

The authors raise a slight note of caution with a non-significant difference in complication rates with a higher rate of complications in the PLL ossification group. It seems from the data presented here that surgical decompression of cervical myelopathy secondary to PLL ossification is as successful as for any other cause, but caution should be exercised with regards to complications.

## REFERENCES

1. Shirley E, Bejarano C, Clay C, Fuzzell L, Leonard S, Wysocki T. Helping families make difficult choices: creation and implementation of a decision aid for neuromuscular scoliosis surgery. *J Pediatr Orthop* 2015;35:831-837.
2. Armaghani SJ, Archer KR, Rolfe R, Demaio DN, Devin CJ. Diabetes is related to worse patient-reported outcomes at two years following spine surgery. *J Bone Joint Surg [Am]* 2016;98:15-22.
3. Chen Z, Rong L. Comparison of combined anterior-posterior approach versus posterior-only approach in treating adolescent idiopathic scoliosis: a meta-analysis. *Eur Spine J* 2016;25:363-371.
4. Takenaka S, Hosono N, Mukai Y, Tateishi K, Fuji T. Significant reduction in the incidence of C5 palsy after cervical laminoplasty using chilled irrigation water. *Bone Joint J* 2016;98-B:117-224.
5. Du JY, Wu JS, Wen ZQ, Lin XJ. Treatment strategies for early neurological deficits related to

malpositioned pedicle screws in the lumbosacral canal: a pilot study. *Bone Joint Res* 2016;5:46-51.

6. Eguchi Y, Oikawa Y, Suzuki M, et al. Diffusion tensor imaging of radiculopathy in patients with lumbar disc herniation: preliminary results. *Bone Joint J* 2016;98-B:387-94.
7. Nakashima H, Tetreault L, Nagoshi N, et al. Comparison of outcomes of surgical treatment for ossification of the posterior longitudinal ligament versus other forms of degenerative cervical myelopathy. *J Bone Joint Surg [Am]* 2016;98:370-78.

## Trauma

**X-ref** For other Roundups in this issue that cross-reference with Trauma see: [Hip & Pelvis Roundup 1, 2, 8](#); [Knee Roundup 6](#); [Foot & Ankle Roundup 6](#); [Research Roundup 7, 9](#).

### Taper slip hemiarthroplasty for hip fracture X-ref

■ The hip fracture burden continues to rise, and as patients are becoming younger and younger, increasing attention is being paid to their functional demands. With many patients now receiving total hip arthroplasties, we were delighted here at 360 to read this paper concerning a modern hemiarthroplasty. Researchers in **Peterborough (UK)** report their retrospective evaluation of the largest consecutive series of the Exeter trauma stem.<sup>1</sup> Patients were aged on average 81 years old, with a follow-up to 4.1 years (2 to 7). All patients were clinically followed up at six weeks with radiographs, then again at 12 months, with telephone consultations in the interim. Longer-term data were obtained from further telephone consultations, GP input and mortality statistics. Although 63% died during the follow-up period, as might be expected, only six of the survivors were lost to follow-up, making this an impressively robust report within the confines of a retrospective analysis. Of these patients, 24 ultimately required further surgery for implant-related complications, and at final

follow-up, 71% of patients were living in their own home, and 42% were independently mobile with no need for walking aids, and had a low mean pain score of 1.6. At a time when choice of implant for intracapsular neck of femur fracture remains somewhat controversial, it is refreshing to see a study of a contemporary hemiarthroplasty prosthesis reporting excellent patient survivorship, favourable complication rates and good symptomatic and functional outcomes. Given the widespread popularity of the Exeter total hip arthroplasty, it is perhaps surprising that the equivalent hemiarthroplasty has gained relatively little international recognition; this study may potentially help to redress this.

### Occult hip fractures X-ref

■ In the vast majority of cases, plain radiography is sufficient to diagnose a hip fracture in the elderly population. However, on occasion there may be strong suspicion of a hip fracture, but no obvious fracture on plain radiographs. Although plain radiography remains the first line of investigation for a hip fracture, both CT and MRI have their own potential advantages as a second line investigation. A study team based in **Mölnadal (Sweden)** have set out to shed some light on the relative diagnostic accuracy of MRI and CT in diagnosing occult and suspected hip fractures in elderly patients.<sup>2</sup> A group

of 44 patients, all with low-energy trauma to the hip and inconclusive plain radiographs, were entered into the study. All patients then had an initial CT and a subsequent MRI scan. Of the 44 patients who had an MRI, 27 cases (61%) had their diagnosis changed from the CT scan diagnosis. The authors conclude that MRI was more reliable than CT in the diagnosis of hip fractures, and that a negative CT report cannot completely rule out a hip fracture. It is well recognised that delaying surgery in an elderly patient who has sustained a hip fracture following a fall carries a higher risk for potential morbidity such as a chest infection, skin breakdown over pressure areas and mortality. This paper highlights the need to ensure that MRI scanning is available when needed to determine a definitive diagnosis following equivocal plain films.

