

mixed case series including early single bolts followed by a lateral column augmentation and their early unaugmented case results (similar to those at King's) prior to a change in technique.⁸ It seems clear that the recommended technique in this case is not quite suitable. The midfoot bolt offers a tempting and attractive option for an otherwise difficult indication. The solution it seems is to augment the lateral column in addition to the midfoot.

Does the Ponseti method need to be exact? X-ref

■ The Ponseti method is now the world over the most widely-used treatment for idiopathic club foot. The method of serial casts aiming to correct one deformity at a time, with an Achilles release if required and subsequent use of the 'boots and bars' has been shown to have success in healthcare environments as diverse as the USA and the poorest of African countries. Despite its widespread use and 'gold standard' outcomes, some patients do better than others. Researchers in **Aurora (USA)** and **St Louis (USA)** set out to establish what the predictors of good outcome were (if any), in this group.⁹ Their study included patients with isolated idiopathic club foot treated over a four-year period, and they were able to report the outcomes of 184 patients (149 with complete two year follow-up). The cohort was divided into

one group of 58 patients with strict adherence to the Ponseti method, and a second of 91 patients where the treating physician had adapted the protocol. There was a significantly higher unplanned intervention rate in the patients undergoing the modified approach (odds ratio 51.5), however there were no differences in the unplanned 'minor' interventions (here defined as tendoachilles lengthening and tibialis tendon transfer). It certainly appears from this series that rigid adherence to Ponseti's original protocol for both patient and healthcare provider is essential if patients are to have the best possible outcomes. It is worth however bearing in mind the volume effect which is not commented upon in this paper. The single surgeon adhering to the protocol strictly treated 58 patients, with the other 16 surgeons treating a mean of just eight patients. There is certainly a bit of difference in the likely skill in management, and it does beg the question: if you are treating just two patients a year with a condition, why are you changing the protocols?

Lisfranc under the spotlight X-ref

■ The Lisfranc joint has been the cause of some head scratching over the past few years. Ever since the publication of a randomised controlled trial suggesting fusion was superior to fixation, this has become an ongoing debate. In a new systematic review

and meta-analysis on the topic, surgeons from **Newfoundland (Canada)** have brought us up to date with the current thinking on the topic.¹⁰ The review team undertook a fairly comprehensive literature search and identified three studies reporting comparative outcomes of fusion vs fixation in closed Lisfranc fractures. The review was reported according to PRISMA guidelines and the study team were able to establish that in their population at least, there was no advantage to either approach in terms of PROMs, malunion or revision surgery. There was a higher risk of metalwork removal in the ORIF group, although this is not surprising as many surgeons routinely remove metalwork inserted for ORIF but do not for a fusion. It appears that in spite of a single study favouring fusion, there is little in the way of evidence to support the suggestion that fusion outdoes ORIF and that for the moment at least, the two methods appear to be equivocal and 'dealers choice'.

REFERENCES

1. **Talusan PG, Cata E, Tan EW, Parks BG, Guyton GP.** Safe zone for neural structures in medial displacement calcaneal osteotomy: a cadaveric and radiographic investigation. *Foot Ankle Int* 2015;36:1493-1498.
2. **Pereira BS, Frada T, Freitas D, Varanda P, Vieira-Silva M, Oliva XM, Duarte RM.** Long-term follow-up of dorsal wedge osteotomy for pediatric freiberg disease. *Foot Ankle Int* 2016;37:90-95.
3. **Bass EJ, Sirikonda SP.** 1st metatarsophalangeal joint fusion: a comparison of non-union and gender differences between locking and non-locking plating systems. *Foot* 2015;25:195-199.
4. **Shi GG, Hu J, Gross CE, et al.** Total ankle arthroplasty following prior infection about the ankle. *Foot Ankle Int* 2015;36:1425-1429.
5. **Ahmad J, Jones K.** Comparison of osteochondral autografts and allografts for treatment of recurrent or large talar osteochondral lesions. *Foot Ankle Int* 2016;37:40-50.
6. **Butt D, Hester T, Bilal A, Edmonds M, Kavarthapu.** The medial column Synthes Midfoot Fusion Bolt is associated with unacceptable rates of failure in corrective fusion for Charcot deformity. *Bone Joint J* 2015;97-B:809-813.
7. **Richter M, Mittlmeier T, Rammelt S, Agren PH, Hahn S, Eschler A.** Intramedullary fixation in severe Charcot osteo-neuroarthropathy with foot deformity results in adequate correction without loss of correction – results from a multi-centre study. *Foot Ankle Surg* 2015; 21:269-276.
8. **Eschker A, Wussow A, Umar B, Mittlmeier T, Gradi G.** Intramedullary medial column support with the Midfoot Fusion Bolt (MFB) is not sufficient for osseous healing of arthrodesis in neuroosteoarthropathic feet. *Injury* 2014;45S:S38-S43.
9. **Miller NH, Carry PM, Mark BJ, et al.** Does strict adherence to the Ponseti method improve isolated clubfoot treatment outcomes? A two-institution review. *Clin Orthop Relat Res* 2016;474:237-43.
10. **Smith N, Stone C, Furey A.** Does open reduction and internal fixation versus primary arthrodesis improve patient outcomes for Lisfranc trauma? A systematic review and meta-analysis. *Clin Orthop Relat Res* 2015 May 29 [Epub ahead of print]

