

following surgery. This study really can be used to support either strategy, although given the potential drawbacks of tourniquet use and the lack of differences in terms of any of the measured outcomes, one does have to ask the question, 'why bother?'

### Syme's amputation worth considering? **X-ref**

■ Much is made of the increased metabolic demand for simple tasks, the higher the amputation level, with surgeons trying to maintain length at all costs – certainly between the foot-sparing, below-knee and above-knee amputation options. For the most part, the through-knee, Syme and Chopart amputations are somewhat neglected in both research and clinical practice. All three make prosthesis fitting awkward and are somewhat more difficult than the more standard options. However, with advances in prostheses, the advantages offered by a Syme amputation are perhaps worth revisiting. All in

all, the higher amputation options a prosthesis is needed for any kind of amputation and the loss of lever arm length associated with the below-knee amputation can make mobilisation difficult for the older and frailer patients. Surgeons in **Maywood, Illinois (USA)** have reported their experience of the Syme amputation in 51 patients operated over a 23-year period.<sup>8</sup> The series includes patients who underwent a Syme ankle disarticulation as there was too little residuum to effect a transmetatarsal or Chopart amputation. Patients underwent amputation for diabetic forefoot infection (n = 33), crush injury (n = 11), non-diabetic infection (n = 3), uncorrectable deformity (n = 3) and a single case of tumour. Outcomes were reported using the Short Musculoskeletal Function Assessment (SMFA) at a mean follow-up of just over nine years. The outcomes of the Syme's patients were favourable although, as would be expected, the diabetic and non-diabetic patients fared

rather differently. In the non-diabetic group, the authors report an average mobility index of 17.2, functional index of 14.7, and bothersome index of 16.7; in the diabetic cohort, the mean scores were 34.7, 29.9, and 30.6, respectively. This series reports an excellent long-term functional result, and casts some significant doubt on the long-held belief that Syme's procedure carries with it a high complication rate, and does not yield a functional and durable result. Given the ability to mobilise without any increased energy expenditure, and the benefits of an end-bearing prosthesis, we would join the authors in asking why more Syme's procedures are not considered.

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## Wrist & Hand

**X-ref** For other Roundups in this issue that cross-reference with *Wrist & Hand* see: **Trauma Roundup 1**.

### Is it dangerous to operate on the hand outside of the operating theatre?

■ It is extremely tempting to undertake minor procedures in treatment rooms, or even in the office, and hand surgery can lend itself to this. The number of family doctors undertaking carpal tunnel procedures and other minor surgical procedures is on the rise, as is the number of specialised hand surgeons undertaking percutaneous Dupuytren's release, and other minor local anaesthetic procedures. It's certainly convenient, quick and cheap. The question lurking in the back of the mind is: is it safe? Surely the infection rate must

be higher in a clean, rather than sterile, environment? Researchers from **Oxford (UK)** have undertaken this timely review as the push is towards more cost-effective healthcare provision, with the aim of establishing whether the use of the operating theatre conveys any advantage in terms of infection rates.<sup>1</sup> The authors' search initially identified 1200 studies, however, just 46 full-text articles were reviewed, and only six studies form the basis for this review. Three of the studies did not report any infections after surgery in an office, procedure room or emergency department. The two larger studies reported a combined number of 1962 carpal tunnel releases with a 0.4% infection rate. Their report finds an infection rate of just 0.4% for carpal tunnel

release, and no infections in a range of other procedures, performed in the office or procedure room or Emergency Department. It should be borne in mind that the quality of evidence informing this report is really quite poor, with little in the way of evidence on which to make a fairly crucial decision. So, subject to the caveats of the data available and to meticulous procedure and careful audit, there probably should be a trend towards moving these smaller procedures into a less formal environment.

### Does decompression still work with a diabetic neuropathy?

■ As the incidence of diabetes and the age of the average patient increases, there is an increasing number of patients presenting to the

clinic with diabetic compressive neuropathies. Deciding exactly what to do with these patients is somewhat more troublesome than with your average patient. The complications of surgery are different in diabetic patients, and the microvascular and neuropathic disease seen with diabetes is likely to affect the recovery. This study team from **Shanghai (China)** undertook a thorough systematic review and meta-analysis treating diabetic neuropathies in general, rather than focusing on a particular entrapment syndrome.<sup>2</sup> The study team were able to identify a total of 12 papers reporting the outcomes of 1825 patients, all presenting with diabetic peripheral neuropathy and suitable for inclusion in the final analysis, although only

a single randomised controlled trial was reported. Seven papers reported upper-extremity nerve decompression and four reported it in the lower extremity. There was a slightly mixed bag of outcome measures reported, however, papers reported outcomes in terms of the Boston Questionnaire, nerve conduction studies and functional outcomes. Within the limitations of the data available there does appear to be, reassuringly, a favourable outcome for surgical treatment with decompression in diabetic neuropathy, both in terms of relief of neurologic symptoms and sensory deficit.

