

ROUNDUP³⁶⁰

Foot & Ankle

Is orthosis more important than physio in tibialis posterior insufficiency?

■ Tibialis posterior deficiency is a progressive and debilitating condition. Patients present often in the later stages with fixed and degenerative disease, which may even require fusion. By this stage, it is obviously too late to intervene, but in patients in an earlier stage of disease the mainstays of treatment are often conservative. Despite the importance of preventing progression in these patients, there is little evidence on the relative benefits of splintage, orthoses or physiotherapy. A trial team in **Newberg (Oregon, USA)** set out to determine the optimum conservative management regime for patients presenting with grade II tibialis posterior insufficiency. Their study team randomised patients' orthosis treatment as either stretching, or stretching and strengthening exercises. Outcomes were assessed at 12 weeks using functional outcome scores and isometric calf strength measurements. Of the 39 participants recruited into the study, three were lost to follow-up, leaving 17 in the stretching group and 19 in the strengthening group. Although one of the outcome measures was specifically designed to assess deep posterior compartment strength, it is slightly surprising that at the final follow-up there were no differences in the outcome measures between the two groups.¹ Given these findings, we can conclude really that it is the orthosis, and not the physi-

otherapy that accompanies it, which is important in determining outcome for patients with tibialis posterior insufficiency.

Radiographic evaluation of ankle injury x-ref Trauma

■ Every junior doctor who has worked in the Emergency Room will be aware of the Ottawa ankle rules – a set of diagnostic criteria that were designed specifically to reduce needless radiographs and radiation exposure in patients with ankle sprains, not fractures. The current body of evidence would suggest that the Ottawa rules reduce needless radiation exposure by around 50%. However, there are some studies suggestive that the newer Bernese ankle rules may be able to reduce unnecessary exposure to radiation by up to 84% without losing sensitivity. To fully assess the two scores, a prospective comparative series would be required, and this is exactly what the research team in **Beverwijk (The Netherlands)** have done. They undertook a comparative, prospective study of 203 patients with ankle trauma. All patients received a radiograph and were evaluated with the Ottawa and Bernese rules. Patients were evaluated by both the triage nurse and a resident grade doctor. Sensitivity and specificity of both tests were evaluated and, in addition, reproducibility was also calculated.² Interestingly, the sensitivity of the Ottawa and Bernese rules (0.86 in both cases) was similar when applied by the triage nurses. However, when

a resident grade doctor was involved, the overall sensitivity rose to 0.97 for the Ottawa rules, making them suitable for clinical use. Although both scores were similarly reproducible, the results here would really suggest that only the Ottawa rules are effective and that neither score is sufficiently sensitive unless administered by a doctor.

Sciatic catheter quite enough!

■ Major ankle surgery can be a painful affair and as anaesthesia continues to move towards a more 'regional' approach, the sight of an anaesthetist with local anaesthetic and ultrasound probe in hand is becoming a frequent one. As time goes by, it seems that more and more complex blocks and catheters are being administered, adding somewhat to the anaesthetic time. Researchers in **Aarhus (Denmark)** set out to establish if indeed 'more is more'. The study team hypothesised that a supplementary saphenous catheter would improve on post-operative analgesia over a sciatic catheter alone. They designed a randomised placebo-controlled trial to evaluate the relative benefits of two *versus* one catheter following major ankle surgery. Fifty patients were prospectively recruited into the study and randomised to all receive two catheters with either saline or ropivacaine infused into the saphenous catheter for 48 hours following the procedure. Outcomes were assessed using total morphine consumption and patient satisfaction scores. There

was, however, sadly no difference in analgesic consumption (21.6 mg vs 20.1 mg morphine/24 hours). There were no differences in eventual secondary outcomes either.³ This study is, to us here at 360, fairly conclusive – additional blocks do not improve post-operative pain relief over sciatic block alone, but certainly do seem to take more time in the anaesthetic room. Perhaps one to share with the anaesthesia department!

