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Arthroscopy under local anaesthesia

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In 208 out-patients, 210 arthroscopies of the knee were performed under local anaesthesia with 30 ml of a 2 per cent lidocaine solution with adrenaline. In 62 per cent of the cases a small meniscus hook was inserted for accurate palpation of the structures.

Two months after this procedure the patients completed a questionnaire concerning their experience. *General opinion:* 67 per cent thought the procedure less and 17 per cent thought it more disagreeable than expected; 16 per cent thought the procedure was as they had expected. *Pain afterwards:* 15 per cent reported none, 28 per cent reported little, 36 per cent reported moderate and 31 per cent reported considerable pain.

If the procedure had to be repeated, 88 per cent would prefer local anaesthesia again, but 12 per cent would opt for general anaesthesia.

The arthrographic diagnosis proved to be incorrect in 42 per cent, and the clinical diagnosis in 50 per cent of the cases. In 46 per cent of the cases the strategy was changed on the basis of the arthroscopic findings. Subsequent arthrotomy revealed that the arthroscopic diagnosis had been wrong in only 1.5 per cent of the cases.

Conclusion: Arthroscopy under local anaesthesia is tolerated well by the majority of out-patients, and is an accurate diagnostic procedure which makes it possible to select patients for conservative surgery under arthroscopic control or for arthrotomy.

Operative treatment of habitual dislocation of peroneus tendons

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In a total of nine patients, aged 15–45 years, six rght and four left ankles with post-traumatic habitual dislocation of peroneus tendons were treated by operation during the period 1974–1981. In all cases the primary dislocation had occurred during athletic activities (skiing in four, other sports in the remaining five). Eight ankles showed daily dislocations which precluded further athletic activities.

In all cases the injured superior peroneal retinaculum was reconstructed by transposition of the calcaneofibular ligament laterally in relation to the peroneus tendons. For this purpose the calcaneofibular ligament was mobilized with a bone chip from the calcaneus and, after transposition, fixed at the same site. A plaster cast was applied during the first 6 postoperative weeks. No postoperative complications developed.

The follow-up period ranged from 6 months to 8 years (mean years).

No recurrence of dislocation was seen. Athletic activities could be resumed at the original level, with incidental minimal pain in the ankle in two cases. In no case were instabilities or distortions observed. One patient showed reduced inversion which caused no complaints.

Conclusion: The above described operative technique of treating post-traumatic habitual peroneus tendon dislocation is a simple procedure with a readily predictable result.

Chemonucleolysis: a lasting alternative?

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In the past 2 years chemonucleolysis has been used in the treatment of 25 patients with back problems (15 men and 10 women, with an average age of 34 years). In all cases a preoperative myelogram was obtained, and discography was performed immediately before the injection.

There were three groups: Group 1 with an unmistakable slipped disc, Group 2 with a bulging disc, and Group 3 with an evident discopathy. The procedure was performed under general anaesthesia with the aid of an image amplifier. The injection was given at level L4/L5 in 19 and at L5/S1 in nine cases.

Contraindications to this procedure were: known hypersensitivity to chymopapain, previous treatment with this compound at the pathological level, post-discectomy situation, a proven sequestrum of the annulus, pregnancy, a complete stop in the myelogram, severe neurological dysfunction, and a normal discogram.

The follow-up period averaged 10.5 months.

Results: In Group 1 (n = 10), six patients were subjectively good and four were much better. All showed unmistakable objective improvement. In Group 2 (n = 12), seven patients were subjectively good, three were much better and two were moderate. Objectively, 10 patients were much better and one was moderate, while one showed recurrence of problems. In Group 3 (n = 3), two patients were subjectively much better and one was moderate. All showed objective improvement. No serious postoperative complications developed.

Conclusion: The indication of choice for treatment by chemonucleolysis is a genuine slipped disc without neurological dysfunction. In view of the low morbidity, this procedure is to be preferred to a discectomy, particularly since the dorsal structures remain intact.

CT-scan to determine the effects of chemonucleolysis

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The recent approval of chymopapain by the FDA can be expected to lead to increased use of chemonucleolysis as a final step in the conservative treatment of lumbar slipped disc.

The effects of chymopapain on the disc were studied in a random group of 30 patients with the clinical and radiological indications of slipped disc. Supplementary pre-treatment examinations included plain X-rays of the lumbar spine, caudography and a CT-scan, as well as discography immediately before the chymopapain injection. Clinical examination, lateral roentgenography and CT-scan were repeated 3 months later.

In all cases except one, the width of the disc was found to be reduced, by an average of 25 per cent. The control CT-scan as a rule revealed bulging of the disc or exacerbation of the preexistent bulging. The protrusion of the slipped disc was reduced or had disappeared in some 75 per cent of the cases, with diminished compression of the cauda and/or nerve radices. In some cases the degree of compression had remained the same because disc bulging had increased while the protrusion of the slipped disc had diminished. Fibrosis within the vertebral canal was not observed. In most cases with CT-scan evidence of reduced compression, the clinical result was good.

