Netherlands Orthopedic Society

Eindhoven, May 15, 1993

Editor: R M Castelein
Ziekenhuis
De Weezenlanden
Groot Wezenland 20
8011 JW Zwolle
The Netherlands

A new type of carpal crush lesion

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Carpal crush lesions are very rare. Most of these complex lesions are characterized by longitudinal splitting of the carpus and adjacent metacarpal bones. These traumatic axial carpal lesions can be classified according to the site of the interruption in the carpal arch. Their common element is that the central column, consisting of the lunate and capitate bones and the third metacarpal bone remains stable (Elias et al. 1989).

A crush lesion is described in which an axial splitting of the carpus occured between the central and ulnar columns. The radiographs showed a dislocation not previously described viz. a volar displacement of the navicular, lunate, capitate, trapezoid and trapezium bones in relation to the triquetral, hamate and pisiform bones.

The treatment comprised longitudinal distraction, closed repositioning and stabilization by means of external fixation. Anatomical repositioning was achieved. The merits of external fixation in these complex lesions are: 1) accessibility of the soft tissues for treatment; 2) prevention of secondary carpal collapse. The latter is a complication frequently observed in plastercast immobilization after closed repositioning of carpal dislocations and dislocation fractures (Adkison and Chapman, 1982).

This case demonstrates that excellent functional and radioanatomical results can be achieved without open repositioning, ligament suturing or plastic repair of ligaments.

Immediate loss of radial nerve function in a humeral shaft fracture—rapid exploration versus an expectative management. An answer from the literature

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The literature on this controversy is full of contradictions and vagueness. For this reason, on the basis of uniform definitions and demarcations, data were collected selectively from publications containing complete information. This left, from the 85 publications examined, only 31 for analysis.

We attempted to deduce arguments from overall surveys to arrive at a better justified choice of management.

Immediate loss of radial nerve function occurs in 8.4% of all humeral shaft fractures (260/3100; 14 publications; range 1.8–16.4%).

It was found that if an expectative policy was mantained for at least two months, spontaneous recovery occurred in 89% (39/44; 9 publications). In case of operation within one week, 87% recovered (86/99; 12 publications). If after two months' wait-and-see exploration proved necessary after all, nerve recovery was still achieved in 62% (21/34; 5 publications). Exploration within one week after a primary loss of radial nerve function failed to reveal clear macroscopical lesions in 52% (49/95; 6 publications), while entrapment of the nerve was found in 15%. Exploration after at least two months virtually always revealed clear macroscopical abnormnalities (10/11; 4 publications), with entrapment as the most frequent form (7/11; 4 publications). When humeral shaft fractures without loss of nerve function were operated on, 9% develop a secondary loss of radial nerve function (119/1321; 19 publications). Seddon (1947), for major loss of radial nerve function in humeral shaft fractures, calculated an interval before recovery of 100/130 days. Radial nerve recovery is usually established on the basis of clinical picture and EMG.

Conclusions: It is found that early exploration does not lead to higher percentages of recovery than a primarily expectative policy. Early operation may bring about additional iatrogenic

nerve damage, which might prolong the interval before recovery. In order to prevent this, and to give spontaneous recovery a chance, a primarily expectative management for two to three months appears reasonable. If after this period complete loss of function is still present clinically and at repeated EMGs, delayed exploration still results in a fair proportion of recoveries, whereas now, macroscopical nerve lesions are observed frequently.

A functional period after repair of Achilles tendon ruptures

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Patients and method: 45 patients were treated for a ruptured Achilles tendon. Mean age was 37 (18–66) years, the male: female ratio was 36:9 and the left:right ratio 26:19. The rupture occurred during athletic activities in 33 cases. Mean follow up was 6 (1–13) years. Most accurate tests were the Thompson test, palpation of the impression and walking on tiptoe.

The three-slip sandwich operation was used to repair the rupture. The peritendineum could be closed in 42 patients. After the 7th postoperative day there followed a period of practising dorsal and plantar flexion of the ankle without weight bearing. Once good function was achieved, a walking cast was fitted for 6 weeks.

Results: 43 patients could resume their athletic activities at the same level as before. The mean recovery required was 23 (12–75) weeks. Clinical examination included function, strength, walking on heels and tiptoe, atrophy, analysis of tendon swelling and scar inspection.

Conclusion: Results were excellent or good in 43 and fair or poor in two patients.

Fractures of extremities in rheumatoid arthritis patients

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A retrospective study was made of 50 patients with rheumatoid arthritis (RA), with fractures of the pelvis (7) and/or extremities (64). The group included 45 women and 5 men. Mean age at time of fracture was 70 years. Four subgroups were defined: 1) spontaneous (10), of which 9 in (former) users of corticosteroids; 2) multiple (12), of which 7 in (former) users of corticosteroids; 3) prosthesis-related (10), of which 2 in (former) users of corticosteroids; and 4) single-traumatic (22), of which 10 in (former) users of corticosteroids.

There were 26 hip fractures in 24 patients, of whom 12 were (former) corticosteroid users. Of these, 2 stable fractures were treated conservatively with ultimate consolidation and 11 were treated by implantation of a total hip prosthesis (THP), which gave no further problems. However, 2 hemi-arthroplasties and 7 of the 11 treated with osteosynthesis required subsequent revision and THP implantation.

