

PROCEEDINGS OF THE NORWEGIAN ORTHOPAEDIC ASSOCIATION

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ROTATIONAL OSTEOTOMY FOR RECURRENT DISLOCATION OF THE SHOULDER

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In the mechanism of recurrent dislocation of the shoulder the posterior defect in the humeral head, described by Hill & Sachs (1940), plays an important role. In the presence of such a defect, dislocation occurs when the defect slides over the damaged glenoid rim during external rotation.

To prevent this, a subcapital transverse osteotomy is performed, rotating the head inwards by 25°. The osteotomy is fixed with a right-angled compression plate.

Five patients are presented, all with satisfactory functional results. In spite of delayed union in one patient, working capacity and sporting activities were not restricted. There were no redislocations.

TREATMENT OF FRACTURES WITH DISPLACEMENT OF THE TALARIC PORTION OF THE OS CALCIS

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In a series of 24 patients with displaced fractures of the talaric portion of the os calcis, 15 patients were primarily treated conservatively; a few of these patients had early subtalar fusion. Nine were treated with open reduction and fixation with Kirschner wires *ad modum* Soeur & Remy.

In the latter group the anatomical and functional results were superior to those in the first group, and likewise the hospital stay and the time off-work were much shorter in the surgically than in the conservatively treated group.

AN UNUSUAL COMPLICATION AFTER TOTAL HIP REPLACEMENT

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After re-insertion of a loose total hip prosthesis, a large amount of acrylic cement protruded into the pelvic cavity. One and a half years later a thrombosis of the external iliac artery developed in this region. Two years after the re-operation the prosthesis was removed because of severe pain. A large haematoma was evacuated, and a brisk haemorrhage from a hole in the iliac artery was found.

Oslo, October 26th – 28th, 1978

A COMPARISON BETWEEN THE CORRECTION OF IDIOPATHIC SCOLIOSIS ACHIEVED WITH THE BOSTON AND MILWAUKEE BRACES

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A survey was given of 51 patients (49 girls, 2 boys) with idiopathic scoliosis previously treated with the Milwaukee brace (Mb). The curves were judged by standard a.p. roentgen pictures. The final correction of the curves with Mb was compared with the curves standing without the brace, and the initial correction of the same curves with the Boston brace (Bb). Every case served as her (his) own control.

The mean age before changing to the Bb was 15½ years, and ended a mean 2-year correction period with the Mb. There were 3 juvenile and 48 adolescent scolioses. The cases were divided into groups according to the apex of the curve: double primary – 24 cases, thoracic – 11 cases, thoracolumbar – 9 cases, lumbar – 7 cases.

The mean correction percentage for the four groups of curves were summarized, and gave the results: thoracic curves – Bb 21 per cent/Mb 19

per cent, thoracolumbar/lumbar curves – Bb 48 per cent/Mb 26 per cent, lumbosacral curves – Bb 58 per cent/Mb 28 per cent. The more caudal the localization of the scoliosis, the better the correction with the Bb. For single thoracic curves above T-10, the Mb gave the best results. For all other curves the Bb should be the brace of choice in the treatment of idiopathic scoliosis.

SPONDYLOLISTHESIS TREATED BY POSTEROLATERAL FUSION

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During the years 1969 to 1975, 110 patients, aged 20 to 40 years, were treated for spondylolisthesis by posterolateral fusion. None of them had sciatica, and the listhesis ranged from grade 1 to 3 (Meyerding 1932). From the second week after operation half of the patients wore a plaster of Paris corset which included one thigh, and the other half a metal reinforced cloth corset, for 4 months.

At follow-up examination, 1 to 8 years after operation (average 4.4 years), 61 per cent had no pain, 33 per cent were improved, while 6 per cent still had distinct back problems. Ninety-four per cent had full working capacity. Roentgen examination showed fusion in 90 per cent of the cases. No differences were found between the two groups with different after-treatment.

