

ROUNDUP³⁶⁰

Wrist & Hand

Osteoarticular flaps to the PIPJ

■ There are some procedures that totally impress 360, so the report of using an osteoarticular flap from the capitate in order to reconstruct traumatic defects in the head of the proximal phalanx grabbed our attention. Written by authors from **Hebei (China)**, the paper describes the use of the technique in 15 patients over a four-year period. All of the injuries involved one condyle of the proximal phalanx. There were 11 men and four women and the mean age was 32 years. The injuries occurred in the index (n = 6), middle (n = 7), and ring (n = 2) fingers. At the final follow-up, the authors assessed narrowing of the proximal interphalangeal joint (PIPJ) and the presence of flap necrosis using plain radiography. They measured active movement and pinch and grip strength of the hand and compared all measurements with the opposite side. Patients rated injured-joint pain and donor-joint pain using a visual analogue scale, while hand function was assessed using the Disabilities of the Arm, Shoulder, and Hand (DASH) scale. The mean patient follow-up was 52 months. At the final follow-up, the authors noted narrowing of the PIPJ in three patients but there was no flap necrosis. The mean arc of active movement of the injured and contralateral PIPJs was 50° and 96°, respectively. The mean pinch strength of the injured and contralateral hands was 5.8 kg and 6.5 kg, respectively. The mean grip strength was 39 kg and 40 kg, respectively.

There was mild injured-joint pain in six patients and mild donor-joint pain in one. The mean DASH score was 9.¹ Although a Level IV study, this seems to be good surgery in 360's view, although it will be interesting to learn whether there might be a risk of degenerative change in the years to come.

Prognosis after wrist arthroscopy

■ What might determine prognosis after wrist arthroscopy? There are many different ideas and topics for debate. However, work from **Sydney (Australia)** has tried to make sense of this. The authors acknowledge that wrist pain is common and that patients with persistent pain frequently undergo arthroscopic investigation. Yet little is known about the prognosis or prognostic factors for these patients. The purpose of this study was to assess these factors, in addition to functional disability for patients with persistent wrist pain who proceeded to arthroscopic investigation. The study design used was a Level II prospective cohort study. There were 105 consecutive participants who underwent arthroscopic investigation for undiagnosed wrist pain that had been present for at least four weeks. Patient-rated wrist and hand evaluation (PRWHE) scores were determined at baseline (before arthroscopy) and one year after arthroscopy. The one-year follow-up data were obtained for 97 (92%) of the 105 participants. The mean PRWHE total score declined from 49 of 100 at baseline to 26 of 100 at one

year. For information, a high PRWHE score is a bad result while a low one is good. The authors identified two prognostic factors; the baseline PRWHE and the duration of symptoms. These factors explained 19% and 5% of the variability in the final PRWHE score, respectively. Interestingly, the results of provocative wrist tests and arthroscopic findings did not significantly contribute to prognosis in this cohort.² 360 enjoyed this paper as the authors recognise that it provides the first robust evidence of the prognosis of persistent wrist pain. Participants who underwent arthroscopic investigation improved by approximately 50% at one year. However, most continued to have some pain and disability.

Adipofascial flaps and post-traumatic adhesions

■ An interesting study has appeared from **Ankara (Turkey)**, where the authors acknowledge the frequency of extensive volar injuries. These can be devastating because of the long-term risk of tendon adhesion formation. The gliding effect of adipose tissue is essential in preventing these after injury. In this study, the team presents the results of adipofascial flaps for the reconstruction of soft-tissue defects after wrist injury. The study included 15 patients. Adipofascial flaps were performed for immediate coverage of the tissue defect in two patients and for late adhesion-related problems in 13. The flap dimensions varied from 8 cm × 14 cm to 8 cm × 20 cm and all but one of the flaps and skin grafts

survived uneventfully. None of the cases, whether immediate or late, required another operation to address further adhesions. 360 was pleased to see the authors' conclusion that as adipofascial flaps provide a gliding surface, they are a good choice for immediate coverage of soft-tissue defects to the wrist that are not suitable for skin grafting alone. The technique is also suitable for late adhesion-related problems.³

Leave the torn TFCC alone?

■ Should the triangular fibrocartilage complex (TFCC) tear, many might advocate repair. However, what if the injury was simply diagnosed and then left untreated? A multicentre study has looked into this, from **Lund and Skåne (Sweden)** and **Derby (UK)**. This was a Level I diagnostic study undertaken to assess the long-term results of a prospective, longitudinal case series of untreated, traumatic TFCC tears found in displaced distal radial fractures. Between 1995 and 1997, 51 patients (24 men, 27 women; aged between 20 and 57 years) with a displaced fracture of the distal radius underwent a wrist arthroscopy in order to identify associated injuries. There were 43 patients who had complete or partial tears of the TFCC, but which were not treated. All patients were contacted in 2010, 13 to 15 years after the injury. One patient had undergone a TFCC reattachment because of a painful instability of the distal radioulnar joint and was excluded. However, 38 patients returned for a radiological and clinical follow-up that recorded strength,

laxity of the distal radioulnar joint, range of movement, pain scale score, and subjective and objective outcome scores. After this lengthy period, 17/38 patients showed a lax distal radioulnar joint. Their mean grip strength was worse. The median Gartland and Werley score was 5 (good) in the lax group compared with 1 (excellent) in the non-lax group, and the median DASH scores were 14 and 5, respectively. Consequently, and interestingly, in this prospective, longitudinal outcome study of the natural course of TFCC tears associated with a fracture of the distal radius, only one patient had required surgery for painful instability after injury. The subjective and objective results did not provide evidence that a TFCC injury would influence the long-term outcome. However, trends were found and, by speculation, the low number of patients in the series and the risk for a type II error could be an issue. Larger, prospective, randomised studies are needed to establish whether more aggressive treatment is beneficial.⁴ For the moment, however, 360's view is that there might be a degree of support for what some call masterly inactivity.

