# Proceedings of the Finnish Orthopedic Society

## Turku, May 8–9, 1987

**Editor: Kalevi Österman**
Orthopedic Hospital of The Invalid Foundation,
Tenholantie 10,
SF-00280 Helsinki, Finland

### Epidemiology of knee disorders

Pekka Kannus, Markku Järvinen, Hannu Kontiala, Leena Bergius, Eija Hyssy, Erja Salminen, Arna Tuomi, Teppo Unkila and Ilona Valtanen

Department of Clinical Sciences, University of Tampere, Tampere Research Station of Sports Medicine, Orivesi Health Center, Finland

Knee injuries and diseases are becoming an increasingly important problem in industrialized countries. There is, however, no reliable information available as to the actual occurrence and nature of knee problems. In this study, all the visits to physicians paid due to knee injuries and disorders in the Orivesi Health Center were prospectively recorded over a period of 1 year.

There were 736 visits, which accounted for 1.9 percent of all the visits. The total prevalence rate was 3.2 percent, and the incidence rate was 2 percent.

The most common reasons for visits were arthrosis and distorsion injuries. A total of 6.9 percent of the visits led to surgical consultation, equaling approximately 4 patients per 1,000 inhabitants annually. The results of this study can be used as an aid in the planning of examination and treatment resources in knee disorders, as well as in the assessment of need for such services.

### Sports injuries in a large urban population

Jerker Sandelin, Seppo Santavirta, Risto Lättilä, Pertti Vuolle and Seppo Sarna

Department of Orthopedics and Traumatology, University Central Hospital, Central Statistical Office of Finland, Department of Social Sciences of Sports, University of Jyväskylä, Department of Public Health, University of Helsinki, Helsinki, Finland

In this study, all the acute sports-related injuries regardless of type, severity, or treatment during 1 year among the adult population of the Helsinki area (population 600,000) was studied. During the investigation, 40,380 injuries occurred mainly among young people. The calculated incidence of sports injuries was 670/10,000 inhabitants. Surprisingly low was the incidence of injuries among women 20–24 years of age.

Most injuries were of a mild character; 9 percent were classified as severe. More than 4,000 patients attended casualty departments. The most common type of injury was distorsion, which was treated with adhesive bandage. The most popular sports events were walking, followed by cycling and jogging. Injury-prone events (e.g., soccer, indoor ball games) were found at the lower end of this list.

Only 57 percent of the injuries required medical treatment in the acute stage. However, at the follow-up 2 years after the injury, 11 percent of the patients complained of some sequela from their initial trauma; in the majority of cases, the initial trauma had been a sprain.

### Symptomatic or asymptomatic spondylolisthesis – a matter of instability or stability

Ora Friberg

Research Institute of Military Medicine, Central Military Hospital, Helsinki, Finland

Although the increasing displacement of spondylolisthesis in the course of years has been considered a special type of instability, no significant instability has so far been observed by means of conventional flexion-extension radiography. By a dynamic traction-compression radiography developed by the author, abnormal translatory movement of 5 mm or more was found in 58 of 93 patients with spondylolisthesis. In 64 symptomatic and 29 asymptomatic patients, the maximal static slip (mean/SD) was equal (mean 8.0 and 8.1 mm, respectively), but the amount of translatory instability was significantly higher in the symptomatic group (6.3/2.1 mm) than in the asymptomatic one (1.9/2.0). All 17 cases with degenerative spondylolisthesis were symptomatic and unstable; the translatory movement was 5.4/1.4 mm. The incidence of instability of $L_5$ spondylolisthesis was significantly higher in patients under aged 45 years (mean 24 years) than in older patients (mean age 55 years), indicating restabilization at more ad-

vanced age. It seems that the amount of translatory instability rather than the degree of the maximal static slip is the cause of pain symptoms.

