

PROCEEDINGS OF THE NORWEGIAN ORTHOPAEDIC ASSOCIATION

EDITOR: ARNT JAKOBSEN

Oslo, September 17th, 1977

TRAUMATIC DISLOCATION OF THE HIP JOINT

Astor Reigstad

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In the period 1960-1976, 57 posterior dislocations of the hip joint were treated in Ullevål Hospital, Surgical Department 2. The mean age was 31 years; half of the patients were between 15 and 30 years of age, and three-quarters were males.

Traffic accidents caused 66 per cent, and skiing accidents 9 per cent of the dislocations. Twenty-five per cent of the patients suffered from other serious injuries, and two of the patients died.

Thirty-three per cent had a small, and 11 per cent a large fracture of the acetabulum; 9 per cent had a fracture of the head or shaft of the femur, and compression of the sciatic nerve was seen in 5 per cent.

Seventy-five per cent of the dislocations were reduced within 5 hours after the injury. Eighteen per cent had open reduction and/or fixation of the fracture.

During the observation time, 11 per cent of the patients developed traumatic arthritis, all having had fractures of the acetabulum, and avascular necrosis of the head of the femur was seen in 5 per cent.

FIBROSARCOMA IN THE SHOULDER REGION

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A 33-year-old man had suffered for a period of 6 years from shoulder pain, and had gradually developed an abduction contracture. Radiological examination, in connection with a fracture of the humerus, showed tumour changes in the upper humerus and in the scapula. Histological examination showed fibrosarcoma.

The patient died 6 months later from pulmonary metastases.

Oslo, October 27th-29th, 1977

TOTAL PROSTHESIS OF THE KNEE JOINT

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Since the year 1971 the Guepar prosthesis has been inserted into 40 knees. Thirty-five had rheumatoid arthritis; nine knees had been operated on previously, and eight had ankylosis of the contralateral knee.

Technique and aftertreatment (*Acta orthop. scand.* 47, 579, 1976).

The results were good in 29 cases. There was occasional pain or swelling in three cases, and eight were classified as poor. Of the eight poor results: in one the stem perforated the femur and there was very limited mobility; one had infection and almost complete ankylosis; and two had infection and prosthesis removal. Two other patients with infection were able to walk around during antibiotic treatment with only slight symptoms, but a flare-up occurred if medication was stopped. In two cases loosening of the prosthesis occurred.

PROSTHESES OF THE KNEE JOINT

Leif Egil Nygaard

Central County Hospital, Fredrikstad

The results in 17 cases of Guepar total prosthesis, and in 10 cases of Marmor modular prosthesis, are reported. In one case infection occurred.

The total prosthesis is preferred if there is gross destruction, instability and poor mobility. The condylar prosthesis is used in knees with less destruction and greater mobility. In the latter type better stability can be gained, but the range of motion remains unchanged.

KNEE PROSTHESES IN RHEUMATOID ARTHRITIS

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A follow-up examination in 1977 of 31 McIntosh knee prostheses, inserted in the period from 1968 to 1973, revealed that in 16 of these joints the prosthesis was still in use without any particular subjective inconvenience. All had to a greater or lesser extent become embedded in the tibia.

In the same period 21 Shier prostheses were inserted, of which 19 still are working well. Two have been removed, one because of infection and one on account of severe skin necrosis.

From 1973 to 1977, 71 Guepar prostheses have been inserted. Sixty-five are working well; one became infected, one loosened and was refixed, and one required re-operation because of pronounced outward rotation of the tibia and patellar dislocation.

Since 1974 3 Schlitten and 13 Marmor prostheses have been inserted. In one case the prosthesis became embedded in the tibia, and had to be replaced with a Guepar prosthesis. The remaining have so far been satisfactory.

POLYGLYCOLIC-ACID (DEXON®) INTRACUTANEOUS SUTURE IN PAEDIATRIC ORTHOPAEDICS

O. J. Fasting & I. Bjerkreim

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Intracutaneous skin closure with absorbable materials, where stitches do not have to be removed, obviously has some advantages in paediatric surgery. It has been found, however, that intracutaneous closure with Dexon® has given hypertrophic scars.

In a comparative study in 37 patients, age range 1-13 years, half of the wound, or one of the wounds in bilateral operations, was closed with conventional interrupted skin sutures (Supramid®), the other half with intracutaneous suture (Dexon®), 50 wounds with each technique.

Inflammatory reactions 14 days after operation were least common after intracutaneous suture. At follow-up, mean 14 months after operation, hypertrophic scar formation was found in 71 instances, but no significant difference was found between the two techniques. The scars tended to be broader, but the total cosmetic results to some extent favoured Dexon® intracutaneous suture.