A fresh look at avascular necrosis of the talus x-ref Trauma

■ Avascular necrosis (AVN) is tricky to treat in any part of the body but in the talus it is particularly difficult. While the hip and shoulder are suitable for replacements, the talus really does not have a particularly effective surgical solution. In other similar conditions such as the scaphoid, vascularised grafts have been tried with mixed success in the literature to restore vascularity and viable bone. To date, this does not appear to have been attempted in the talus, where the only real option for treatment of avascular necrosis has been confined to fusion of the ankle. Surgeons in **Shiga (Japan)** report their own novel intervention for treatment of established AVN in the talus. In the first stage of their study, they utilised 40 cadavers to identify a safe approach for vascularised tibial grafting of the talus. The surgical team initially dissected 40 cadavers to establish a viable vascularised graft option from the tibia. Over a four-year period they then went on

to treat eight patients with isolated AVN of the talus, and a further 12 patients with AVN and established OA of the ankle. Radiological and clinical outcome measures were reported by the investigators at two and a half years of follow-up. In the isolated AVN group, all eight patients healed without further collapse during the follow-up period. In the osteoarthritic group there were 11 patients who went on to an established vascularised arthrodesis.⁴ The results reported here are remarkably good. Should they hold true in other series, then these cunning surgeons from Japan may have established a landmark treatment for this condition. We are of course always naturally sceptical of patients in whom treatment is reported in case series by an inventor surgeon.

Total ankle arthroplasty and VTE

x-ref Research

■ With large company-funded studies and significant consultancy arrangements with certain key opinion leaders, the naturally sceptical will tend to call into question the currently agreed wisdom that thromboprophylaxis is required for every patient, whatever their surgery or risk factors. Surprisingly, the usually litigation-heavy USA has some of the most liberal national guidance documents on thromboprophylaxis in orthopaedic surgery. Researchers in **Durham (USA)**, however, were keen to test the assertion made by many national bodies that patients undergoing major orthopaedic surgery (including total ankle arthroplasty) should have thromboprophylaxis routinely. Their practice has been only to prescribe chemoprophylaxis when patients have a history of venous thromboembolism (VTE). Here they report their results of 637 serial patients with the outcome of clinically significant DVT or pulmonary embolism (PE) confirmed on Doppler or CTPA. The overall detection rate of DVT was tiny in this series, with just

0.45% developing a DVT and just 0.60% a PE. Interestingly, in their rather large series of 434 patients who were not prescribed chemoprophylaxis, there was no difference in the incidence of symptomatic VTE (0.46%) between this group and the remaining cohort.⁵ The conclusions reached by this study team are at odds with much national guidance but do seem to be sensible. If patients have risk factors for VTE then prophylaxis is recommended, but if they are low risk it may not be indicated.

Outcomes of posterior malleolar fracture

x-ref Trauma

■ The outcomes of ankle fractures are very much a mixed bag, with little evidence to predict outcomes or determine treatments. One of the real enigmas in this already confusing topic is the posterior malleolar fragment.

Given the variation in results and also treatment regimens with vastly differing operative approaches for posterior malleolar fragments coupled with vastly different indications for fixation, surgeons at **The Hague (The Netherlands)** set out to investigate what factors contributed to the longer-term outcomes of the posterior malleolar fragment and what the influence was on longer-term clinical outcomes.⁶ The authors hypothesise that although the widely accepted wisdom is to fix posterior malleolar fragments of around 25% size or bigger, these clinical decisions are made based chiefly on small population studies and biomechanical data. There is little reasonable quality clinical data to support this clinical decision-making process. The study team report their experience of a retrospective cohort of patients, all with isolated ankle fractures including a posterior malleolar fragment. As is the nature

of retrospective studies, they had to make do with outcome data that were available and in this case these were the AOFAS score and radiographic records of degenerative change. The authors divided their cohort into three groups by posterior fragment size. Surprisingly, there were no differences in outcomes for patients in terms of clinical results between any of the fragment sizes, although the incidence of osteoarthritic changes on radiograph did vary. For patients with a posterior malleolar fragment > 5%, the chances of radiographic osteoarthritic change rose from 41% to 61%, although fixation did not improve the reported outcomes. It is worth bearing in mind that the quality of reductions achieved here was poor, with acceptable reduction of the posterior malleolus only achieved in 68% of cases.