## Discography combined with CT scanning in the assessment of lumbar spine problems

Juhani Soini, Ilkka Antti-Poika and Timo Yrjönen

Orthopaedic Hospital of the Invalid Foundation, Helsinki, Finland

The purpose of this prospective study was to compare diagnostic data of CT/discography plain films, myelography and CT in 31 patients (83 discs). Indications for a discography combined with a subsequent CT were persisting LBP possibly due to internal disc derangement in young adults (19 cases), preoperative evaluation of the disc above the planned fusion in patients with spondylolisthesis or segmental instability (8 cases), and persisting LBP after radiographic fusion (4 cases). The mean age of the patients was 33 (16–46) years. Using the lateral approach, 0.5–3 ml of dye (Omnipaque 240 mg/ml) was injected into the three lower lumbar discs. The pain reaction of the patient was noted. Then, 2–6 hours later, a CT scanning of the injected disc levels was carried out. The distribution of the contrast dye within the disc was classified according to the Dallas Discogram Description (3-D). In 10 percent the diagnosis was confirmed with CT/discography only; in a further 32 percent the method was a useful adjunct. In 32 percent the CT/discography gave no diagnostic information. The CT/discography was assessed to be useful in 44 percent, especially when planning a fusion. It seems that discography combined with subsequent CT scanning is a useful diagnostic method in selected cases of LBP.

## Diagnosis of osteomalacia: A case report

Ilkka Arnala and Esko M. Alhava

Department of Surgery, Kuopio University Central Hospital, Kuopio, Finland

We report a 85-year-old female patient with a tibial fracture without trauma. She had a small increase in alkaline phosphatase value at the time of the fracture. Other biomechanical parameters were normal. There was no etiologic reason for osteomalacia. An iliac crest biopsy was performed without previous tetracycline labeling. In the histomorphometric analysis, osteoid parameters were found to be slightly increased; but because of lack of labeling, it was not possible to show any defect in mineralization. There were no problems in healing of the fracture. The patient was treated with 2,000 IU vitamin D daily. Quantitative mineralized bone histology is needed for the diagnosis of osteomalacia. Osteoid parameters can be elevated in some high-turnover bone diseases and still mineralization remains normal. In such cases also dynamic evaluation of tetracycline-labeled bone samples is essential.

## Microsurgery of upper extremity nerve injuries caused by open trauma

Olli Korkala, J. Rautio, Matti Rusanen and Georg Bakalim

University Central Hospital, Department of Orthopedics and Traumatology, Helsinki, Finland

Eighteen patients treated by microsurgical primary (n = 7) or secondary reconstruction (n = 11) were evaluated 1.5–5 years postoperatively. Thirteen cases were treated either by a primary or secondary interfascicular or combined interfascicular-epineural neurorrhaphy. They ended up with a good result in 7, a fair result in 5 cases, and a poor result in 1 case. The results of primary versus secondary nerve suture did not differ. An interfascicular secondary nerve grafting was made in 5 cases with a good result in 1 case, a fair result in 3 cases and a poor result in 1 case.

The analysis clearly confirms that the microsurgical approach is mandatory in peripheral nerve surgery even for trauma surgeons without microsurgical training.

## Deformity correction and clinical results in high tibial osteotomy for gonarthrosis

Pekka J. Jokio and T. Sam Lindholm

Orthopedic Hospital of the Invalid Foundation, Helsinki, Finland

Forty-six osteotomies performed in the years 1981–1983 were followed up in 1986. Sex distribution was 25 male and 18 female patients, with a mean age of 56 years at operation. Forty wedge osteotomies and six dome osteotomies were done above the tibial tuberosity with staple fixation.

In 36 knees in 33 patients with medial arthrosis, the result was good in 28 and poor in no case in the age-group 55–64 years. Four fifths of them obtained a good result, and there was no poor result in Grade II arthrosis. When grouping according to ultimate MA (mechanical axis) angle, the good results were concentrated in the group with MA = $-10°$. When grouping according to the MA angles recorded at the earliest (3 months) follow-up ,the group of MAs between $=9°$ and $-3°$ (valgus, i.e., overcorrection) contained only good results. It seems reasonable to suggest that the MA angle

observed at the earliest follow-up is a sign that can be used to predict the ultimate outcome.