TENODESIS FOR CLAW-HAND

Olav Histøl

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Seven patients operated for claw-hand *ad modum* Parkes have been followed up. The primary cause of the lesions was injury of the ulnar and median nerves.

The grip function of the hand, in which the metacarpo-phalangeal joints have a key position, was evaluated. Results were good or fair in six patients. One patient who had a poor result showed considerably reduced finger extension function.

It is concluded that in Parkes' tenodesis operation for claw-hand, good preoperative function of flexion and extension muscles is mandatory.

THE ROLE OF THE CORACO-ACROMIAL LIGAMENT IN SHOULDER DISORDERS

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The author has made some clinical and operative observations indicating that the rotator cuff in some cases of painful arc syndrome impinges on the coraco-acromial ligament, as well as on the acromion. Support for this observation is found in the literature. The ligament, therefore, should be sectioned in chronic shoulder disorders, either alone, or most often as part of the operative procedure.

Seven out of 21 patients referred for chronic painful arc syndrome, who showed tenderness of the coracoid process, had the ligament sectioned as the only treatment. Two patients were relieved of the pain immediately and completely, four were relieved of the discomfort which was localized to the coracoid process although the laterally localized pain continued, and in one patient no effect was observed.

SURGICAL TREATMENT OF PARTIAL ACHILLES TENDON RUPTURE

Tor Finn Denstad & Asbjørn Roaas

Martina Hansens Hospital, Sandvika

Partial Achilles tendon ruptures are not uncommon in physically active individuals, in particular middle- and long-distance runners.

Fifty-eight partial tendon ruptures in 54 patients have been treated, during the period 1970-1976, by excision of pathological tissue,

side-to-side closure of the tendon defect and immediate postoperative exercises directed by a physiotherapist.

All patients returned a questionnaire. The result was excellent or good in 52 instances, in three of these after re-operation. One patient had died from unrelated causes. The remaining five were improved, but the observation time was short.

SUPRASCAPULAR NERVE COMPRESSION FOLLOWING FRACTURE OF THE SCAPULA

Ludvig Fjeld Solheim & Asbjørn Roaas
Martina Hansens Hospital, Sandvika

Residual disability following a fracture of the scapula might be due to a lesion of the suprascapular nerve where it passes through the suprascapular notch.

A 32-year-old man with a fracture of the notch, and lesion of the suprascapular nerve is reported. A nerve decompression operation, including a wide resection of the notch, was performed 20 months after the injury, with relief of pain.

The value of X-ray examination, using projections visualizing the suprascapular notch, and a local anaesthetic block at the notch in order to diagnose lesion of the nerve is emphasized.

FRACTURE OF THE TALUS IN CHILDREN

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Central Hospital in Kristiansand, Kristiansand

Fractures of the collum tali are of special interest, because this type of fracture often leads to necrosis of the trochlea, and/or development of osteoarthritis in the talo-crural or the subtalar joints. This fracture is only mentioned in the literature 15–20 times in children under 15 years of age.

Two cases of severe fracture-dislocation of the collum tali in children, aged 10 and 13 years, were treated at our hospital with open reduction, and non-weight-bearing with the use of crutches for one-and-a-half and one year, respectively. The fractures have healed, and the children have no discomfort at all, 3–4 years later. Radiological examination showed for a time all the signs of necrosis, but later re-vascularisation took place. The shape of the talus is fairly well preserved.

This good result is attributed to the very long period of non-weight-bearing, and this is recommended in similar cases.

ARE "IMPACTED" FRACTURES OF THE NECK OF THE FEMUR REALLY IMPACTED?

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During a 5-year period ending June 1977, 117 patients with so-called impacted fractures of the neck of the femur were admitted to Aker Hospital. Fifty-eight were treated with primary osteofixation, while 59 were treated conservatively with non-weight-bearing, most often because of minimal dislocation on lateral X-rays.

Out of 51 of the latter who were followed up, 12 dislocated without a new trauma after an interval of a few days up to 4–5 weeks, i.e., disimpaction occurred in 20 per cent.

The term "impacted" often seems to be a misnomer, and it is proposed that these fractures be called, e.g., fractures of the first degree, or fractures with minimal or moderate dislocation.

OSTEOMYELITIS FOLLOWING FRACTURE SURGERY

Rolf Hagen
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During the period 1967–1975 a total of 62 patients with 63 previously operated fractures were treated for osteomyelitis after osteosynthesis. The lower extremities had been fractured in 89 per cent of the cases, and 54 per cent were closed injuries. About half of the patients had been operated within 24 hours after injury, 30 with insertion of plates and 25 with insertion of intramedullary nails or pins; 51 per cent revealed postoperative instability.