A medial approach in open reduction of congenital hip dislocation

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Open reduction according to Ferguson was the procedure used in the treatment of 56 hips of 51 children with congenital hip dislocation between 1974 and 1982. The age at operation ranged from 3 to 15 (mean 7) months. The isthmus of the caudal capsule and the transverse acetabular ligament were found to be the structures which precluded concentric reduction. The hips were immobilized in a bilateral hip spica for 4 months, after which 80 per cent of the hips showed a normal acetabular index according to the values reported by Tönnis (1976).

Three hips required supplementary surgery: Salter's pelvic osteotomy in one and intertrochanteric derotational varus osteotomy in two cases. Of the remaining 53 hips, 26 required postoperative application of an abduction splint.

During the first 2 postoperative years, 21 hips showed a mild degree of lateralization due to capsule laxity.

The follow-up period ranged from 7 months to 8 years and 5 months (average follow-up 3 years). All children older than 3 years at follow-up had stable, concentrically reduced hips, without additional treatment of lateralization. The treated and the

contralateral hips did not differ significantly in anteversion and neck-shaft angle.

Follow-up on the results of proximal femoral osteotomies in the treatment of coxarthropathies

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A follow-up was performed on 123 (46 male and 77 female) patients with coxarthropathies of three aetiological categories: 66 with dysplasia, 47 with primary coxarthropathies and 10 with other forms (slipped upper femoral epiphysis, Perthes's disease, etc.).

Medial displacement osteotomy was the sole operation performed on 61 patients, while 62 patients in addition underwent a valgus or varus osteotomy. The indications for the various osteotomies proved to be ill-defined in retrospect.

The follow-up period ranged from 4.7 to 13.7 (mean 10.1) years.

The results in patients over 50 treated by valgus or varus osteotomy were better than those in patients treated only by medial displacement osteotomy. Throughout the group, results were age-independent. Ten years after osteotomy results were still good or moderate in 55 per cent of the cases.

Conclusion: Valgus or varus osteotomies produce better results; long after the operation, a reasonable number of patients still show good results. An osteotomy can still be effective even at an advanced age.

Transposition of the posterior tibial muscle in peroneal nerve dysfunction

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The results of transposition of the posterior tibial muscle by the circumtibial route, with tendon-to-tendon insertion, were studied in 21 patients with dropfoot due to peroneal nerve dysfunction. In this operation the tendon of the posterior tibial muscle is divided into two strips: one is sutured to the extensor hallucis longus and the other to the extensor digitorum longus. During suturing, the foot is fixed in 20° dorsiflexion with the aid of a special splint.

Complications: Severe postoperative varus deformity was observed in four cases; in one case it necessitated a second operation to shorten the lateral strip, while the other three patients needed special footwear. Toe deviations were found in two patients but caused no complaints. An infection developed in two cases and led to formation of peritendinous adhesions; in one case this had an unfavourable effect on the functional result.

Functional results: Active dorsiflexion exceeded 10° in four cases and was between 0° and 10° in 13. In four cases dorsiflexion was less than 0°; this was due to detachment of the tendon sutures in one case, a poor surgical indication in two, and adhesions after postoperative infection in one case. Functional results were therefore good in 17 and poor in four cases. Of the 21 patients, 19 were subjectively satisfied and two were not (one on cosmetic grounds).

Rotational graft of the lower leg in the treatment of osteosarcoma of the (distal) femur

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The procedure of using a rotation graft in the treatment of osteosarcoma of the femur is discussed with reference to six patients. Preoperative chemotherapy was followed by wide excision of the tumour, leaving only the artery, vein and nerve intact. The lower leg was attached to the stump of the proximal femur in five cases and to the pelvis in one case. There were no postoperative wound healing problems.

The follow-up period was 4–26 months

No local recurrence or metastasis has so far been demonstrable. The five patients whose hip-joints remained intact were all allowed ambulation with a specially designed prosthesis within 3 months. The (female) patient with a "hip arthrodesis" was allowed up after 5 months.

The fact that after this operation the foot (turned 180°) always retains normal sensorimotor functions makes it possible to apply a weight-bearing prosthesis with the foot serving as motor for the knee-hinge.

For children, the rotation graft seems a good alternative to amputation and possibly to exarticulation. In selected adults the rotation graft can be used as an alternative to resection-arthrodesis or an endoprosthesis.

Results obtained with a central cancellous bone graft in the treatment of congenital pseudarthrosis of the tibia

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Congenital pseudarthrosis of the tibia is rare. Conservative treatment is futile, because the natural history of the anomaly is unfavourable. Surgery seems to give better results, largely depending on the length of the follow-up. Subsequent amputation is unavoidable in some 30 per cent of the cases.

Since 1976, we have treated five children by means of a central cancellous bone graft in an effort to establish a bony bridge between tibia and fibula over a large distance, leaving the pseudarthrosis itself intact. In a lateral approach the interosseous membranes between the long extensors and the peroneal muscles were detached anterolaterally and transposed dorsally; after partial decortication of tibia and fibula, cancellous bone from the iliac crest was inserted. Postoperative management included non-weightbearing ambulation in a plaster of Paris boot; after consolidation, a protecting leather boot was worn for a long time to prevent re-fracture.