Wrist & Hand

X-ref For other Roundups in this issue that cross-reference with *Wrist & Hand* see: **Trauma Roundup 8.**

Salvaging collagenases

■ While not exactly a pandemic shift or sea change, there is a steady creep of evolution in the treatment of Dupuytren's disease with more and more surgeons and patients alike utilising less invasive approaches to early Dupuytren's such as needle

fasciotomy and collagenase treatments. Collagenases such as Xiapex (CCH) is an enzymatic treatment which is becoming widely used, and although we already know that it is very effective and patient satisfaction levels are high, there remain question marks over its longer-term effectiveness. We have previously reported in 360 the high recurrence rates observed in some studies and

therefore, as time passes, we will all be faced with patients with recurrent disease following Xiapex treatment. Surgeons from **Boston (USA)** have addressed the question as to what exactly happens when patients require revision surgery following Xiapex treatment.¹ Although a very small series of just 19 joints in 11 patients, this paper is important as it is the first to describe revision

fasciotomy following CCH treatment. The revision surgery was undertaken on average just 12 months following the initial injection, and although the surgery is described as challenging with a loss of soft-tissue plains and extensive scarring, the clinical results were good with release of MCP joints from 42° to 0° and PIP joints from 60° to 21°. These clinical results are comparable with what should be

expected from a primary fasciectomy, so surgeons should be aware of the difficulties associated with CCH revision and make sure that it is only performed by someone particularly adept at complex secondary surgery.

Rehabilitation following extensor tendon injury

■ Extensor tendon injuries are common. Surgical repair and post-operative management of said injury is generally less challenging than for the *bête noire* of hand surgery: the flexor tendon injury. Despite the common nature of the injury and ease of surgical repair, there is little consensus as to what represents the best form of post-surgical rehabilitation. Researchers from **Manchester (UK)** undertook a comprehensive systematic review using all the usual academic indices.² Their review team was only able to find five adequate RCTs suitable for inclusion in such a review. The RCTs themselves were found to be rather limited in their methods of reporting, however, some inferences could be drawn about the commonest forms of rehabilitation, i.e. static immobilisation, dynamic splinting and early active motion programmes. Overall, patients' recovery of active motion arc improved with time with all the regimes. However, based on the available evidence, the review team was able to conclude that early active motion is preferable to both dynamic and static splinting. Although the longer-term outcome remains similar, there is a quicker recovery of functional range of motion.

Complications from ulnar shortening

■ Ulnar shortening is an effective operation for ulnocarpal impaction but of course, like any operation, it carries risks such as infection and (perhaps most feared) that of provoking complex regional pain syndrome (CRPS) as a result of damage to the dorsal branch of the ulnar nerve. The advent of the new purpose-designed ulnar osteotomy plates have both simplified the procedure somewhat and also increased its popularity as a surgical option. Another complication

of this procedure is nonunion of the ulna, and little is known about its incidence or risk factors, especially in light of newer (often locked) ulnar osteotomy plates. From the surgeon's perspective, meticulous technique with a cooled saw and minimal periosteal stripping should help reduce the incidence of nonunion, and various cutting guides and specialised plates are available commercially to help secure a stable construct and produce a matching osteotomy to further minimise this risk. Nevertheless, nonunion still occurs and researchers from **Philadelphia (USA)** have focused on this in their retrospective review of 72 patients, all undergoing ulnar shortening osteotomy over a five-year period.³ The authors report an 11% incidence of delayed union. They attempted to establish what the causes of this might be, and were able to identify smoking and diabetes as predominant risk factors. So yet again these two factors, one of which is unavoidable and one of which must be strongly discouraged, can spoil our orthopaedic results. Clearly, as in any fracture surgery, optimisation of diabetic control and commencement of a smoking cessation programme would reduce a serious risk from what is otherwise a successful operation.

