

ROUNDUP³⁶⁰

Wrist & Hand

The Herbert ulnar head prosthesis: an 11-year review

■ One undesirable problem of resecting the ulnar head is the development of painful instability of the distal radioulnar joint (DRUJ). Implantation of the Herbert ulnar head prosthesis has been one way of trying to resolve this. Teams from **Bad Neustadt (Germany)**, **Bern (Switzerland)** and **Sydney (Australia)** have reported the results of this technique in 23 patients. One patient was excluded from the study because a septic prosthesis had to be removed after three months. However, 16 of the remaining 22 patients were assessed at two mean follow-up times: 28 months, and 11 years and two months. The following features were assessed after surgery: DRUJ stability, forearm rotation, grip strength, pain level (0 to 10), and satisfaction (0 to 10). Standardised radiographs of the wrist were inspected for any displacement of the ulnar head, loosening or bony reactions at the sigmoid notch or the ulnar shaft. The results seem fairly impressive to us at 360. All patients demonstrated a clinically stable DRUJ at the latest examination, and no patient required further surgery. The mean level of pain was 3.7 before surgery, 1.7 at the first follow-up, and 1.7 at the second; patient satisfaction was 2.2, 8.2, and 8.9, respectively; pronation 73°, 86°, and 83°; supination 52°, 77°, and 81°; and grip strength 42%, 72%, and 81% of the unaffected side, all respectively. Indeed, all clinical parameters improved between surgery and the first

follow-up, with no further significant change between this and the second, long-term review. Radiographs demonstrated no signs of stem loosening or incongruity of the DRUJ.¹ It is good to see that the previously reported short-term results with the Herbert prosthesis have not deteriorated in the longer term. Reconstruction of the DRUJ with this technique after resection of the ulnar head for painful radioulnar impingement appears to be a reproducible procedure.

Five-year outcome for wrist arthroscopic surgery

■ From **Singapore (Republic of Singapore)** comes a fascinating retrospective review of 68 wrist arthroscopies undertaken in one institution over slightly more than five years. The authors' objective was to examine the outcomes of arthroscopic debridement in the treatment of scapholunate (SL), lunotriquetral (LT) and triangular fibrocartilage complex (TFCC) tears. All their patients complained of wrist pain, which often interfered with their daily activities, work or sports. A standard arthroscopic technique was employed in all cases and any intercarpal ligament or TFCC tears found were debrided. There were 42 patients with TFCC tears, 58 with SL tears and 49 with LT tears. At a mean follow-up of 16.6 months, 85.3% of the patients reported an improvement in symptoms and 27.9% had an improved range of movement. Grip strength improved by 11.8%. All except two patients returned to their original activities. The authors

used the Mayo modified wrist score as their outcome measure. Based on the post-operative wrist scores of 47 patients, 24 were rated excellent, 17 good, four fair and two poor. By comparing the pre- and post-operative wrist scores of 31 patients, the authors were able to demonstrate a significant improvement in patients who underwent wrist arthroscopic surgery.² The message of this paper is clear to us at 360. There appears to be a definite role for arthroscopic debridement in the management of SL, LT and TFCC tears. As an added benefit to the reader, this paper is available for free.

Four-corner arthrodesis with headless screws

■ One way of handling degenerative disease of the wrist is with a four-corner arthrodesis with scaphoid excision. Yet how might this best be fixed? Surgeons from **Louisville (USA)** have investigated the use of percutaneous headless compression screws as a suitable method. They took a cohort of 33 patients, with a mean age of 51 years, being treated for scapholunate advanced collapse (n = 19), scaphoid nonunion advanced collapse (n = 12), midcarpal instability (n = 1), and Preiser disease (n = 1). After scaphoid excision and removal of cartilage and subchondral bone in the midcarpal joint through a limited arthrotomy, capitulate fixation was achieved with a percutaneous, transmetacarpal Acutrak screw while triquetrohamate fixation was performed with a percutaneous screw. The scaphoid was used as a bone graft and the mean