### Distal femoral fixation: to lock or not to lock?

■ The advent of the Less Invasive Stabilisation System (LISS) and its subsequent involvement into the various distal femoral locking plates has added a new option to the weaponry of the surgeon dealing with periprosthetic fractures and low distal femoral fractures about the knee. The superior primary hold afforded by the original LISS system was met with enthusiastic uptake by the trauma community.

However, the initial stiffness in the design resulted in an increasing rate of nonunion and metalwork failure, presenting a different problem over the traditional methods. Realising that there was a potential trade-off between traditional fixation (where fixation failure was common) and LISS fixation (where nonunion and implant fatigue can occur), the **Canadian Orthopaedic Trauma Association (Canada)** report their RCT comparing the rates of fracture healing and union between the traditional dynamic condylar screw (DCS) and newer LISS plate.<sup>3</sup> The study reports the results of 52 patients, all presenting with distal femoral fractures of all subtypes, enrolled at seven Canadian level 1 trauma centres. Patients were randomised to treatment with either the locked Less Invasive Stabilisation System or the dynamic condylar screw with the primary outcome of fracture union at 12 months. Secondary outcomes reported included post-operative function and complications. Perhaps unsurprisingly, there were no statistically significant differences between the LISS and the DCS in terms of the number of fractures healed, time to union, or functional scores. Complications and revisions were more common in the LISS group, with seven re-operations in the LISS group compared with one in the DCS group. While 91% of the

patients treated with a DCS healed by 12 months without intervention, only 52% of the LISS group had healed without intervention by 12 months. Although interesting, this is clearly a pilot study using two rather long-in-the-tooth implants. While the authors concluded that there was no advantage to locking plate implants in the management of distal femoral fractures, and that the cost-effective treatment for a subgroup or distal femoral fractures with reasonable bone quality may be a fixed-angle non-locked implant, we are not sure it is possible to draw this conclusion from a study which is clearly underpowered. We would be delighted to see a similar study using more contemporaneous implants.

### Unstable intertrochanteric fractures

■ The best treatment for one of the most common diagnoses in orthopaedic trauma - that of unstable intertrochanteric fractures - continues to vex even the most clear-minded of orthopaedic surgeons. Clinical trialists from **Montreal (Canada)** have shed some light on the topic with their prospective randomised multicentre trial, undertaking a study of the sliding hip screw and intramedullary fixation in unstable intertrochanteric hip fractures.<sup>4</sup> Outcomes were assessed with clinical scores and radiographic outcomes in the 167 patients who were available for final analysis. The primary outcome measure was the Lower Extremity Measure (LEM), with secondary outcomes of the Functional Independence Measure (FIM), the timed 'Up & Go' (TUG) test, and a timed two-minute walk test. Radiographic parameters were collected to assess for fracture collapse and complications, including heterotopic ossification as well as implant failure. There were no significant differences reported in any of the clinical outcome measures between the intramedullary hip nail and the traditional sliding hip screw with regard to either the primary or secondary outcomes. However, as one might expect given the differing biomechanics, the radiographic

parameters favoured the intramedullary hip nail, which had less femoral neck shortening. Despite these poorer radiographic outcomes, this did not seem to translate into poorer clinical scores, and consequently (and quite sensibly) the authors concluded that while the intramedullary hip nail led to improved radiographic outcomes, this does not translate into clinical outcomes and, in this study at least, both implants were apparently equivalent.

### Reduction of the syndesmosis

■ There are so many opinions on reducing and stabilising the syndesmosis in ankle fractures that there is clearly no correct answer, however, there has been a flurry of recent research promoting various methods of reduction, fixation and strategies for management post-operatively. Adding to the already slightly confusing myriad of evidence, this investigation from **New York (USA)** set out to compare normal with abnormal sides in patients requiring open reduction and internal fixation of their syndesmosis.<sup>5</sup> Reasoning that there is little indication for where exactly to place the fibula relative to the syndesmosis, and that this can be confusing, the authors undertook a prospective study of 155 patients, all with displaced ankle fractures requiring operative stabilisation. Unusually, this team undertook CTs of both the

operative and non-operative side to assess the reduction. Overall, surprisingly accurate reductions were achieved, with a mean of 1.88 mm and 5.75° of malreduction but no effect on clinical outcome. This paper is in contrast to some recent work suggesting that significant malreduction can be a problem. In light of the authors' clinical findings which suggest that surgical reduction within a few millimetres and a few degrees of

malrotation gives a reasonable clinical result, perhaps the syndesmosis reduction is not as difficult as we previously thought?