Outcomes following ulnar osteotomy

■ Here at 360 we are not only worried that nonunion in ulnar shortening remains a very significant early risk, we also wonder about the longer-term risk of arthritis given the alteration of the forearm biomechanics. We were interested to read this report from researchers in **Nancy (France)**.⁴ The authors reviewed 46 patients with clinical examination and radiographs at ten years following their initial surgery. The research team established that 63% of these 46 patients who had ulnar shortening developed arthritis, and that this was especially common in those with a type I (reverse oblique) joint. Their study nicely demonstrates what we might have predicted, that when the congruency and articulating surface

area of the distal radioulnar joint is altered, subsequently developing arthritis is not uncommon. Based on their results, the authors sensibly recommend that ulnar shortening should be limited to the minimum needed.

Buddy strap boxer's fractures

■ Boxer's fractures are one of the most common injuries the world over, so researchers from **Switzerland** and **USA** combined to perform a randomised study evaluating the outcomes of 68 patients randomised to either plaster immobilisation following manipulation, or simple buddy strapping.⁵ Patients were enrolled with a simple boxer's fracture with less than 70° of palmar angulation and randomised to one or other treatment. Outcomes were assessed using the QuickDASH at four months. The study established that simple buddy strapping was not inferior to plaster immobilisation in any recorded outcome measure (pain, deformity, radiography), yet the patients were back to work on average 11 days earlier. So the message is clear - there is no place for plaster in the management of boxer's fractures.

How to satisfy the hand patient?

■ Surgeons need to know this. The most important thing a patient wants from their doctor is not their time, but their empathy. A group from **Boston (USA)** studied the expectations of 122 patients before and after their visit to the outpatient clinic, although these factors can sometimes be rather nebulous and difficult to establish.⁶ The study team recorded a range of objective variables including waiting times and consultation times. A sociodemographic survey, the Consultation

and Relational Empathy Measure, the Newest Vital Sign Health Literacy test and a range of upper limb PROMS measures were recorded. The investigators undertook a range of analyses to see which were the predictors of patient satisfaction and perceived 'surgeon rush'. Despite the time pressures that many clinicians find themselves under while in clinic, the key determinant of satisfaction was not the time spent with the patient. In fact, these research-

ers identified that the patient only thought the visit was too short if the surgeon did not provide empathy. Patients themselves were slightly different in their expectations, with the more poorly-educated and depressed patients having expectations of

longer consultations. The message is clear - be empathetic and your clinic patients will be more satisfied, even if you are short of time.

How common is incidental Kienböck's disease?

■ One of the difficulties with all types of osteonecrosis is that they can be incidental findings, and sometimes asymptomatic. Kienböck's disease is a tricky diagnosis to treat, with a number of options ranging from fusion to shortening, all of which involve a significant surgical insult. In practice, many patients with low grades of Kienböck's disease are treated expectantly and make a reasonable recovery. Researchers in **Boston (USA)** ask the not unreasonable question, what is the rate of subclinical Kienböck's disease? In an attempt to establish the prevalence of the disease, the study team undertook a review of 51 071 patients over an 11-year period, using the digital reports to



screen for signs of AVN of the lunate on plain films, CTs and MRI scans of the wrist.⁷ They then reviewed the individual positive scans/imaging and the notes associated with the patient admission. Despite the wide-ranging methodology of the search, the authors identified just 51 cases of incidental Kienböck's disease and 87 cases of symptomatic disease. As perhaps would be expected, higher Lichtman grades were associated with symptomatic disease and the incidence of lunate collapse was higher in the symptomatic group (51% versus 18%). It is startling to see that Kienböck's disease is asymptomatic nearly 50% of the time, and, in addition, the observation that lunate collapse may be present in asymptomatic hands causes us to re-evaluate our understanding of the disease, and in particular the relationship between severity of collapse and symptomatology. We would love to see a review of those asymptomatic patients with interval imaging which would go a long way to

increasing our understanding of how the disease progresses.

A triumph of technique over sense? Arthroscopic scaphoid nonunion surgery X-ref

■ Hand and wrist surgeons are moving more and more towards arthroscopic techniques. With the exponential advantages of small incisions, the possibility of better outcomes, and the ability to visualise structures without disruption to the overlying soft tissues, there is plenty of sense in trying to develop these techniques. However, there is also the concern that making a reliable operation more technically challenging could affect the reliability of the results. Researchers in **Seoul (South Korea)** report their own results of arthroscopic scaphoid nonunion surgery in an attempt to prove that it's not a triumph of technique over sense.⁸ The authors describe their experience of 80 patients with mixed open (n = 35) and arthroscopically treated (n = 45) scaphoid nonunions managed over a four-year

period. Follow-up was achieved to an average of just over 30 months and evaluation included a CT scan, clinical review and patient scoring. There were no differences in union rates between the two groups, with 97% achieving union and both groups achieving improvements in strength and pain scores, as would be expected. The authors make the point that, in their experience, scaphoid nonunions can only be managed arthroscopically when there is no significant deformity or arthritis. While this paper has demonstrated that this is technically achievable without compromising results, it does beg the question, why put the scope in at all? Percutaneous compression screws work perfectly well in the same patient group in other series.