Results: Consolidation was achieved in two children who had twice received a central cancellous bone graft (follow-up 4 years and 5½ years, respectively). Both showed a leg length difference of more than 2 cm, and one showed marked valgus deviation of the ankle as well. Of three patients given only one graft, one showed no consolidation, one showed clinical but not radiological consolidation, and one showed consoldiation after a follow-up of only 6 months.

The silastic prosthesis in lunatomalacia

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A Silastic lunate bone prosthesis implanted from the dorsal side has been used in the treatment of 15 patients with serious wrist problems due to lunatomalacia since 1977. In six patients the lunate bone was already deformed, causing a disturbance in the carpal architecture. Dislocation of the prosthesis occurred in the immmediate postoperative period in two cases: volar dislocation due to a lesion of the volar ligament, leading to permanent median nerve lesion, in one case; and dorsal dislocation in the other. The dislocated prosthesis was successfully replaced with a smaller one.

Of the 15 patients, 12 were available for follow-up after 18–51 (average 30) months. Results were good to very good in the eight patients whose lunate bone was still undeformed at the time of operation. All were manual workers and could resume their work without restriction. Of the remaining four patients, two showed a similar good result (resumption of work); two others complained of pain even at mild stress, but had sufficient function and strength for general quotidian tasks.

Conclusion: Treatment of lunatomalacia using a Siliastic lunate bone prosthesis can be expected to give good results, especially in cases in which the lunate bone is still undeformed. It is important to leave the volar ligament intact in the operation.

Orthopaedic aspects of modern treatment of the haemophiliac

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The possibility of repletion of the clotting deficiency of haemophiliacs has caused radical changes in the treatment of haemarthrosis and its consequences. Experience gained in the treatment of 40 patients with moderate to severe haemophilia (less than 5 per cent clotting factor) is discussed.

Acute haemarthrosis requires suppletion therapy. Relieving punctures are rarely necessary. Rapidly recurrent bleeding is accompanied by a synovial reaction which eventually leads to loss of cartilage and destruction of the joint; in some cases this process is rapidly progressive.

Subacute haemarthrosis is treated by 6 weeks' suppletion therapy up to 30 per cent and intensive physiotherapy. This ensures an average functional recovery of 30 per cent, especially in ankles and elbows.

The number of recurrent haemorrhages (several per month in some cases) diminished by 50–75 per cent. The effects of therapy were still present after 1 year.

In persistent synovitis, synovectomy can be helpful, but it entails some 10 per cent loss of function (mainly flexion). Synovectomy nearly always has to be combined with wound toilet.

Two patients were treated by synovectomy of the elbow and resection of the head of the radius; this reduced the number of haemorhages by 75 per cent and caused a 50 per cent improvement of mainly pronation and supination.

Joint replacement may be considered in the case of severe joint destruction. Total hip replacement was done twice, without complications. This requires a

strict programme of suppletion therapy, which is extremely expensive.

In the light of the increased life expectancy, active orthopaedic supervision and treatment seems important.

Compartment syndrome and Volkmann contracture after fracture of the lower leg

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Compartment syndrome is a condition in which the circulation and the function of tissues within a closed space are compromised by increased pressure within that space. Ischaemia of the tissues causes muscle necrosis and loss of function of all nerves passing through.

The lower leg is divided by rigid osteofascial structures into four compartments, each with its own muscles, blood-vessels and nerves. We discuss the syndrome of the least known compartment, that of the deep calf muscles. Fibrosis and shrinking of these muscles cause the so-called "short-foot" syndrome, with a shortened clawfoot in varus, inversion and adduction and with a tendency to the equinus position. Sensitivity of the sole of the foot is disturbed.

In a group of 196 patients with fracture of the lower leg, we found 11 cases (5%) of short-foot syndrome. The emphasis must be on prevention of this complication. In cases of severe soft tissue injury of the lower leg, there is a broad indication for fasciotomy of all four compartments; we prefer the parafibular approach by one lateral incision.

Oral anticoagulants and dextrans for prevention of venous thrombosis in orthopaedic surgery

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A hundred and fifty-two patients who were to undergo major orthopaedic surgery were divided into two groups in order to study the value of dextrans administered as adjuvants to oral anticoagulants in the prevention of deep venous thrombosis.

The control group had oral anticoagulants only from the evening before the day of operation, aimed at the 15 per cent thrombotest level. The dextran group had peroperative and postoperative dextran infusions as well. Radionuclide venography was used for thrombosis detection.

There was a significant difference ($P = 0.05$) in the incidence of deep venous thrombosis, with 34/81 in the control group and 21/71 in the dextran group.

In the dextran group there were more haemorrhagic problems: blood loss during operation was 1088 ± 998 ml vs. 1225 ± 863 ml and after operation 472 ± 412 ml vs. 599 ± 501 ml (not significant), blood transfusions 253 vs. 275 units ($P < 0.05$), and wound haematomas 8 vs. 17 ($P < 0.05$).

During the study, no clinically manifest pulmonary emboli were diagnosed.