Ulna-shortening osteotomy for ulnar impaction syndrome

■ Ulnar impaction syndrome describes the impaction of the ulnar head against the TFCC and ulnar carpus that can over time lead to progressive degeneration. One option is an ulna-shortening osteotomy. A team from **Brussels (Belgium)** has looked at this procedure by undertaking a retrospective study of 18 patients presenting with ulnar impaction syndrome from various causes. There was a mean follow-up of 5.9 years. The authors established that 17 patients (94.4%) were satisfied and would undergo the operation again. Although most patients reported residual complaints such as weakness or pain in certain circumstances, objective measurements of wrist function were good. The mean Mayo Wrist Score was 75.9 (n = 16) and the mean DASH

score was 18.0 (n = 12). Comparison of the operated and healthy limbs did not show any significant difference in strength or range of movement, except for significantly reduced flexion on the operated side.⁵ In this study, ulna-shortening osteotomy provided a good functional outcome and high subjective satisfaction over the long term, which strikes 360 as good news despite the small numbers in this study.

Dupuytren's disease – blame your genes

■ A much-debated condition is Dupuytren's disease but is it all a matter of too much alcohol, poorly understood environmental conditions and bad luck? Apparently not, it appears from a study undertaken in **Oxford (UK)**. It could be in our genes as well. The authors aimed to quantify the extent to which genetic factors predispose to the disease, through the calculation of sibling recurrence risk (1s), and to calculate the proportion of heritability accounted for by currently known genetic loci. From 174 siblings of patients with surgically confirmed disease, 100 were randomly selected. Controls were recruited from patients attending an ophthalmology outpatient clinic for eye conditions unrelated to diabetes. There were no statistically significant differences in baseline characteristics between the case and control groups. In siblings, 47% had Dupuytren's disease, compared with 10% of controls, giving a 1s of 4.5. Currently known loci that predispose to Dupuytren's disease accounted for 12.1% of the total heritability of the disease. Dupuytren's disease was significantly more common in siblings than in controls.⁶ So it is straight back home after this, we think at 360, to look at our family's hands.



When a wrist sprain is not a sprain

■ How many times has 360 made the diagnosis of wrist sprain as a blanket diagnosis after an injury? Far too many, we suspect. So how accurate have we been? Researchers from **Bergen (Norway)** have looked at this by studying wrist injuries with negative radiographs that had been diagnosed as acute wrist sprains. Their aim was to investigate so-called acute wrist sprains with MRI in order to detect the pathoanatomy of the injury. To do this, they included patients between the ages of 18 and 49 years, who attended their Accident and Emergency Department after sustaining

an acute wrist trauma within the previous week. Initial radiographs of the wrist had been normal. MRI was done within a median of one day after injury, 80% being performed within four days. The study period lasted one calendar year. A total of 155 acute MRIs were undertaken, of which 30 were completely normal. Patients with a positive MRI had a median of two pathological findings. They found 54 fractures and 56 bone bruises, mostly located to the radius followed by the scaphoid, the triquetrum, the capitate and the lunate. There were 73 soft-tissue injuries, which included 15 injuries to the TFCC and five to the scapholunate ligament. The authors conclude that wrist sprain is an inaccurate diagnosis. In four out of five patients with normal radiographs, MRI identified pathological findings and a large variety of injuries in different structures. The team suggests that wrist sprain should be defined as "occult partial or complete soft tissue (ligament, tendon, muscle) or

bony injury in relation to a trauma with negative X-ray". During their study, the MRI findings led to a more differentiated treatment in at least a third of their patients. They thus recommend that MRI should be considered as an early investigation, especially when wrist pain does not settle within the first couple of weeks.⁷ Helpful, simple and unsurprising, we think at 360.

Shrinking the torn intercarpal ligament

■ A torn intercarpal ligament can sometimes pose a significant problem. So how about arthroscopic debridement and thermal shrinkage as a solution? Researchers from **Goyang, Seongnam and Ansan (South Korea)** have looked at this through a retrospective analysis of the medical records and imaging studies of 16 wrists (14 patients) with isolated partial intercarpal ligament tears (scapholunate ligament: 6 wrists, lunotriquetral ligament: 10 wrists) treated with arthroscopic debridement and thermal shrinkage. There were three wrists with Geissler grade 1 tears and 13 with grade 2. The mean follow-up was 52.8 months. Overall visual analogue scale scores for pain improved significantly at rest and during activities of daily living and heavy manual work. The mean flexion-extension arc was 136.5° and the mean post-operative grip strength was 106 lb, which was significantly better than the pre-operative value. The mean modified Mayo wrist score was 70 pre-operatively and 94.7 post-operatively, which was a significant improvement. The overall functional outcomes according to the modified Mayo wrist score were rated as excellent in 13 wrists and good in three. No patient had radiological evidence of instability or arthritic changes. The scapholunate and lunotriquetral intervals in all patients were less than 3 mm on neutral- and pronation-grip radiographs. On lateral radiographs, no signs of intercalated segmental

instability were seen, with a mean scapholunate angle of 55.3°. The results of this study suggest that arthroscopic debridement and thermal shrinkage provide symptomatic pain relief and prevention of intercarpal instability for a significant period of time in patients with a partial intercarpal ligament tear.⁸ Good work from South Korea, is 360's view.

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