The prosthesis-related group included 1 fracture in a previously implanted hip prosthesis, 4 in knee prostheses and 5 in elbow prostheses.

Conclusions: 1) apart from advanced age and female sex, use of corticosteroids increases the risk of fractures in RA; 2) dislocated hip fractures in RA are best treated with a THP; and 3) the risk of fractures has increased, especially as regards elbow and knee prostheses.

Results of surgical repair of rotator cuff ruptures

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Rotator cuff ruptures occur regularly. A retrospective study was designed to investigate the clinical results and the predictive value of peroperative parameters concerning functional results. The findings were compared with the literature.

Patients and method: The study concerned patients operated on in the Antonius Hospital between 1984 and 1990. Subjective and objective findings were established by means of history taking, examination of both shoulders, operation report, radiographs and arthrography. The investigation concerned 40 patients, 21 women and 19 men, with a mean age of 61 (37–77) years. Mean follow-up was 5 (2.5–9.2) years. The dominant arm was affected in 30 patients and an injury was involved in 22.

Results: At the time of the follow-up study fewer than half the patients still had residual complaints. Seven patients were dissatisfied with the ultimate result and three would refuse to undergo the operation once again.

Incidence of nerve injury after shoulder dislocations and subcapital humeral fractures

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Objective: There is no consensus in the literature on the incidence of lesions of the axillary nerve and other nerves in

shoulder dislocations and subcapital humeral fractures. In only two prospective studies (Blom/Dahlbäck 1970, Pasila 1978) was an attempt made to determine the incidence objectively by means of an EMG. We carried out a prospective study.

Method: All patients (n=101, mean age 62 years), who during a one-year period were seen via the Emergency Service with a shoulder dislocation or subcapital humeral fracture, were prospectively studied clinically and electromyographically and followed up. In all cases the mechanism of the injury was a fall from the subject's own height.

Results: The findings showed an accompanying nerve injury in 45% of our patients. A persistent neurogenous injury was present in 22%. None of them required surgery, but considerable loss of function and muscle strength persisted. As expected, the incidence was higher among patients over 65 than among younger persons.

Our findings suggest that paresis and hematoma are prognostic indications of accompanying neurogenous injury. An early start of active exercise directed by a physiotherapist in case of suspicion of nervous injury is, in our opinion, essential.

Results of the treatment of 150 patients with pelvic injuries

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An assessment was made of the treatment of 150 patients with pelvic fractures seen between 1987 and 1992.

According to the AO classification, 93 patients had a group A fracture, 23 a group B fracture, and 34 a group C fracture. All patients of group A and 14 of group B received conservative treatment, 41 patients from groups B and C were operated on. The indication for operation was clinical instability of the fracture in combination with the radiographic classification. Four patients could not be operated on because of their poor condition.

Good repositioning and exercise-stable fixation were achieved via a posterior approach or an ilio-inguinal incision, sometimes combined with external fixation. In six cases, only external fixation was used. Aftertreatment consisted of mobilization with weight bearing for 6 weeks. Nerve damage was present preoperatively in four patients; in one it occurred peroperatively. Four patients died during the postoperative period. Wound infection occurred five times and redislocation of the fracture once.

The final results were good to excellent both in the conservatively treated group and in the operated on group. Given accurate classification, selection and preparation, surgical treatment of pelvic fractures may give good results.

Operative arthrolysis in posttraumatic stiff elbow

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Between 1981 and 1990, 14 patients were subjected to operative arthrolysis of the elbow because of a posttraumatic restriction of the flexion and/or extension. The limitation had persisted in spite of at least 6 months' conservative treatment; all had at most minimal symptoms of osteoarthrosis. Twelve patients were re-examined after a mean follow-up of 62 months.

Anamnestically, the pain decreased from 1.2 to 0.5 and the rigidity from 2.3 to 1.3 (scale 0–3). Nine patients were still satisfied. Elbow function had improved substantially. The functional arc increased from 73 to 112 degrees, the relative gain was 57%. Six patients who had been operated on within one year after the injury improved about twice as much as the others who were operated on after the one-year period. Forearm rotations were unimpaired, both preoperatively and at follow-up.

Comparison of the preoperative radiographs with those made at follow-up revealed distinct osteoarthrotic alterations in 8 of the 12 cases (IInd and IIIrd degree). The three dissatified patients were all found to have IInd degree osteoarthrosis.

Conclusion: Arthrolysis constitutes a valuable alternative if intensive conservative treatment gives inadequate results in posttraumatic rigidity. The authors prefer to operate within one year after the injury.

Experience with Harrington spondylodesis in fractures of the thoracolumbar spine

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Thirty-three patients with fractures of the thoracolumbar spine were treated with spondylodesis and Harrington instrumentation after early repositioning and stabilization in the ER.

The 'rod long fuse short' technique was used. After the operation, the patients were mobilized wearing a corset. Mean follow-up was 6 (1–13) years. At the follow-up examination 28 patients were free from pain, three occasionally used analgetics. One patient had to be absent from work because of leg pain. One patient had constant incapacitating pain. Twenty-three patients could resume their occupational activities (with or without restriction of lifting).