### **Thumb metacarpal arthritis: do we really implement the literature? X-ref**

■ Trapeziectomy is one of the most common procedures performed in elective hand surgery, however, there are probably as many techniques as there are surgeons. Few conditions polarise opinion as much as trapeziectomy and, along with all the described different operations, each surgeon is a proponent of their own nuances and special touches. In an area which is well published, as well as dividing professional opinion, the question is: do the hours spent reading work that has taken hours to produce result in a change in our habits? Taking a more comprehensive and scientific approach than the usual 'postal questionnaire', these investigators from **Ann Arbor, Michigan (USA)** used a 5% representative sample of Medicare patients, all treated for thumb carpometacarpal (CMC) arthritis, and applied a multinomial logistic regression model to establish the relationship between patient characteristics and the surgical treatment.<sup>3</sup> This was supplemented by the use of surgeon codes to establish if there were any changes in treatment patterns over the time of the study. Despite the publication of numerous studies supporting trapeziectomy alone over the ten-year period of this study (2001 to 2010), the authors here established that the use of ligament

reconstruction tendon interposition (LRTI) in combination with trapeziectomy actually rose from 84% in 2001 to 90% in 2010. The finding that 93% of surgeons use trapeziectomy with LRTI, even though randomised trial evidence consistently shows that a trapeziectomy alone is sufficient and equivalent, is a worrying truism.

### **Is it worth injecting carpal tunnels?**

■ One of the bread and butter cases of even a specialist hand clinic is the patient with carpal tunnel syndrome. In some services, patients are offered carpal tunnel decompression on first presentation; in others, conservative measures are instigated first. Although the success rates of conservative measures are well defined in the first presentation, there are no long-term

outcomes reported for patients who have undergone a primary decompression. Surgeons like to operate and we like good results, and carpal tunnel release certainly provides good results. If effective in the long-term, steroid injection might, however, save healthcare resources and minimise the risks and post-operative recovery associated with surgery. A team from **Canterbury (UK)** set out to establish what the long-term results were in their hands.<sup>4</sup> Their study included the outcomes of 254 patients initially treated with a steroid injection for their primary carpal tunnel syndrome in 2007. There were 157 patients contactable at eight years of follow-up, and 41% had eventually undergone decompression by final follow-up. Of those having surgery, a mean of 1.9 injections were given prior to surgery. In those not having surgery, a mean of two (and up to 12) injections were given, and the Boston scores were significantly

worse than in those who eventually underwent surgery. So here at 360 we think that the jury is still very definitely out as to whether the benefit lies with the "inject and see" camp or the "decompress and be done with it" camp. Certainly, steroid injection is seen here to be an alternative that should be discussed with patients as a potential long-term viable option.

### **Does knuckle cracking harm the fingers?**

■ Clicky knuckles is perhaps more of a social problem than a hand surgical one, but it is a problem that garners a fair bit of attention in both social and medical circles. The rather irritating habit of cracking knuckles is said by some to be innocent and by others to be damaging to the joints. The question posed by

a study team from **California and South Carolina (USA)** is that of harm: is it just socially irritating or a genuinely harmful problem?<sup>5</sup> The study team identified 30 knuckle crackers, ten of whom did not 'indulge' for a thorough evaluation of the hand and finger function. Observers were blinded to the



group and volunteers underwent a battery of evaluations including DASH score, ultrasound assessment, range of movement, swelling and grip assessments. They found no evidence of immediate adverse physical examination findings after knuckle cracking. However, they did find a small increase in range of movement among joints that cracked compared with those that did not. It seems that habitual knuckle cracking is just that – a habit with little in the way of measurable clinical adverse effect. It is not clear from this study if a lifetime of knuckle cracking will impact on hand function in the longer term.

### **Is urgent debridement needed for open hand fractures? X-ref**

■ The literature on the management of open fractures and associated infection has been derived mainly from long bones, and even in the major long bone injuries we are moving away from the use of immediate debridement and lavage as an emergency intervention. Presently, the emphasis in the long bone world (aside from grossly contaminated injuries) is towards one of first aid, transfer to a specialist centre and suitable experienced surgery at the first available opportunity, moving squarely away from the 'six-hour rule' of yesteryear. To what extent this can be translated from the literature to hand injuries, and how much benefit urgent surgery in open hand injuries is able to offer, is the focus of this review from **Philadelphia, Pennsylvania (USA)**.<sup>6</sup> The study team identified 61 potential references, of which 12 (four prospective and eight retrospective) reported the outcomes of 1669 open fractures. In total, there were 77 infections (4.6%). In patients who received an early debridement there was a 4.2% infection rate, whereas debridement within 12 hours of injury resulted in a 3.6% infection rate. The administration of antibiotics, however, dramatically reduced infection from 9.4% to 4.4%. Given the lack of advantage in early debridement within six rather than 12 hours, the planning and prioritisation of urgent surgical lists should reflect this.