DIAGNOSIS AND TREATMENT OF GIANT-CELL TUMOUR OF BONE

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Fifteen patients, nine female and six male, with giant-cell tumour of bone were followed up for a mean period of 8 years. Three patients were nearly 15 years, nine between 15 and 30, and three between 30 and 50 years. Five tumours were located in the proximal tibia and three in the distal femur, three in the distal tibia, one in the proximal and one in the distal radius, and one in the thumb and a lumbar spinal process, respectively.

The recurrence rate was 40 per cent, and a malignant course was found in 13 per cent. Patients under the age of 25 years rarely had recurrences. A high recurrence rate was recorded in the knee region and in tumours penetrating the cortex, regardless of tumour size and spontaneous fracture.

Primary *en bloc* resection combined with autologous bone transplantation and arthrodesis are recommended in patients over 25 years.

Alternatively, the new porous fibre-titanium prosthesis or an intramedullary nail can be inserted.

CHRONIC RECURRENT MULTIFOCAL OSTEOMYELITIS

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Orkdal Sanitetsforening Hospital, Orkanger

Chronic recurrent multifocal osteomyelitis is characterized clinically and radiologically by multiple bone lesions, sometimes occurring symmetrically, and a prolonged course over several years with relapses and new lesions. The aetiology and pathogenesis is unclear.

A 5-year-old girl with this disease is reported. Osteolytic lesions were found in the distal epiphysis in the left femur and tibia, in both distal tibial metaphyses, and in the distal end of the left talus. Culture of bone biopsy material for bacteria was negative, and the histopathological findings indicated a non-specific inflammatory process. Symptoms from the left ankle dominated, subsiding under 5 months without antibiotic treatment.

MALIGNANT VERTEBRAL TUMOURS WITH NEUROLOGICAL MANIFESTATIONS

Terje Terjesen

Regional Hospital, Trondheim

In a series of 36 patients with malignant vertebral tumours, back pain was usually the initial symptom, and was often present many months before neurological symptoms appeared.

Laminectomy and decompression of the cord improved pareses in most of the patients, and in four cases walking ability was regained. The best results were obtained in cases with metastases from prostatic and breast carcinoma, and in multiple myeloma.

Early diagnosis, myelography and prompt laminectomy are mandatory if patients with incomplete paraplegia are to be offered any chance of relief.

PULMONARY EMBOLISM AFTER OSTEO-SYNTHESES ON THE UPPER EXTREMITY

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Two cases of pulmonary embolism after osteo-syntheses on the upper extremity are reported.

A 36-year-old healthy man was re-operated 18 days after injury for a simple fracture of the olecranon which re-dislocated after the primary operation. He was ambulatory from the day after each operation. The wound healed primarily. Six weeks after the second operation he complained of chest pain and dyspnoea, and 5 days later he suddenly died without any treatment. Autopsy revealed massive occlusion of the pulmonary arteries.

A 33-year-old man with a fracture of the humerus had a similar history, but was treated with anticoagulants, and survived.

VOLKMANN'S ISCHEMIC CONTRACTURE OF THE FOREARM

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Kronprinsesse Märthas Institute, Oslo

Twenty-three cases of established Volkmann's contracture of the forearm treated with excision of all irreparably damaged muscles, lengthening of the tendons and lysis of the median and the ulnar nerve, are reported. Fourteen of the patients were children; two-thirds were male. Supracondylar fractures of the humerus, all treated with plaster of Paris, caused 10 contractures. Nerve damage was seen in 17 cases. The cases were classified as: seven of the mild type, three moderate and 13 severe.

Twelve patients achieved normal/good function of the hand after treatment, five had obvious functional reduction, four achieved only a support function of the hand, and two patients had to have the forearm amputated. It is concluded that early excision of the necrotic muscles, lysis of the nerves and lengthening of the flexor tendons improve the functional results.