follow-up time was eight months. The results appear impressive to 360. Union occurred in 31 of 33 wrists (94%). One patient underwent a total wrist arthrodesis. The mean total active flexion-extension arc was 71° after surgery and 83° before surgery. The mean post-operative carpal height was 0.47 compared with its pre-operative value of 0.45. The percentage of grip strength significantly improved from 41% before surgery to 80% afterwards. Meanwhile, the mean post-operative pain score was < 1, statistically better than the pre-operative score of 7. A total of 25 patients were completely pain free. The mean post-operative Mayo wrist score was 74, which was a significant improvement over the pre-operative mean of 40; the mean final Disabilities of the Arm, Shoulder, and Hand (DASH) score was 13. These results were comparable with, or better than, the results of previously published techniques in terms of fusion rates, pain relief, grip strength, range of movement, and Mayo wrist and DASH scores. The technique exploits the theoretical advantages of strong compression between carpals while avoiding a screw-head-sized hole in the lunate articular cartilage. It also preserves the dorsal capsular ligament attachments to the triquetrum.³

Balloon kyphoplasty for Kienböck's disease

■ Kienböck's disease can be extraordinarily difficult to treat, the best treatments for stages II and III still being hotly debated. Surgeons from **Shijiazhuang (China)** have hypothesised that impacting the

ischaemic cancellous trabeculae and increasing the strength and rigidity of the lunate with balloon kyphoplasty can prevent lunate collapse, relieve the symptoms of the condition, and increase the range of movement of the wrist. The purpose of their study was to demonstrate the feasibility of percutaneous balloon kyphoplasty for the treatment of stage II to III Kienböck's disease. The team had a study group comprising five patients (two in stage II, three in stage III). All were treated with balloon kyphoplasty. Pain, strength, and the range of wrist flexion/extension were evaluated both pre- and post-operatively. The Mayo wrist score and the DASH score were used to measure outcomes. Patient satisfaction was also assessed. Clinical data were collected at a mean of 26.6 months post-operatively. Pain was significantly reduced from 6.8 on the visual analogue scale pre-operatively to 0.6 at the 24-month follow-up. Strength and range of movement were improved post-operatively in all patients. The mean DASH score was 11.3 and the mean Mayo wrist score was 78. All five patients returned to their previous occupations.⁴ This is good news, we think at *360*, and all credit to the team involved. Balloon kyphoplasty does seem able to prevent lunate collapse, reduce pain, and improve wrist function of patients with stage II to III Kienböck's disease. However, and as the authors say, further studies regarding the feasibility of this new approach are most definitely warranted.

Mason Type 2 radial head fractures – fix or excise?

■ From **Brescia (Italy)** comes an interesting Level III paper that compares the outcomes of two different surgical treatments for the management of isolated closed Mason Type 2 radial head fractures. This was a retrospective study of 59 patients with this injury, 24 of whom were treated with radial head excision (Group I) and 35 with open reduction and internal fixation (Group II). Clinical outcomes were assessed using the Broberg and Morrey functional rating scores and

the DASH questionnaire. Orthogonal radiographs were performed on both the elbow and the wrist and assessed for the presence of osteoarthritis, heterotopic ossification, and the degree of proximal radial migration. The length of post-operative follow-up was 157 months (Group I) and 125 months (Group II). Both the mean Broberg and Morrey, and DASH scores improved after fracture treatment, although less so for Group I than Group II. Radiologically moderate or severe osteoarthritis was present in the elbows of nine patients in Group I but only two in Group II. Patients with isolated Mason Type 2 radial head fractures treated by open reduction and internal fixation (Group II) had less residual pain, a greater range of movement, and better strength than patients treated by radial head excision (Group I). Additionally, Group II had a lower incidence of severe post-traumatic arthritis, which contributed to the improved scores.⁵ *360* notes that these results support open reduction and internal fixation as the treatment of choice for these fractures. It is good to have such clear direction.

Local infiltration or intravenous regional anaesthesia for endoscopic carpal tunnel release?