The treatment consisted mainly of sequestrectomies and saucerizations, supported by 3–12 months Lincomycin® medication. In 30 operations a closed irrigation-suction technique was used, perfusing the wound with a Lincomycin® solution.

The average follow-up was 6.5 years, and the result was judged as good in 74 per cent, fair in 8 per cent, and poor in 18 per cent. The amputation rate was 14 per cent.

Stable implants should not be removed before clinical consolidation has been achieved, while unstable osteosyntheses should be replaced with rigid internal or external Hoffmann fixation. Autologous cancellous bone-grafting of a purulent pseudarthrosis should be postponed until the infection has subsided or practically disappeared.

ARTHROSCOPY

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Arthroscopy of the knee joint is a valuable method for the examination and diagnosis of pathological conditions in the semilunar cartilages, the articular cartilage, the cruciate ligaments and the synovium, and for the diagnosis of loose bodies.

In most instances the method seems superior to arthrography. Photography through the arthroscope is easy, and gives excellent documentation of the findings. However, interpretation of arthroscopic findings may be difficult, and special experience is mandatory.

The author prefers to use an arthroscope 4.5–5 mm in diameter, and to perform the examination under general anaesthesia.

TUBERCULOSIS OF THE KNEE JOINT. A 20-YEAR MATERIAL

Asbjørn Roaas

Martina Hansens Hospital, Sandvika

Seventy-nine patients with tuberculosis of the knee joint were treated in this hospital during the period 1955–1974. Local symptoms and signs such as pain, swelling, atrophy and reduced mobility were frequent. General symptoms were rare. Twenty-six patients had had their symptoms for more than 5 years.

All, except two, were treated with streptomycin, isoniazid and PAS. Thirty patients were operated upon; of these 21 had an arthrodesis performed.

Forty-five were traced. At follow-up only three complained of pain in their knees, and two of these were able to continue working. Eleven of the non-operated patients had almost normal mobility. Seventeen of the patients who had an arthrodesis were completely satisfied. There were no recurrences of the tuberculous disease.

DIFFERENT WAYS OF TREATING PERTHES' DISEASE

Håvard Bjerkholt, Norvald Langeland & Elling Alvik

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Sophies Minde Orthopaedic Hospital, Oslo

A comparative, retrospective study of the treatment of Perthes' disease, by simple bed rest, by bed rest in an abduction cast, and by varus osteotomy, respectively, is presented. A radiological evaluation of the head of the femur at the time of

primary healing was used. The sphericity of the head, the height and the radius of the epiphysis were measured with the aid of a Moses plastic template.

Patients treated within 3 months from the time of their first symptoms had on average less deformity of the head of the femur than had patients treated later. It is concluded that none of the methods of treatment studied was superior, or inferior, to another.

SCINTIGRAPHIC GROUPING OF PERTHES' DISEASE

O. J. Fasting, I. Bjerkreim, N. Langeland, L. Hertenberg & K. Nakken

Sophies Minde Orthopaedic Hospital, Oslo

Ullevaal Hospital, Section of Nuclear Medicine, Oslo

A new method for early grouping of Perthes' disease according to femoral capital epiphysis involvement was presented. ^{99m}Tc-pyrophosphate bone scintigraphy was performed in patients with Perthes' disease in the initial stage within 4 months of the onset of symptoms.

The grouping according to femoral head involvement was based on the size of the area with decreased activity, visible on the scintigraphic image. This method seems to open up new possibilities for comparing the different treatments given in the early stage of the disease. The scintigraphic grouping correlated fairly well with the radiological grouping in the fragmentation stage, except in cases treated within 1 month of the onset of symptoms, who all "gained" in grouping, indicating that early treatment is of importance.

COMPLICATIONS IN THE MUSCULOSKELETAL SYSTEM AFTER KIDNEY TRANSPLANTATIONS. A PRELIMINARY REPORT OF 24 CASES

Rolf Hagen

Martina Hansens Hospital, Sandvika

It is generally accepted that steroid medication is responsible for the bone necrosis, spontaneous fractures, tendon ruptures and affections of the epiphysal growth plates which follow kidney transplantations.

In co-operation with Surgical Department B, Rikshospitalet, where most kidney transplantations in Norway are performed, 24 patients with various complications arising from the

musculo-skeletal system in 500 transplantations are reported.