POST-TRAUMATIC OSTEOLYSIS OF THE OUTER END OF THE CLAVICLE

Asle Vebostad

Harstad County Hospital, Harstad

One case of osteolysis of the acromial end of the clavicle is reported. The positive roentgen findings were seen 4 months after injury, with almost complete restitution 12 months later. The main symptom is pain, which usually is mild and transitory. Thirty-three cases have been recorded so far, but the condition is probably often overlooked.

COMPARTMENTAL SYNDROME OF THE ABDUCTOR POLLICIS LONGUS AND EXTENSOR POLLICIS BREVIS MUSCLES

Ludvig Fjeld Solheim & Rolf Hagen

Martina Hansens Hospital, Sandvika

A 32-year-old man experienced recurrent pain and swelling during exertion, in an area corresponding to the fascial compartment of the abductor pollicis longus and extensor pollicis brevis muscles. The symptoms which were provoked by overuse (rowing) did not respond to conservative therapy.

One year after the onset of the symptoms, a decompression of the bellies of the mentioned muscles was performed. After the fasciotomy the symptoms subsided, and eventually disappeared completely.

FRACTURES IN THE LOWER LEG WITH SEVERE SOFT TISSUE COMPLICATIONS

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A consecutive series of 17 patients with compound comminuted fractures of the lower leg was analysed. For the primary skeletal fixation, Hoffmann osteotaxis was used in all cases. In two cases an arterial reconstruction was performed, four cases were complicated by nerve injury, two with permanent damage.

Primary split skin grafts were used in 14 cases. Secondary plastic skin operations were performed in four cases. Later, bone grafting operations were indicated in nine cases. One case with a ruptured popliteal artery and posterior tibial nerve with insensible painful limb ended in a below-knee amputation. Five infections occurred, but they could be controlled, and did not lead to chronic osteomyelitis.

The following principles of treatment were outlined: debridement, primary fixation, arterial but not nerve repair, primary skin coverage in non-contaminated cases, effective drainage, active postprimary care with debridements and repeated skin graftings to cover necrotizing skin areas.

INTERNAL FIXATION OR PRIMARY PROSTHETIC REPLACEMENT FOR TREATMENT OF ACUTE FEMORAL NECK FRACTURES IN THE ELDERLY: A PROSPECTIVE RANDOMIZED STUDY

Odd Søreide, Anders Mølster & Tor Steinar Raugstad

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A prospective, randomized study has been performed in 104 patients with an acute femoral

neck fracture, comparing internal fixation (v. Bahr screws) with primary prosthetic replacement (Christiansen's endoprosthesis). All patients were allowed immediate weight-bearing.

Postoperative mortality, recorded 1, 6 and 12 months after operation, was similar in both groups. Internal fixation was found to be a less time-consuming operation, was associated with a significantly reduced morbidity rate, and gave a shorter hospitalization time compared with prosthetic replacement.

Primary prosthetic replacement was associated with earlier postoperative mobilization, gave a more definitive treatment with fewer reoperations, and revealed better results at the 1-year follow-up examination.

INTERNAL FIXATION VERSUS PRIMARY PROSTHETIC REPLACEMENT IN ACUTE FEMORAL NECK FRACTURES. COST EFFECTIVENESS ANALYSIS

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Internal fixation (v. Bahr screws) and primary prosthetic replacement (Christiansen's endoprosthesis) have been used for treatment of acute femoral neck fractures in patients older than 67 years (prospective, randomized).

The cost of each type of treatment was calculated on the basis of relevant parameters (hospitalization time, operation time, devices used, blood tests performed, X-ray examinations, follow-up, readmissions and reoperations etc.). For the first stay in hospital, primary prosthetic replacement was 2.4 times more expensive than internal fixation. This large difference in costs was reduced, but not abolished, by a less expensive follow-up for the prosthetic group, and more readmissions and reoperations for the internal fixation group. On the whole, prosthetic replacement was found to be 1.7 times more expensive than internal fixation.