### Outcomes after intramedullary nailing of distal tibial fractures X-ref

■ The humble distal tibial fracture has recently been the focus of some significant research. With the UK FixDT study all but recruited there is likely to be some high-quality comparative evidence concerning the comparison between plating and nailing in the not too distant future. However, while we are waiting for this study, authors from **Missouri (USA)** have published their own study including the outcomes of 105 patients with intramedullary nailing for distal tibial fractures.<sup>6</sup> The key to the uncertainty in these fractures is the trade-off between ease of maintenance and achieving a reduction (which favours the plate as an option) *versus* the advantages of early weight-bearing, maintenance of an almost intact soft-tissue envelope combined with the added advantage of early weight-bearing

and reduced metalwork failure. Most surgeons, when pressed, would agree that nailing is technically more demanding, but if it can be achieved without malalignment it potentially offers some key advantages. This

study is a simple retrospective analysis of 105 patients from a single level-one centre, all treated with intramedullary nailing for their extra-articular distal tibial fracture. Outcomes were determined by notes review, and specifically radiographic alignment, nonunion, range of motion and wound complications were recorded. While the outcomes clinically were acceptable with maintenance of range of motion, the

authors report a 20% nonunion and 25% malunion rate. This is a classic example of authors reaching a different conclusion to that indicated by their results. Whilst the authors conclude that "Intramedullary nailing of distal tibial fractures is a suitable treatment option... Acceptable alignment and range of motion can be achieved", we would perhaps argue here at 360 that their results show more that there is still plenty of room for improvement in this case.

### Vitamin D and fractures X-ref

■ Vitamin D has become a bit of a buzz word in orthopaedic circles. Senior orthopaedic doctors, to whom calcium homeostasis and the precise mechanism of vitamin D phosphorylation is a bit of a black art, have become acutely interested in vitamin D metabolism, and particularly in using it as a prophylactic agent to support calcium metabolism and reduce the longer-term risks of fragility fracture. Despite all of the interest in this topic, the question remains: is this sort of treatment effective? A review team from **Ontario (Canada)** set out to establish the ins and outs of the current literature.<sup>7</sup> The study team undertook a comprehensive review of the literature and meta-analysis. Their literature review yielded a high prevalence of post-fracture hypovitaminosis D (70%) and that vitamin D supplementation at a range of doses safely increases 25(OH)D serum levels. There are, however, no large randomised controlled trials on the subject and we do wonder here at 360 if we really should be considering evaluation of the therapeutic effects in terms of longer-term fracture risk. The difficulty, of course, is that as a generic medicine, there is little incentive for 'big pharma' to fund such a study, and that study in itself would be costly.

### Pararectus approach better than the Stoppa? X-ref

■ The anterior acetabular exposure (the modified Stoppa) has been the workhorse approach for the majority of acetabular surgery for the past



few years. Surgeons have adopted this over the modified ilioinguinal approach due to both the simplicity and the extensive exposure of anterior and posterior columns on the inner table facilitating access to the quadrilateral plate. There is, however, another anterior approach, the pararectus approach, that also offers exposure to the anterior acetabulum through a slightly modified soft-tissue window. This approach may offer slightly improved exposure, particularly for instrumentation, over the Stoppa approach. We were delighted to see a thoughtful cadaveric review from authors in **Bern (Switzerland)** comparing these two anterior acetabular exposures in human cadavers.<sup>8</sup> The study team undertook both exposures on five cadaveric pelvises and marked the exposures on the bone achievable with the two differing approaches. It does appear from their work that the pararectus approach provides slightly better access for instrumentation of the pelvis than the Stoppa. Although this is essentially a subtle variation in the difficult world of

pelvic fracture surgery, this can be an essential difference.

### Outcomes in geriatric trauma X-ref

■ In an impressive prognostic score study, investigators from across the USA report their development and validation of the geriatric outcome score. It seems that novel scores are ten a penny in the orthopaedic literature at the moment, however, we do wonder if this one might be here to stay. The score is designed as a prognostic score for general geriatric trauma outcomes, and the model was developed using a sample cohort from **Parklands Hospital (Dallas, USA)** consisting of 3841 patients.<sup>9</sup> The prognostic factors included age, ISS and blood transfusion. This score was then validated in a larger cohort of patients from three other trauma centres (n = 18 282). The overall mortality rate was similar between the development (10.8%) and validation (11.0%) cohorts and the score was essentially found to have very accurate prognostication for patients with geriatric trauma. The limitation of this score as it stands is that it's a little

difficult to apply, requiring calculation of the score and then conversion into an absolute mortality figure. However, the sense is easy to get; the older you are with a higher ISS, and the more transfusion you require, the more likely you are not to survive. The only difficulty is, we are struggling to see what is novel here.