Two were treated with a total prosthesis, and one with arthrodesis of the hip joint; one had intertrochanteric osteotomy for epiphyseolysis of the head of the femur, and two had calcaneal tendon repairs. The remaining patients were treated with non- or partial weight-bearing, and started on isometric exercises.

A STRUCTURAL MODEL OF THE HUMAN SPINE

James A. Ashton Miller

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A two-dimensional structural model of the human ligamentous spine with a minimum set of intrinsic muscles required for equilibrium was presented. Input data for segmental flexibility and trunk mass distribution were taken from the published data of others. The results showed the distribution of muscle and reaction forces, as well as deflections, along the length of the spine (T1-L5). Maximum values for the muscle and axial compressive forces occurred at the thoracolumbar junction in the spine with normal AP geometry.

THE INCIDENCE OF SCOLIOSIS IN NORTHERN NORWAY. A PRELIMINARY REPORT

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In 1962, 52,500 chest roentgenograms (minifilms) were taken in the county of Finnmark during a survey for tuberculosis. This represented 86.2 per cent of the population over 6 years of age. Until now 21,130 minifilms have been examined. Of these 6,200 are children 7-18 years old, 2,300 collected from traditional Lapp communities and 3,900 from towns along the coast where the population is predominantly non-Lappish.

Evidence of scoliosis ($> 10^\circ$ Cobb) was found in 60 minifilms (1 per cent). Analysing the data according to race, it was found that the incidence was 0.5 and 1.3 per cent for Lapps and non-Lapps, respectively.

OPERATIVE RESULTS AND THE USE OF THE PROSTHESIS AFTER LOWER LEG AMPUTATIONS

Anders Dahle

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One hundred and forty-nine amputations of the lower extremities in 109 patients were evaluated.

Sixty-one per cent of the patients were males, and 80 per cent were older than 60 years. Indications for amputation were peripheral vascular disease in 76 per cent. Most of the operations were done below-knee.

Twenty-five per cent of the patients died in the hospital.

Wound healing was better the higher the amputation.

About half of the amputees were considered suitable for fitting of a prosthesis, and 10 per cent of these died in the hospital. Eighty-four per cent of the patients used their prosthesis for a shorter or longer time after they left the hospital.

HALO-PELVIC TRACTION IN SCOLIOSIS

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Halo-pelvic traction is the most effective method of preoperative traction in the treatment of scoliosis, and the patients can ambulate.

A 6-year-old girl with an infantile idiopathic scoliosis was demonstrated. She was first seen when 9 months old. In spite of conservative treatment the scoliosis progressed; at 4 years it measured 110° , and at 6 years 140° . A halo-pelvic apparatus was applied, and 2 months later the curve had reduced to 57° . A spine fusion from T.4 to L.3 was then done, using a modified Harrington technique with instruments of small dimension, and the halo-pelvic apparatus was replaced by a Milwaukee brace 10 weeks later. The combination of the halo-pelvic traction and the spine fusion with the Harrington technique reduced the scoliosis curve from 140° to 50° . The patient increased 14 cm in height.

NERVUS INTEROSSEOUS ANTERIOR SYNDROME

Knut Skoglund

Regional Hospital, Trondheim

Three patients with isolated paralysis of the anterior interosseous nerve, which is the largest motor branch of the median nerve, are presented.

The clinical picture was a spontaneous paralysis of *m. flexor pollicis longus* and *m. flexor digitorum profundus* to the index finger in two patients, and an isolated paralysis of the latter in one patient. They all demonstrated a typical thumb-index pinch, with the distal joints of the affected fingers held in hyperextension and the joint proximal to these in increased flexion.

Surgical exploration of the anterior interosseous nerve did not reveal any constrictive structure in relation to the nerve. An external neurolysis was performed in two of the patients, and in all three cases tendon transpositions were done with good functional results.

ARTHRODESIS OF THE KNEE USING TWO PLATES

Olav Nesse

Regional Hospital, Trondheim

Technique: The denuded joint is, after compression, fixed with two long vitallium plates, one on each side.

Material: Twenty-four cases are reported, six males aged 54 to 73 years, and 18 females aged 49 to 81 years. All had severe destruction of the knee joint with pain, and/or instability and deformity.

Indications: Osteoarthritis or post-traumatic arthritis 11, rheumatoid arthritis 8, poliomyelitis 2, tuberculosis 1, osteomyelitis 1, and re-arthrodesis 1.

Results: After 4 months there was clinical and roentgenological evidence of fusion, and all patients were pain-free and completely satisfied, except for one who complained of pain related to the plates.

Complications: Two patients had thrombosis of the lower leg, and one cerebral thrombosis. Superficial wound infection occurred in two patients.