■ A small but useful paper on anaesthesia for carpal tunnel decompression has appeared from **Holstebro (Denmark)**. The authors performed a prospective randomised trial in 38 patients in order to compare intravenous regional anaesthesia with local anaesthesia in endoscopic carpal tunnel release using the Agee single-portal technique. There was no significant difference in reported pain during surgery. Immediately

after surgery, however, patients in the local anaesthesia group reported significantly less pain in the hand and at the tourniquet. Two hours after surgery, again the patients in the local anaesthesia group reported significantly less hand pain. Moreover, fewer patients in the local anaesthesia group required additional analgesics during the first two hours after operation.⁶ What a simple study and yet how useful, we think at *360*. For our next batch of carpal tunnel decompressions we will most certainly be using local infiltration rather than intravenous regional anaesthesia.

Perilunate injuries

■ A helpful and well-written review article on perilunate injuries has appeared from **Newark (USA)**, made even more useful by the fact that it has free access. The authors remind us that perilunate dislocations are relatively rare injuries involving approximately 7% of all injuries of the carpus. They usually result from high-energy trauma, including road traffic accidents, falls from a height, or contact sporting activities, and are thus often associated with other significant trauma.



The correct diagnosis and treatment of these injuries is clearly important in order to restore wrist movement and function. Early treatment of perilunate injuries is necessary to prevent the devastating complications of chronic carpal instability and traumatic arthritis associated from missed or inappropriately treated injuries. Patients with unreduced injuries may present very late, sometimes years after the injury. Although some of these cases may have good hand function with minimal pain, patients usually present with pain, carpal tunnel syndrome, or flexor tendon ruptures because of attritional tendon injuries created

by wear on dislocated carpal bones. Although closed management has been the more commonly reported treatment for perilunate injuries, the current consensus is that anatomical restoration of carpal alignment has better results. A combined dorsal-volar approach offers the advantages of both approaches and is the preferred choice for the authors as it allows assessment of all the injured structures. The surgical techniques available to restore carpal alignment and repair the scapholunate interosseous ligament are discussed in this article, as is the current literature regarding treatment and prognosis.⁷ We found this article an easy read at *360* and one that helped us remember how easy it is to miss perilunate injuries, not something we would wish to do.

Replanting the amputated fingertip

■ *360* has long been fascinated by replantation procedures. They do appear to represent astonishingly challenging surgery. Consequently, a paper from **Linkou (Taiwan)** caught our eye. Replantation of amputated fingertips is certainly a technical challenge, as many salvage procedures fail because no suitable vein in the fingertip is available for anastomosis. In this study, the authors reported their experience of fingertip replantation in cases without venous anastomosis in combination with an established fingertip replantation treatment protocol. Over an eight-year period, a retrospective study examined all patients who had undergone fingertip replantation at the authors' hospital. All the patients (n = 24) had suffered from complete digital amputations at, or distal to, the interphalangeal joint of the thumb, or distal to the distal interphalangeal joint of the fingers. They included a total of 30 fingertips that were salvaged by microsurgical anastomosis of the digital arteries but not of the digital veins. After a satisfactory arterial anastomosis, a 2 mm incision was made over the fingertip and 0.1 ml to 0.2 ml heparin was

injected subcutaneously around the incision immediately, and once per day thereafter, to ensure continuous blood drainage from the replanted fingertip. No replanted nail plate was removed and no medical leeches were used. The perfusion of the replanted digits and the patient's haemoglobin level were then closely monitored. Wound bleeding was maintained until physiological venous outflow was restored. Of the 30 fingertips, 27 (90%) replanted fingertips survived. The mean period required for maintaining external bleeding by using subcutaneous heparin was 6.8 days. There were 12 patients (including a two-year-old child) who received

blood transfusions. The mean volume of blood transfused in the 23 adults was 4.0 units for each patient or 3.29 units for each digit. The two-year-old child received 100 ml blood transfusion or 50 ml for each digit.⁸ At 360 we were impressed by this study, which came from a plastic surgery unit, not an orthopaedic one. It shows that a protocol that promotes controlled bleeding from the fingertip is essential in order to achieve a high success rate in fingertip replantation. The protocol is safe and reliable, as it avoids the use of medical leeches and the removal of the nail plate from the replanted finger. However, and as the authors recommend, full and informed

patient consent must include the potential need for transfusion and an extended hospital stay.

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