### REFERENCES

1. Raut S, Parker M. Medium to long term follow up of a consecutive series of 604 Exeter Trauma Stem Hemiarthroplasties (ETS) for the treatment of displaced intracapsular femoral neck fractures. *Injury* 2015 (Epub ahead of print). PMID: 26632499.
2. Collin D, Geijer M, Göthlin JH. Computed tomography compared to magnetic resonance imaging in occult or suspect hip fractures. A retrospective study in 44 patients. *Eur Radiol* 2016; Epub ahead of print.
3. Canadian Orthopaedic Trauma Society. Are locking constructs in distal femoral fractures always best? A prospective multicentre randomized controlled trial comparing the Less Invasive Stabilization System (LISS) to the minimally invasive Dynamic Condylar Screw system (DCS). *J Orthop Trauma* 2015 (Epub ahead of print). PMID: 26429408.
4. Reindl R, Harvey EJ, Berry GK, Berry GK, Rahme E; Canadian Orthopaedic Trauma

**Society (COTS).** Intramedullary versus extramedullary fixation for unstable intertrochanteric fractures: a prospective randomized controlled trial. *J Bone Joint Surg [Am]* 2015;97:1905-1912.

5. Warner SJ, Fabricant PD, Garner MR, Schottel PC, Helfet DL, Lorich DG. The measurement and clinical importance of syndesmotic reduction after operative fixation of rotational ankle fractures. *J Bone Joint Surg [Am]* 2015;97:1935-1944.
6. Kruppa CG, Hoffmann MF, Sietsema DL, Mulder MB, Jones CB. Outcomes after intramedullary nailing of distal tibial fractures. *J Orthop Trauma* 2015;29:e309-e315.
7. Sprague S, Petrisor B, Scott T, et al. What is the role of vitamin D supplementation in acute fracture patients? A systematic review and meta-analysis of the prevalence of hypovitaminosis D and supplementation efficacy. *J Orthop Trauma* 2016;30:53-63.
8. Bastian JD, Savic M, Cullmann JL, Zech WD, Djonov V, Keel MJ. Surgical exposures and options for instrumentation in acetabular fracture fixation: pararectus approach versus the modified Stoppa. *Injury* 2016;S0020-1383:00047-4. (Epub ahead of print)
9. Cook AC, Joseph B, Inaba K, et al. Multicenter external validation of the Geriatric Trauma Outcome Score: A study by the Prognostic Assessment of Life and Limitations After Trauma in the Elderly (PALLIATE) consortium. *J Trauma Acute Care Surg* 2016;80:204-209.

## Oncology

**X-ref** For other Roundups in this issue that cross-reference with **Oncology** see: *Spine Roundup 1; Knee Roundup 2; Hip Roundup 2, 4.*

### Surgery for spinal lung mets? X-ref

■ Lung cancer has traditionally been considered a terminal diagnosis. The mean interval from diagnosis to death has remained at or around six months for many years, and although surgery can be curative, often presentation is at a stage where surgery is not a viable option. There have been a number of recent studies however that have lowered the threshold for spinal metastatic surgery suggesting improved quality of life, particularly in the case of metastatic cord compression where spinal decompression

has been found almost universally to have a surprisingly good result. Surgeons in **Chongqing (China)** have published their own experience of surgery for spinal metastasis arising from non-small-cell lung carcinoma.<sup>1</sup> They report the results of 133 patients, all with metastasis, 86 of whom survived six months and were included in the final results. Of the 86 patients, 45 received decompression, and 41 did not. Outcomes were assessed using survival and the Functional Assessment of Cancer Therapy-General questionnaire. The results are almost universally in favour of the surgical group, with longer survivals and improved functional outcome scores at all follow up intervals. It does seem that the results from other cancer diagnoses

have been mirrored here in a more aggressive primary than most – spinal metastatic disease is best treated surgically when possible, whatever the primary diagnosis.

### Low grade chondrosarcoma suitable for less aggressive treatment X-ref

■ The less aggressive cartilage tumours (variably known as grade 1 chondrosarcoma or atypical cartilaginous tumours) are known to be suitable for less intrusive surgical excision than their higher-grade counterparts – the question at the moment is how much less aggressive is less aggressive? A large series of 108 patients is reported from **Groningen (The Netherlands)** this month confirming previous reports that less may very well be

more in these cases.<sup>2</sup> The surgical team used a conservative surgical strategy of curettage and adjuvant phenolisation to excise 108 tumours over a six year period, all in long bones, and present their results with a minimum of two year follow-up. During the observation period of the study, the research team established that there were no local recurrences at a mean of 48 months follow-up, although there was likely residual tumour in five cases giving a 95.4% disease-free survival rate. However, there were significant complications seen with a 10.2% fracture rate and a smattering of other complications such as infection and arthrofibrosis. There were no appreciable patient or tumour factor associations with complication occurrence.