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Johnson's total knee replacement

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Total knee replacement according to Johnson was performed in 36 patients between 1985 and 1987; 18 patients had rheumatoid arthritis. One patient died 1 month after the operation owing to peritonitis. The mean follow-up time was 9 months.

All the patients reported disappearance of pain at rest after the operation. Three experienced peripatellar pain when walking. Mobility of the knee increased in particular in the patients with rheumatoid arthritis; two rheumatic patients required mobilization of the knee under general anesthesia. In three cases a dislocated meniscus necessitated reoperation. There was no deep infection or loosening.

Our findings suggest the following contraindications: severe valgus instability, external rotation-valgus contracture, and severe flexion contracture in rheumatic patients.

Johnson's total knee replacement gives satisfactory short-term results in selected patients.

Roentgen stereophotogrammetric analysis of proplast-coated hip prostheses

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The concept of fixation of proplast-coated hip prostheses (Anaform) is based on ingrowth of fibrous tissue. The extent to which the soft proplast layer permits relative movements between bone and prosthesis during weight bearing was measured in the immediate postoperative phase. The experiments were performed with the prosthesis implanted post-mortem. In a mechanical test bank, this prosthesis was submitted to a hip load according to Rydell. Tantalum markers were inserted in advance into the prosthesis and bone. During loads up to 3,000 N, the relative movements of the prosthesis

in relation to the bone were measured roentgen stereophotogrammetrically using the Selvik system. After these experiments the specimen was cut into sections, and the contact configuration between bone and coating was measured.

The geometric findings showed that an average of 60-70 percent of the coating was in immediate contact with the bone. Movements measured were rotations up to 0.5° on the vertical and up to 0.1° on the mediolateral and the anteroposterior axis. This involved about 0.5-mm anterior and 0.2-mm medial translations of the proximal part of the prosthesis. The relative subsidence was about 0.4 mm. After removing the load, the prosthesis did not fully resume its initial position, indicating permanent deformation of the coating (as was also found upon mechanical testing).

Clinical tests, if necessary associated with FEM analyses and in vivo kinesimetry, will have to demonstrate whether the mobility found is conducive to stabilization of the fixation.

Total knee replacement in rheumatoid arthritis

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Between 1977 and 1985, 147 total-knee replacements were performed for rheumatoid arthritis in 92 patients. The mean age at operation was 58 (19-79) years. Three different types of prostheses were used: Attenborough (20), Total Condylar (48), and SKI (79). The mean follow-up period was 6 (2-10) years.

Results: Patients were enthusiastic or satisfied with 130 arthroplasties. A flexion contracture was present in 124 knees before, and in 37 knees after the operation. The mean preoperative flexion was 74° and improved to 93° after the operation. Twenty-five patients were wheelchair-bound before, and 4 still were after the operation.

Complications: A fracture of the medial femoral condyle occurred during the operation in 2 cases; a patellar tendon rupture occurred in 1. Deep-wound infections necessitated an arthrodesis in 2 and an upper-leg amputation in 1 case.

Conclusion: Total knee replacement completely relieves pain in virtually all cases of rheumatoid arthritis. Improvement of the flexion contracture and extent of flexion can be expected in most cases.

Unicompartmental arthroplasty of the knee in gonarthrosis

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Fifty-one unicompartmental arthroplasties of the knee according to Marmor were performed in 44 patients between 1976 and 1987. Previous operations in 11 patients were meniscectomy (4), corrective osteotomy (2), patellectomy (2), and synovectomy (3). The mean duration of complaints before the operation was 8 years. The mean age at operation was 71 years.

All the patients were examined clinically and radiographically. Good results were obtained in 38 of the knees. The procedure permits adequate correction of varus and valgus instability. Reoperation was required in 4 cases: revision of the tibial component was performed in 2 because of loosening, an arthrodesis in 1 owing to infection, and a patellectomy in 1 case.

If in the case of unicompartmental gonarthrosis corrective osteotomy is unsuitable, then, unicompartmental arthroplasty is to be preferred to total knee replacement.

Combined intraarticular and extraarticular reconstruction for anterolateral instability of the knee

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Between 1979 and 1987, anterolateral instability of the knee in 37 patients was treated by intraarticular and extraarticular reconstruction according to Eriksson-Drez and Ellison. The mean age at rupture was 23 (13-37) years. The mean interval between accident and reconstruction was 3 (0.5-8) years. A meniscectomy of the knee had been previously performed in 16 patients.

Before reconstruction was started, four criteria had to be met: (1) persistence of complaints despite muscle training, (2) disappearance of symptoms when a Lennox-Hill brace was worn, (3) absence of other ligament lesions and degenerative changes, and (4) adequate patient motivation.

The mean follow-up period was 5 (2-9) years. Only 1 patient was dissatisfied with the result. Symptoms of instability persisted in 3 patients, whereas 5 others showed slight residual instability at follow-up. After 2 years, 6 patients showed slight restriction of knee movement.