Mean kyphosis postoperatively was 8°, increasing to 13° at follow-up.

Conclusion: Early repositioning and primary stabilization constitute an essential stage in the treatment of thoracolumbar

vertebral fractures. The operation with Harrington instrumentation is safe and relatively simple and results in adequate stabilization and correction. The patients are highly satisfied and at long-term follow-up report little pain.

The dorsal plate in Weber B fractures of the ankle—a valid alternative?

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Objective: The most widely used method of stabilizing a dislocated Weber B fracture of the ankle is application of one or several tension bolts with a neutralization plate in a lateral position. Alternatively, an anti-slip plate may be applied dorsally to the fibula. This has theoretical and practical advantages. The objective of the study was to assess the results of the latter operation.

Patients and method: A retrospective study was made of the patients in whom a dorsal plate had been inserted between January 1986 and December 1990. The Weber score (questionnaire, physical examination and radiography) could be determined in 48 of the 64 patients (75%). Mean follow-up was 4 (2–7) years. There were 35 B1, 5 B2 and 8 B3 fractures.

Results: For the group as a whole, the Weber score was excellent/good in 83% and poor in 17%. The B3 fractures scored considerably worse: 38% and 62%, respectively. No method-related complications were seen. General complications were: hematoma (1), superficial infection (3), neurapraxia (2), contralateral leg thrombosis (1), impaired wound healing after removal of material (1).

Discussion/conclusion: The results are in accordance with those of traditional AO fixation as reported in the literature. In our hands the dorsal anti-slip plate is a valid alternative in Weber B fractures.

Results of the treatment of 75 patients with acetabular fractures

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From 1987 to 1992, 72 patients with acetabular fractures were treated. 65 patients had an isolated acetabular fracture, 10 had a pelvic fracture as well. 24 patients were treated conservatively, 51 were operated on. Operation was indicated in case of dislocation exceeding 3 mm, a loose fragment in the joint and/or posterior instability. Three patients were not operated on, because of their age and condition, and in 17 there was no or minimal dislocation of the fracture with sufficient roof arc or weight bearing dome.

Conservative treatment consisted either of traction for a few weeks or just mobilization without weight bearing. In the operated on patients, via a Kocher-Langerbeck, extended iliofemoral or ilio-inguinal incision, repositioning was achieved, as well as a usually exercise-stable osteosynthesis, with which the patients were mobilized with partial weight bearing for 6 weeks. All surgical patients were given indomethacin.

Six patients developed a heterotopic ossification. Six patients had a preoperative paresis of which four recovered. Per/postoperative nerve damage occurred in three patients, with recovery in two. Mortality amounted to three patients. Ischemia of the head of the femur occurred once, and redislocation of the femur also once.

The results were good to excellent in the conservative as well as in the surgery group (69%). With application of the above-named criteria and careful preparation and surgical technique, good results may be achieved.

Results of perichondrioplasty as treatment of cartilaginous lesions in the knee joint

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A retrospective study was made of the results in all the 25 patients subjected to perichondrioplasty in the knee joint in Alkmaar Medical Center from December 1988 to December 1990. The group included 18 patients with a cartilaginous fracture, three with a focus of dissecting osteocondritis, three with chondromalacia and one with multiple epiphyseal dysplasia. The pericondrioplasties were all placed in the weight-bearing surface: 12 on the medial femoral condyle, 3 on the lateral femoral condyle, and 10 on the patella.

Apart from recording the patients' subjective assessment, use was made of the pain score via a visual analog scale, the Lysholm score and the Tegner score.

Five patients were satisfied with the results of the operation. Pain was reduced in 16 patients; the Lysholm score increased in 16 patients while in 19 of them the Tegner score decreased.

Conclusion: In the group examined, perichondrioplasty proved not to be a succesful intervention.

The Geomedic knee prosthesis—a long-term follow-up

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Objective: To assess the long-term clinical and radiological results of the Geomedic knee prosthesis.

Design, material, patients, methods: A total of 189 Geomedic total knee arthroplasties in 143 patients were examined retrospectively for long-term results. 118 prostheses had been implanted in patients with rheumatoid arthritis and 71 in patients with gonarthrosis. 57 knees were examined clinically, with a mean follow-up period of 11 years. 81 knees were examined radiologically with a mean follow-up of 10.5 years. A survival analysis was performed using the actuarial method.

Results: 70 percent of the knees were free from pain. 62 percent of the follow-up radiographs displayed radiolucent lines at the interface between tibial bone and cement. 34 prostheses (18%) were removed, loosening of the tibial component being the main reason. Retropatellar pain was not a significant problem. The 13-year survival rate was 78% with implant removal as the endpoint. When radiographically loose components were taken into account, the 13-year survival rate was 58%.

Discussion/conclusion: The Geomedic knee prosthesis was an acceptable first-generation knee prosthesis in the treatment of patients with rheumatoid arthritis or osteoarthrosis of the knee joint. The main problem was loosening of the tibial component.