REFERENCES

1. Eberlin KR, Kobraei EM, Nyame TT, Bloom JM, Upton J III. Salvage palmar fasciotomy after initial treatment with collagenase clostridium histolyticum. *Plast Reconstr Surg* 2015;135:1000E-1006E.

2. Ng CY, Chalmer J, Macdonald DJ, et al. Rehabilitation regimens following surgical repair of extensor tendon injuries of the hand—a systematic review of controlled trials. *J Hand Microsurg* 2012;4:65-73.
3. Gaspar MP, Kane PM, Zohn RC, et al. Variables prognostic for delayed union and nonunion following ulnar shortening fixed with a dedicated osteotomy plate. *J Hand Surg Am* 2016;41:237-243.e2.
4. de Runz A, Pauchard N, Sorin T, Dap F, Dautel G. Ulna-shortening osteotomy: outcome and repercussion of the distal radioulnar joint osteoarthritis. *Plast Reconstr Surg* 2016;137:175-184.
5. van Aaken J, Fusetti C, Luchina S, et al. Fifth metacarpal neck fractures treated with soft wrap/buddy taping compared to reduction and casting: results of a prospective, multicenter, randomized trial. *Arch Orthop Trauma Surg* 2016;136:135-142.
6. Parrish RC 2nd, Menendez ME, Mudgal CS, et al. Patient satisfaction and its relation to perceived visit duration with a hand surgeon. *J Hand Surg Am* 2016;41:257-262.
7. van Leeuwen WF, Janssen SJ, Ter Meulen DP, Ring D. What is the radiographic prevalence of incidental Kienböck disease? *Clin Orthop Relat Res* 2016;474:808-813.
8. Kang HJ, Chun YM, Koh IH, Park JH, Choi YR. Is arthroscopic bone graft and fixation for scaphoid nonunions effective? *Clin Orthop Relat Res* 2016;474:204/12.

Shoulder & Elbow

X-ref For other Roundups in this issue that cross-reference with *Shoulder & Elbow* see: **Research Roundup 4, 6.**

Is it the shoulder or the brain?

■ Predicting post-surgical outcomes is notoriously tricky. A good surgeon is not just technically gifted, but will always pick 'winners' on which to operate. That said, understanding the causes of poor outcomes is incredibly (and increasingly) important. A study team in **Birmingham (USA)** set out to solve the thorny question of whether or not the outcomes of shoulder surgery are affected by psychological distress, and if psychological distress in itself is associated with alteration in the perception of symptoms.¹

The study team used the Shoulder Pain and Disability Index (SPADI), a validated score administered to 139 patients, all with a primary shoulder diagnosis. In addition, the patients completed a range of psychological tests including catastrophising and depression scales. Of perhaps most interest here is the result of the multivariate analysis which was performed to explain variation in the SPADI score as a primary outcome. Amazingly, the outcomes as measured by the SPADI score were not related to the primary diagnosis. However, there was a relationship between the SPADI score and catastrophising, lower self-efficacy, higher body mass index, disability and retirement status. This is an

interesting paper that again highlights to us here at 360 the importance of psychological factors, both in presenting symptomatology and evaluating outcomes.

Is an external rotation sling really needed?

■ Following a series of studies from Itoy and colleagues based in Japan, it has become commonplace in some centres to apply an external rotation splint following anterior dislocation of the shoulder treated with closed reduction with the intention of reducing recurrence. Although the proponents of the method argue that it reduces the need for surgical stabilisation, patients quite frankly hate the slings. Holding your arm in external rotation makes sleeping,

eating and even walking through doors difficult. A review team in **Ontario (Canada)** have undertaken and published their meta-analysis of the available trials to date. The investigators were able to identify six studies reporting the outcomes of 632 patients.² The pooled group analysis suggested that there is no significant difference between the two groups in terms of recurrence or instability index scores. Given that there is no benefit seen here across six randomised controlled trials, and the external rotation slings are more expensive and cumbersome than traditional alternatives, here at 360 we wonder if there is currently any role for these devices in acute dislocation management.