Conclusion: Combined intraarticular and extraarticular reconstruction for anterolateral instability of the knee gives satisfactory results in a properly selected group of patients.

Surgical cleansing of the arthrotic knee joint

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Between 1971 and 1983, surgical cleansing was performed on 182 arthrotic knee joints of 175 patients; 156 patients with 163 surgically cleansed knees (89 percent) were followed up by 1 author over an average period of 6 (1.5-14) years. During the follow-up period, 100 (61 percent) of the surgically cleansed knees were reported by patients as still showing improvement as compared with the preoperative conditions, 16 (10 percent) were reported as having shown no improvement, and 17 (10 percent) were described as having deteriorated. Totally, 30 surgically cleansed knees (18 percent) had one or more major operations during the follow-up period.

Surgical cleansing is a reasonable alternative for patients with persistent complaints from gonarthrosis.

Patellar pain in adolescents

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In 25 adolescents with patellar pain, the intraosseous pressure of the patella was measured bilaterally under anesthesia, and a patellar phlebogram was obtained. Neither the height of the pressure measured nor the phlebogram showed any relationship to the severity of the complaint. Nevertheless, 12 patients reported disappearance of the pain following this intervention.

During diagnostic arthroscopy in 17 other patients, the patella was punctured and washed out with 10 ml of saline. Thirteen patients were asymptomatic after 6 weeks. Due to persistent pain, 4 patients (five knees) subsequently had a patellar spongiosaplasty, with good results in four knees.

The dynamic hip abduction brace

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See abstract in Proceedings of the Scandinavian Orthopedic Association 44th Assembly, Århus June, 1988, in *Acta Orthop Scand* 59 (Suppl 227); 1988.

Triple osteotomy of the pelvis for dysplasia of the hip joint

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Between 1983 and 1986, 71 triple osteotomies of the pelvis were performed to correct dysplasia of the hip. The mean age at operation was 20 (7-41) years. The Carlioz technique was used until 1984, whereas the Tönnis technique was preferred thereafter. A femoral osteotomy was added in the treatment of five hips. The mean follow-up period was 3 (2-5) years. Adequate correction of the dysplastic acetabulum was achieved in 62 hip joints; correction was inadequate in four hips, whereas five hips showed overcorrection. Subjective satisfaction with the result was expressed by 59 patients.

Idiopathic chondrolysis of the hip in children

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Four patients with idiopathic chondrolysis of the hip were examined arthroscopically. In all the cases a synovitis was found that upon histologic examination of a biopsy specimen proved not to be specific. Extensive immunologic tests revealed autoantibodies and immune complexes in the synovial membrane. The combination of clinical symptoms and immunologic findings was consistent with a diagnosis of pauciarticular juvenile chronic arthritis, and these patients should be treated accordingly.

Acetabular fractures involving the growth plate

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A retrospective study of acetabular fractures in children revealed involvement of the growth plate in 6 out of 23 patients. The mean follow-up period was 8 years. Fracture Types I (n 2) and II (n 1) according to Salter and Harris were readily recognizable radiographically. Treatment consisted of traction for 4-6 weeks. Growth was not disturbed, and the functional result was excellent. The prognosis of fracture Type V (n 3) was less favorable: premature physeal fusion occurred in all the cases. In 2 cases, this led to progressive subluxation of the hip; both children required a shelf operation and a femoral osteotomy to reconstruct the hip.

Decompression for impingement syndrome of the shoulder in 100 patients

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The effect of anterior decompression of the rotator cuff of the shoulder was studied in 100 patients with an impingement syndrome. In 75 cases a preoperative arthrography was performed, which in 11 instances erroneously suggested a rotator cuff rupture.

After an average follow-up of 5 months, 78 patients were free from pain and showed unrestricted shoulder movement, 12 patients showed unrestricted shoulder movement but had some residual pain, and 10 patients showed no alleviation of pain and no improvement of shoulder movement. None of the patients showed aggravation of symptoms. There was no demonstrable correlation between the duration of symptoms and the operative result.

In 12 of 22 patients whose symptoms persisted after the operation, subsequently diagnosed pathology of the cervical spine or a thoracic outlet syndrome was held partly responsible for the symptoms. We conclude that anterior decompression of the rotator cuff generally yields good results, but that some reservation should be exercised when the impingement syndrome is associated with lesions in the cervical and scapulo-humeral region.

Gentamicin release from large and small beads

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Minigenta beads measure 3 x 5 mm, whereas normal beads have a diameter of 7 mm. The beads contain 1.7 and 4.5 mg gentamicin (base), respectively. Gentamicin release was studied by measuring 60 minigenta beads and 45 normal beads after an average of 14 days' implantation. The mean release from normal beads was 24 ± 10 percent of the gentamicin content versus 93 ± 1 percent for the minigenta beads. We calculated that in a given cavity minigenta beads release at least seven times as much gentamicin as normal beads.