Results of Alloarthroplasty of the Hip Joint

W. Oberthaler¹, R. Bauer¹, and K. Sattler²

¹Department of Orthopedic Surgery, University of Innsbruck, Anichstr. 35, A-6020 Innsbruck, Austria
²Department of Biostatistics, University of Innsbruck, Austria

Summary. We report on the follow-up examination results of 881 operated hip joints which were implanted in the Innsbruck University Clinic for Orthopedics during the period 1968–1975. Due to exact checking 75% of all patients could be clinically control-examined during 1978 and all available information regarding the others was collected. In the patient group with an average age of 62.5 years the course of postoperative mobility over the years was mainly examined. Functional activity, subjective patient opinion, pain, work capability and weather sensitivity were also analyzed. After an implantation period of the hip prosthesis of 3–10 years encouraging results were shown. Aseptic prostheses loosenings (9.8%) were examined with regard to their causes. The infection rate was very low at 0.56% and also periarticular calcification only occurred comparatively seldom (13.5%). Other complications were recorded in 6.8% of the patients. In total, 74% of the operated patients offered a very good or good complete result.

A total of 881 hip endoprostheses were operated on in our clinic from 1968 to 1975, almost two thirds of these in female patients. Forty patients received bilateral artificial hip joints. The observation period stretched over a period of 3–10 years. The average time of follow-up control of the operated hip joints was 5 years postoperatively. We have tried to obtain information on all operated patients, with as few gaps as possible. Thus, 75% could be personally examined during 1978, 9.3% have meanwhile deceased. In these cases we tried to obtain information from the relatives. In the case of bed-ridden patients or those who could not or did not want to attend control examination for other reasons, our own records and X-ray films were available. Along with the control examination a current hip X-ray was taken of all patients. Thus, each operated case could be examined as to infection rate and complications and the majority of the patients was also clinically examined as regards total result. In similar manner other authors
After a certain running-in period operation frequency rose to over 200 interventions per year (Fig. 2). The slightly higher initial percentage of loosening and complication rate sank noticeably with the rising number of interventions although the number of operators had increased. Included in the total number of control-examined patients are also 27 (3%) cases where prostheses had been exchanged before the end of 1975. This mainly had to be performed in the case of loosening in patients from our own group [50, 71, 76, 111, 113, 115].

**Operation Technique**

In our clinic we have used a sterile operation box from the firm “Allo Pro” since August 1972 in which all endoprostheses have been implanted ever since [101, 102]. Previously, these operations were carried out in a conventional aseptic orthopedic operating theater under routine antibiotic screening of 10 Mio units of penicillin parenteral over 10 postoperative days. In some cases, due to intolerance, another suitable antibiotic was substituted. Since we have used the sterile box we have no longer given antibiotic screening; only in special cases is antibiotic bone cement used. However, since February 1972, patients routinely receive an active staphylococcus immunization (Staphypan Berna) with six injections i.m. in rising concentration approximately 6 weeks preoperatively [4]. Until 1975, 52.5% of all patients were prepared in this way.

A modified Watson-Jones lateral incision was used as the operative approach. Since 1974, the so-called “transgluteal approach” [6] has been used increasingly. The average time needed for operating normal hip prostheses has been lowered from over 2h to 1h. The bone cement used is primarily “CMW bone cement” and in special cases (after previous surgery or in the replacement of prostheses), “Refobacin-Palacos” [24, 31, 34, 48, 73, 94].

The “Charnley-Müller” or “Müller” prosthesis was the most frequently used [16, 26, 66, 96, 114], and it is still almost exclusively used today. Recently, the shafts have been coated with a superficial structure [70]. In the years 1968 and 1969 seven so-called “Müller-Setzholz-prostheses” were also implanted, of which, until now, only one shaft prosthesis has loosened and had to be replaced. Several authors refer to the good long-time experience with this type of prosthesis [68]. M. E. Müller and other authors are using similar lines in developing new shafts [88].

Apart from 13 polyester sockets which were implanted between 1968 and 1971, all Müller sockets were made of polyethylene. At first, long shafts were used only seldom, mostly in the cases of previous plate removal or wide femoral shafts. The 53 first generation Weber-prostheses (metal socket, polyester head) [45, 47, 95, 100, 107], which were implanted between 1970 and 1973, brought good functional results but also frequent early loosening. Special tumor prostheses were implanted in eight patients. Metastatic destruction was primarily treated here, and as an exception, one primary bone tumor was removed [72].

In 6.8% of the patients a tenotomy of the external rotators was carried out, in 4.6% a subcutaneous adductor tenotomy, and in 4.1% tenotomy of the ileopsoas tendon. In 4% of the operations the trochanter had be osteomized [2]. In the case of