RECONSTRUCTION OF THE LATERAL LIGAMENTS OF THE ANKLE

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A follow-up examination of 22 patients, age 16 – 60 years, operated for lateral instability of the ankle joint *ad modum* Watson-Jones is presented. Mean observation time was 7 years.

Objective evaluation based on stability, range of movement and peroneal strength showed 92 per cent excellent, 4 per cent good and 4 per cent poor

results. Patients' own opinions: 64 per cent had no complaints, 23 per cent were improved, and 13 per cent were not improved.

It is concluded that although the operation gives a good stability, many patients will still have moderate or slight complaints.

REOPERATIONS OF INFECTED TOTAL HIP PROSTHESES

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In 520 Müller-Charnley total hip replacement operations, infection occurred in 14, resulting in loosening of the prostheses. Eleven of these have been reoperated, using Pallacos Garamycin Cement® to fix the new prostheses. In 7 of these 11 cases, previous operations on the same hip had been performed prior to the first total hip replacement. During an observation time from 1–26 months (average 12 months) only one of the 11 reoperated hips has become reinfected.

It is concluded that Garamycin cement should be used in all cases where the hip joint has been surgically exposed prior to insertion of a total hip prosthesis. Short-term results are good when an infected hip prosthesis is exchanged using prophylactic antibiotics and Garamycin cement.

ARTHROSCOPY OF THE KNEE JOINT

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One hundred and six diagnostic arthroscopies were performed on 103 knees. Two-thirds of the procedures were performed using local anaesthesia without a tourniquet, on an outpatient basis. A knee operation was performed in 52 cases. In five cases the arthroscopic diagnosis was inaccurate, and resulted in two unnecessary arthrotomies.

On the other hand, non-operative treatment was selected in 12 cases, where a prearthroscopic diagnosis based on clinical and arthrographic findings suggested an arthrotomy.

The diagnoses were: ruptured meniscus – 57, chondromalacia – 9, ruptured anterior cruciate – 4, osteoarthritis – 4, osteochondritis – 4, synovitis – 2, and others – 5. Arthroscopy was helpful in the diagnosis of acutely locked knee: in 24 out of 30 cases the arthroscopy gave the indication for operation (20 meniscal tears). No complication attributable to the arthroscopy occurred.

It is concluded that arthroscopy is an indispensable tool in a busy department.

TRAUMATIC DISLOCATION OF THE PATELLA

T. S. Raugstad, A. Alho, A. Mølster, S. Haukaas & K. Hvidsten

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In a series of 16 cases of acute traumatic dislocation of the patella, predisposing factors played an important part in two cases. Fourteen cases were operated on primarily. One redislocation required reoperation. In both the cases with non-operative treatment the dislocation recurred, and operation was performed later.

At follow-up examination, observation period over 3 years, the functional end-result was normal in all but three cases with some residual pain and extensor weakness.

The diagnosis is easily missed because the patella is most often in a reduced position when the doctor sees the patient. The dislocation is often accompanied by osteochondral fractures, which may be difficult to visualize radiologically. Oblique and axial views of the patella are important.

TOTAL REPLACEMENT OF THE SHOULDER JOINT IN RHEUMATOID ARTHRITIS

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A follow-up study of 29 synovectomies of the shoulder joint, performed between 1968 and 1978, indicated fairly good results as regards relief of pain, range of motion and total function. In the same period 18 arthroplasties of the shoulder joint were performed. Of the 13 Stanmore prostheses inserted five are loose and two are infected with *staphylococcus aureus*. The remaining eight patients are pain-free and have a relatively satisfactory range of motion. Five non-constrained prostheses *ad modum* Engelbrecht were implanted recently. The preliminary results are better than in the Stanmore group, and the training is easier.

Only five out of the total material were early cases.

TOTAL ANKLE REPLACEMENT PROSTHESIS IN PATIENTS WITH RHEUMATOID ARTHRITIS

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Twenty-two patients with rheumatoid arthritis of the ankle joint operated since 1975 with the so-called TPR total ankle prosthesis are reported. All the patients are pain-free. The mean dorsal flexion

postoperatively was 9° and plantar flexion 20°. None are infected, and so far no loosening of the prostheses has occurred.