Absorbable sutures in the Achilles tendon

x-ref Trauma

■ The use of suture guidance jigs in treatment of Achilles tendon ruptures has improved the operative outcomes of complications such as wound infection and breakdown but does leave the potential difficulties with suture reactions and damage to the sural nerve in what is essentially blind surgery. Researchers from **Istanbul (Turkey)** hypothesise that the reported difficulties with suture irritation could be overcome by the use of an absorbable suture.⁷ Over a three-year period the study team treated 48 consecutive patients with a spontaneous Achilles tendon rupture. Their patients were treated with both non-absorbable and absorbable sutures. The surgical team followed the patients up with clinical outcome scores (AOFAS score), and complications were recorded. Perhaps slightly surprisingly, the use of an absorbable suture reduced

peri-operative complications from 12.5% to 0% - a finding that we struggle to accept is simply due to the authors' explanation of 'lower incidence of local suture reaction'. This said, the findings of comparable performance scores, outcome and lower complication rates have reassured us here at 360 that, in practice, the use of absorbable sutures is likely safe. Now if we could just establish if we should be fixing Achilles tendons at all, the world would be a simpler place!

Lisfranc injuries under the spotlight

x-ref Trauma

■ Since its description in cavalry officers, the injury eponymous with Napoleon's surgeon has remained both uncommon and difficult to treat. Although a seemingly small and stable joint, injury to the Lisfranc joint in conjunction with the potential prominence of metalwork, high joint reaction forces and the pivotal role in gait can mean that small differences in treatments have a profound effect on outcomes. There is a large collection of often confusing and sometimes conflicting evidence available that lends itself well to a systematic review which is precisely what surgeons in **Newfoundland (Canada)** have done. While there are a number of uncertainties surrounding management of these injuries, the relative merits of fusion and fixation are very difficult to iron out. The authors of this most recent review chose this as their focus. Using the gold standard PRISMA methodology, the authors undertook a complete review of the literature. Disappointingly, although perhaps not surprisingly, only three studies qualified for inclusion in their meta-analysis. The authors were able to report with a reasonable level of confidence the risks for removal of hardware (0.23 favouring fusion), however, there were no differences reported in patient-reported outcome scores, requirement for revision surgery or quality of reduction.⁸ Given the devastating effect poorly

managed Lisfranc injuries can have on quality of life scores, it is perhaps surprising there is not a clear answer in the literature (or even enough high-quality studies to conclude there is no discernible differences) between ORIF and fusion.

REFERENCES

1. **Houck J, Neville C, Tome J, Flemister A.** Randomized controlled trial comparing orthosis augmented by either stretching or stretching and strengthening for stage ii tibialis posterior

tendon dysfunction. *Foot Ankle Int* 2015;(Epub ahead of print)PMID: 25857939.

2. **Derksen RJ, Knijnenberg LM, Fransen G, et al.** Diagnostic performance of the Bernese versus Ottawa ankle rules: Results of a randomised controlled trial. *Injury* 2015;(Epub ahead of print)PMID: 25933807.

3. **Fisker AK, Iversen BN, Christensen S, et al.** Combined saphenous and sciatic catheters for analgesia after major ankle surgery: a double-blinded randomized controlled trial. *Can J Anaesth* 2015;(Epub ahead of print)PMID: 25851020.

4. **Kodama N, Takemura Y, Ueba H, Imai S, Matsusue Y.** A new form of surgical treatment for patients with avascular necrosis of the talus and secondary osteoarthritis of the ankle. *Bone Joint J* 2015;97-B:802-808.

5. **Horne PH, Jennings JM, DeOrio JK, et al.** Low incidence of symptomatic thromboembolic events after total ankle arthroplasty without routine use of chemoprophylaxis. *Foot Ankle Int* 2015;36:611-616.

6. **Drijfhout van Hooff CC, Verhage SM, Hoogendoorn JM.** Influence of fragment size and postoperative joint congruency on long-term

outcome of posterior malleolar fractures. *Foot Ankle Int* 2015;36:673-678.

7. **Kocaoglu B, Ulku TK, Gereli A, Karahan M, Turkmen M.** Evaluation of absorbable and nonabsorbable sutures for repair of achilles tendon rupture with a suture-guiding device. *Foot Ankle Int* 2015;36:691-695.

8. **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;(Epub ahead of print) PMID: 26022112.