 elbow joints and the grade of destruction assessed by the Larsen method. Erosive involvement (> Larsen grade 2) was observed in 75 (51%) of the 148 joints in 45 (61%) patients out of 74. Thirty patients had bilateral and 15 unilateral affection. Erosions were most often found on the capitellum (43%) and the lateral epicondyle (39%) of the humerus or on the olecranon of the ulna (35%). Studies II-VI were based on a follow-up of 525 consecutive Souter-Strathclyde elbow replacements undertaken during the years 1982-1997. There were 372 female and 34 male patients with a mean age of 57 years. A total of 119 patients underwent a bilateral procedure. The indication for operation in 522 cases was rheumatoid arthritis or other chronic inflammatory joint disease. The mean duration of the disease at time of operation was 25 years (2-70). By reason of complications there were 108 reoperations in 82 patients up to the end of 1998. During the early years of this study the relative number of primary complications was essentially higher. The cumulative success rates without aseptic loosening five and ten years after surgery were according to survival analysis 96 and 85 per cent, respectively. One hundred and fifty-eight primary elbow arthroplasties (out of 525) were undertaken in 134 patients with severe joint destruction (Larsen Grade 5) or large bone defects or both. Major complications led to 5 early and 16 late reoperations in 19 patients. In survival analysis, the cumulative success rate without revision for aseptic loosening at 5-year follow-up was 97%. There were 26 rheumatoid patients who had 32 preoperative fractures treated with Souter elbow arthroplasty. Twenty of the fractures united and 12 did not. Prosthesis survival was assessed in the 7 most commonly used component types among the 522 primary Souter elbow replacements. One operation for osteoarthritis and two operations for posttraumatic arthrosis were excluded from this study. Forty-seven patients underwent 51 operations for aseptic loosening up to the end of the year 2000. In survival analysis the general cumulative success rates for the whole study cohort without revision for aseptic loosening 5 and 10 years after surgery were 96 and 84%, respectively. The highest 5-year survival rates were 100%, the lowest 93%, and the 10-year survival rates 91% and 76% respectively. Judging from this study there would appear to be marked differences in the survival of various types of Souter components in elbow arthroplasty. The appearance of radiolucent lines in radiographs of the 522 primary Souter-Strathclyde elbow arthroplasties was evaluated. The elbow region was divided into ten zones. Our purpose was to find areas, which can be easily distinguished, and secondly the significance of which is different for fixation due to anatomical factors and structures of components. At 1-year follow-up, translucencies in two of the zones had prognostic value for aseptic loosening. Lateral views of the elbow of a 78-year old woman with rheumatoid arthritis taken preoperatively and 1 year after the arthroplasty. A Souter prosthesis and bone grafting to the olecranon has been used.

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