Prior to the total replacement operation, triple arthrodesis had been performed or spontaneous ankylosis had occurred in 18 patients.

It is pointed out that pantalarthrodesis is a very poor solution for patients with rheumatoid arthritis.

ARTHRODESIS OF THE KNEE JOINT

Jette Johansen & Imre Gabor

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In a follow-up study of 27 patients who had had an arthrodesis of the knee joint after various lesions, all answered a questionnaire, and 18 were examined by the authors.

Twenty-two were satisfied with the result of the operation; 17 had returned to their previous occupation. No adverse effects on the neighbouring joints were recorded, if these were normal before the operation.

In the authors' opinion, arthrodesis of the knee joint still remains the best operation in cases of proximal focal femur defect or chronic joint infection.

Oslo, December 16th, 1978

CANCELLOUS AUTOLOGOUS BONE GRAFTING IN OPEN DENUDED LOWER LEG FRACTURES

Einar Sudmann

Regional Hospital, Tromsø

Five consecutive patients with seven lower leg fractures and two femoral fractures were treated with external and/or internal fixation, systemic antibiotics and grafts of cancellous autologous bone. All fractures were open and of severity grade 3, except one femoral fracture. All seven uni-level to quadruple-level fractures were without skin cover (denuded).

In the first case with one uni-level lower leg fracture, bone grafting followed full-thickness skin grafting, whereas in the following four patients bone was grafted to the open fractures as soon as possible, and full-thickness skin grafting was, when necessary, deliberately postponed until the fracture was healed.

Gross infection of the fracture, chronic osteomyelitis and pseudarthrosis development followed full-thickness skin grafting in the first case. By contrast, bone grafts seemed to prevent these complications in the latter four patients who had more severe fractures.

EARLY DIAGNOSIS OF ACUTE HEMATOGENOUS OSTEOMYELITIS BY COMPUTED TOMOGRAPHY

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Computed tomography was utilized in simultaneous examinations of the affected extremity, and the presumed normal contralateral one, in nine patients. The difference in intramedullary attenuation values between matched pairs of contralateral bones was evaluated. The attenuation values were always increased in the regions with osteomyelitis. It seems to be possible to detect the bone marrow involvement of osteomyelitis by computed tomography, prior to the appearance of bony changes on the routine X-rays.

OPERATIVE TREATMENT OF IDIOPATHIC NEONATAL AND RELAPSED CLUBFOOT

Einar Sudmann
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A series of operatively treated clubfeet comprised 25 patients (39 feet), median age 3.5 years, with relapse after treatment with plaster casts, and 15 patients (23 feet), median age 9 days, who were untreated prior to operation.

A posterior and medial soft tissue release, usually combined with resection of the middle third of the cuboid bone and tenotomies of the tibialis posterior and Achilles tendons were used

in relapsed, and untreated feet, respectively. Postoperatively all patients were treated by plaster bandages for 4–5 months.

One relapse was noted within 1 year after a release operation, while there were no relapses of the hind foot deformity 4 to 22 months after neonatal surgery.

It is suggested that the results of treatment of the hind foot deformity can be estimated clinically by measuring the range of movement in the subtalar joint by externally rotating the foot relative to the leg.

IDIOPATHIC SACROILIAC SYNDROME

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The sacroiliac syndrome (SIS) is characterized by low-back pain, irradiating leg pain, absence of neurological deficits, and normal X-rays. However, the sacroiliac tests are positive. The aetiology and pathology of the SIS remains obscure.

More than 40 patients with a presumed SIS were diagnosed over a 2-year period. Thus, the syndrome seems to be common in orthopaedic practice. Three patients so far have been treated by sacroiliac intra-articular arthrodesis.

A profile-scan bone scintigraphy technique (technetium – 99m) has been developed, but its value in SIS is as yet unclear.