In lateral gonarthrosis the findings were equal as regards age and grade of arthrosis. Undercorrection seems to be definitely desirable when operating on a valgus knee.

The objective should always be correction to slight valgus position, both in medial and lateral gonarthrosis.

## Total hip replacement in the treatment of old tuberculosis of the hip joint

*Antti Eskola, Seppo Santavirta and T. Sam Lindholm*

Orthopedic Hospital of the Invalid Foundation, Helsinki, Finland

We have treated 16 patients since 1979 with total hip replacement. The patients' age averaged 48 (37–64) years, and the average time from the onset of the tuberculotic hip arthritis was 34 years.

Thirteen of the patients were treated with an uncemented Lord prosthesis and 3 patients with a Lubinus prosthesis, and in these operations Gentamycin® cement was used. Eight of the patients received prophylactic antituberculous chemotherapy for 6–12 months postoperatively.

At the follow-up examination, 10 patients had a good or excellent result, whereas 5 had a fair and 1 and poor result.

One patient had a superficial postoperative wound infection that was successfully treated with short-term antibiotic therapy. Another patient with chronic recurrent sinusitis had a deep staphylococcus infection in the operated on hip, and long-term antibiotic treatment failed to salvage the prosthesis.

We conclude that old tuberculosis can be treated with total hip replacement. However, there is a potential risk of recurrence of tuberculosis or other postoperative infection; and at the present stage, we suggest a 6–12-month postoperative administration of prophylactic rifampicin.

## Hemiarthroplasty in the treatment of cervical femoral fractures

Markku Härkönen, Jussi Laranne and Turkka Tunturi

Department of Clinical Sciences, Tampere University, Tampere, Finland

The material consisted of 107 patients treated by Thompson hemiarthroplasty for cervical femoral fractures in 1982–1983. The mean age of the patients was 77 (55–96) years. There were 82 women and 25 men. A clinical and radiographic follow-up was made 3 years later. At the time of the follow-up, 47 patients were alive.

*Complications:* The mortality during the first month was 12 percent. The prosthesis had dislocated in 8 and loosened in 7 cases. The prosthesis had subsided in 11 cases, and a protrusion of the prosthesis was seen in 16 cases.

Both the dislocations and loosenings of the prosthesis were more common in the cases operated on by junior surgeons, but the difference in the occurrence was not statistically significant. Subsidence and protrusion of the prosthesis was more common among the patients with a body weight of more than 75 kg. Protrusion of the prosthesis was more common in the arthrotic hips, but the difference was not statistically significant.

*Conclusions:* Hemiarthroplasties should be performed by experienced surgeons. A total arthroplasty might be preferable for patients with overweight and arthrosis.

## Biodegradable fixation in chevron osteotomy for hallux valgus

Eero Hirvensalo, Ole Böstman, Seppo Vainionpää, Kimmo Vihtonen, Pentti Rokkanen and Pentti Törmälä

Department of Orthopedics and Traumatology, Helsinki, The Institution of Polymer Technology, Tampere, Finland

The biodegradable implants were introduced in 1984 for fixation of displaced malleolar fractures. In March 1986, a number of new clinical applications for biodegradable fixation were assumed. One of these was the chevron osteotomy of the first metatarsal bone in the treatment of hallux valgus. The lateralization of the metatarsal head was secured in the desired position with a 2 mm by 25 or 30 mm cylindric polydioxanone-coated polyglycolic rod. Postoperatively, the great toe was supported by a medially placed light, short metallic splint for 2 weeks. Full weight bearing was allowed after 4 weeks.

So far, 22 patients have been managed using this method. The mean age of the patients was 34 years. No failure of the fixation was observed. The bony union was uneventful in all the cases. No wound infections were seen, but in 2 patients a sinus without any bacterial growth was formed. The sinuses healed within a few weeks, with no influence on the union or the functional result. The major advantage of the method is that the use of biodegradable implants abolishes the need to remove the fixation material. The technique is simple and the preliminary results with this method were favorable.