### **The finger pilon and other injuries X-ref**

■ The majority of hand injuries can be managed expectantly and there is no need for heroics. However, the proximal interphalangeal joint fracture (PIP) ranges in severity from partial articular to the severe pilon fracture. The poor soft-tissue coverage and tiny nature of the majority of fragments often lead to difficult surgical decisions. Surgeons in **Elshwikh (Kuwait)** report the outcomes of 36 PIP fractures, of which 15 were the more severe pilon

type.<sup>7</sup> The rest were intra-articular fractures. All were treated with a simple modified Suzuki external fixator (overall forming a similar arrangement but with tensioned wire loops rather than rubber bands). The fixator was left *in situ* for 33 days, and mean follow-up was achieved to 12 months. In terms of longer-term functional outcomes, the surgical team reported a mean range of movement of 90° at the PIPJ at one year. Most series of external fixators around the PIPJ are for a mixed bag of injuries and it is not always clear what the fracture pattern is. In this paper the source data are clear. These results, in themselves, are very good although, slightly confusingly, the authors report 11 patients with pain in cold weather. We thought it was warm in Kuwait!

#### A different approach to the dorsal fracture subluxation

■ Following directly on from the last report is a case series originating in **Villeurbanne (France)** of 19 patients with similar injuries.<sup>8</sup> These patients were all treated with a vastly more complex operation. All of the patients who had more than 40% articular surface involvement underwent hemi hamate osteochondral autografts. Here, though, there are acute (within six weeks, nine patients) and chronic (i.e. delayed treatment > six weeks, ten patients) treatment groups,

in contrast to the previous series of all acute fractures. The authors report a follow-up of 24 months, with patients achieving a range of motion of 17° FFD to 86° in the acute fixations, and a remarkably similar result in the chronic group (18° FFD to 81°). The comparison of these two papers is enlightening, with the hemi hamates and its associated big surgical dissection leading to poorer range of movement. In so many areas of orthopaedic trauma surgery, the assumption is that complex and new is better than old – this here seems to be another example that this is not necessarily the case. These are rare injuries so a study with sufficient numbers randomising to techniques is much harder to achieve, however, inferences can be drawn from simple case comparisons such as this one.

#### Fragment-specific fixation?

■ It is somewhat curious to read this study from **Lund (Sweden)**.<sup>9</sup> In light of recent studies from various sources demonstrating that there is no appreciable difference between open reduction and internal fixation and closed k-wires, it is difficult to conceive how a trial with the aim of comparing ‘Fragment-specific fixation *versus* volar locking plates in primarily non-reducible or secondarily redisplaced distal radius fractures’ would expect to find any form of reasonable

difference. Perhaps more confusingly, the authors selected a sample size of just 50 patients randomised to either a volar locking plate or fragment-specific fixation. In both groups, a TriMed plate was used to achieve either volar plating or fragment-specific fixation. Outcomes were assessed at one year with the QuickDASH patient-reported outcome measure (PROM) and a rather basic assessment of ROM/grip. Perhaps unsurprisingly, given the effect size that would be required with this small study in order to find a significant difference, the authors report no outcome measure differences but a small and significantly higher complication rate in the fragment-specific group (which had up to three incisions – dorsally over first and fourth extensor compartments +/- Henry volar approach). This study really is rather a case of putting the cart before the horse. It is to prevent ‘pet questions’ being half-heartedly answered in single-centre studies that the majority of large funders have moved towards a priority setting approach. There is little to gain from these kinds of small underpowered ‘pet studies’ unless they are properly labelled as feasibility or pilot studies from which to power a definitive study.

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## Shoulder & Elbow

**X-ref** For other Roundups in this issue that cross-reference with *Shoulder & Elbow* see: **Trauma Roundups 1 and 4; Children’s orthopaedics Roundup 4; Research Roundup 5. Pectoralis major transfer for irreparable anterosuperior rotator cuff tears**

■ It is well known that a large tear of the rotator cuff is hard to

repair. Although there are excellent reported outcomes from anterior deltoid retraining in some patients, this isn’t enough and large cuff tears in particular need treating before the patient progresses to an advanced cuff tear arthropathy. The problem, of course, is that treatment is easier said than done. When combined with the retraction of the cuff and

degeneration of the tissues seen both pre- and post-cuff tear, it can sometimes feel as if there are no reconstructive options. Surgical device companies have attempted to solve the problem with cuff augments to attach to the cuff but these are reported to have mixed levels of success. One potential option, however, is the transfer of

the pectoralis major tendon. The authors of this study from **Salzburg (Austria)** and **Berlin (Germany)** report on the long-term outcomes of 27 patients with anterosuperior cuff tears without an established arthropathy treated with a pectoralis major transfer.<sup>1</sup> The surgical procedure was a partial subcoracoid pectoralis major tendon transfer