Advantages of the method: Free choice of knee position; no external support required. Walking on crutches can be permitted the day after operation, and quick union is achieved.

Oslo, November 19th, 1977

CLINICAL FAT EMBOLISM SYNDROME

Antti Alho

Helsinki University Central Hospital, Helsinki

In a series of 556 patients with multiple injuries, fulminant fat embolism syndrome (FES) was diagnosed in 6 per cent, and a less severe type in 12 per cent of the patients. All FES patients had fractures of the pelvis and long bones; the frequency in the non-FES patients was 54 per

cent. 55 per cent of the FES patients, and 60 per cent of the non-FES patients were hypoxaemic at admission. Various conditions causing post-traumatic pulmonary insufficiency were observed in the latter group.

The management of FES consisted of adequate respiratory care, careful immobilization, and early osteosynthesis of the fractures, and, in a selected group, a pharmacological dose of Solu-Medrol[®] (10 mg/kg i.v., t.i.d.) during the first day, which reduced the signs significantly. The mortality in the whole series was 11 per cent, in the FES patients 6 per cent.

It is concluded that FES complicating fractures is a well-defined entity among the various types of post-traumatic pulmonary insufficiency.

SCREW FIXATION VERSUS PRIMARY PROSTHETIC REPLACEMENT IN ACUTE DISPLACED FEMORAL NECK FRACTURES

Tor Steiner Raugstad, Odd Søreide & Anders Mølster

Haukeland Hospital, Bergen

One hundred and four patients with femoral neck fractures were randomized according to birth date. In one-half of the patients the fractures were fixed with von Bahr screws, and the other half had the femoral head replaced by a Christiansen hemiprosthesis. Full weight-bearing was allowed in both groups. The mean operation times were 38 and 86 minutes, respectively.

During the first year mechanical failure occurred in 11 patients with screw fixation. Avascular necrosis of the head of the femur occurred in 2 patients but there were no cases of non-union. Dislocation of the prosthesis occurred in 6 patients, and one patient developed deep infection.

The results at the 1-year follow-up (Stinchfield classification) were: In the group with hemiprosthesis: Excellent 30.6 per cent, good 52.8 per cent, fair 13.9 per cent, poor 2.8 per cent. The figures for the patients with screw fixation were 25.8 per cent, 48.4 per cent, 22.6 per cent and 3.2 per cent, respectively. The results are slightly in favour of primary prosthesis.

DIAGNOSIS OF KNEE LIGAMENT INJURIES

Anders Mølster, Svein Haukaas & Antti Alho
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A series of 51 knee ligament injuries were tested for instability *ad modum* Houghston. Thirty patients were operated on.

Examination under anesthesia was performed in 10 patients who received non-operative treatment. In seven a suspicion of instability could be disproven.

An indication for operation was found in the preoperative examination of all operated patients. Minor supplementary information was obtained by examination under anesthesia. The full extent of the injury was diagnosed preoperatively in 17 out of 24 "triad" injuries, and three out of five varus and posterior hyperextension injuries. In one operated patient no ligament injury could be found.

It is concluded that careful and repeated preoperative clinical instability testing gives a correct diagnosis in most knee ligament injuries, and aids in planning the operative treatment.

EXTERNAL FIXATION OF PELVIC FRACTURES

Antti Alho

Haukeland Hospital, Bergen

Fixation of hemipelvic fractures with Hoffmann osteotaxis pins in the anterior iliac crests is pain-relieving, reduces the lateral opening of the pelvic ring, and has a haemostatic effect. In these respects it is superior to the pelvic sling. The frame constructions do not, however, effectively counteract the cranial dislocation, which is an important factor for residual disability.

A double frame with four transversal tie bars, and a distractor in the cranial side bar on the side

of dislocation, gave the best reduction, and stability, in a biomechanical laboratory study.

Oslo, December 10th, 1977

PRENATAL DEVELOPMENT OF THE HIP JOINT

Per Helland

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Two different autopsy studies, one from India and one from USA, on prenatal development of the hip joint, are compared and discussed.

The degree of anteversion seems to be greater prenatally in normal hips in western countries than in India.

ARTHROSCOPY OF THE KNEE JOINT

Odd Haerum

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Seventy-seven arthroscopies of the knee joint, unsuccessful in eight, are reported.

Subsequent arthrotomy in 62 cases revealed misinterpretation of the arthroscopic findings in nine instances (17 per cent). In the 36 most recently performed arthroscopies, the misinterpretation was reduced to 5.5 per cent. It is concluded that arthroscopy requires skill and experience to obtain maximum benefit.