Washers in the medial epicondyle X-ref

■ Adding a metal washer to screw fixation of medial epicondylar fractures increases the likelihood of implant removal following surgical stabilisation. This is perhaps all that needs to be said about this simple paper from **Pennsylvania State College of Medicine (USA)**.[1] What the authors don't manage in methodology and robust analysis, they make up for in the simple and useful message in their paper. Their retrospective review reports the outcomes of 16 patients (17 elbows), all adolescents with displaced medial epicondylar fracture dislocations who were managed surgically between 2008 and 2014. In 12 fractures, a screw and washer were used, and in five, a screw alone. Follow-up was reported to 11.5 months, and during the follow-up period all fractures healed themselves. In fractures treated with a screw alone, there was no associated fragmentation or penetration of the epicondylar fragment and, as such, there were no patients who requested metalwork removal. However, in the washer group, seven of 12 patients treated with a screw and washer requested removal of metalwork. Washers are often used in this situation because of the perceived risk of epicondylar fragmentation; however in this small series with short-term follow-up, this fear does not appear to increase the risk of implant removal. This is a very simple paper which conveys a practical message of interest to any surgeon involved in the management of this injury.

Modified Dunn osteotomy acceptable for unstable SUFE

■ Unstable slipped upper femoral epiphysis (SUFE) is a problematic condition to treat. Although stable or minimally displaced SUFE are associated with excellent outcomes from pinning *in situ*, the management of unstable acute SUFE is much more controversial. Contemporary thought has swung towards open reduction and pinning, often using a modified Dunn procedure. There are few large series reported of surgical dislocation. We were pleased to see this single-surgeon series from **Nationwide Children's Hospital, Ohio (USA)** reporting the outcomes of 31 hips with unstable SUFE.[2] The modification of the hip dislocation described here includes the addition of an extended retinacular flap. The patients were all operated on within 24 hours of presentation (mean 13.9 hrs), although there was no information reported on the timing of symptoms. The authors report that at over two years of follow-up, just 6% of patients developed avascular necrosis at around four months, and three patients (10%) developed mild heterotopic ossification requiring no treatment. There was no evidence in this series of nonunion, delayed union, or post-operative hip subluxation/dislocation. Radiological anatomy was effectively normalised with restoration of α and slip angle with minimal change in greater trochanteric height and femoral neck length. Given the effective restoration of normal hip biomechanics, this series underlines the importance of normal hip geometry.

Does vitamin D deficiency influence time to physeal closure?

■ Sometimes an incidental finding leads to a surprising hypothesis or insight into a disease. Noting that there was an unexpected prevalence of female patients in a cohort presenting with SUFE when the condition typically has a significant male predominance, the paediatric team at **Southampton General Hospital (UK)** set out to try and establish what the causation might be.[3] Between June 2007 and July 2012, 23 of 27 (85.2%) patients presenting with SUFE in their unit were assessed as vitamin D deficient, with serum 25-(OH)D < 52 nmol/L. Unusually, the majority (n = 17/27) were female, with a mean age of 11.5 years. Although slightly limited by its methodology, the paper is very much of interest given the unusual association. What is not quite clear, despite a high level of vitamin D deficiency being observed in SUFE patients in a northern European unit, is whether the delayed physeal closure that is known to be associated with vitamin D deficiency is the cause here. Although the causation is far from clear, the association of low vitamin D, SUFE and female sex is a novel one which is worthy of note. Sadly, the paper does not include BMI data, which would be helpful in interpreting the results as vitamin D is a fat soluble vitamin. Combined with the lack of consensus surrounding what actually constitutes a low vitamin D status for the UK population as a whole, this leaves us with some difficulties in drawing any firm conclusions from what remains an interesting observation.

Flexible nailing in children's femoral fractures X-ref

■ The flexible nail has a relatively small window of clinical applicability in children's femoral fractures. Too flexible for older children's fractures, and lacking in the length stability required to adequately stabilise comminuted fractures (even with the use of the end caps), the debate continues as to which children they are indicated in, and if indeed they are better than a simple hip spica. The paediatric trauma surgeons at the **Texas Scottish Rite Hospital for Children, Dallas (USA)** have provided the first large comparative series of patients managed with either spica immobilisation or flexible femoral nailing.[4] Their carefully reported series includes the outcomes of a retrospective cohort study of 262 patients aged between four and five years, of whom 104 were treated with intramedullary nail (IMN) and 158 with an immediate spica cast immobilisation. The patients were followed up for a mean of 32 weeks, and outcomes were reported both radiographically and clinically. Radiographically, at final follow-up there were no relevant mean differences in coronal angulation (< 15°), sagittal angulation (< 20°) or shortening (< 20 mm) between the two groups. However, those in the intramedullary nail cohort often required a second operation for metalwork removal, and of course a longer follow-up period was reported. It is important to bear in mind that this study is not a randomised study, and with a 'surgeon's discretion' method for selection of treatment, the cohorts are not matched. Those treated with IMN tended to be slightly older, heavier (mean 21.5 *vs* 18.0 kg) and more likely to have a higher-energy mechanism of injury. Children aged four to five years with an isolated femoral fracture have similar clinical and radiographic outcomes with immediate spica cast immobilisation as they do with flexible intramedullary nail, based on the data presented here. While these data can be used to legitimise whichever treatment modality the surgeon is planning, it is important to remember that these are very different treatments. There are no cost-effectiveness data presented, and although the surgery has the drawbacks associated with the potential for complications and longer follow-up periods, the benefits of earlier mobilisation and fuller engagement in social and other activities are likely in the eyes of many to outweigh the downsides.

EOS biplanar radiographs X-ref

■ Assessment of the paediatric spine is problematic. The complex deformities that are associated with

scoliosis do not lend themselves very well to simple 2D imaging. Although clearly written with the intention of promoting the EOS biplanar system, this report from **University of Saint Joseph, Beirut (Lebanon)** does provide a relatively balanced review of the EOS technology, its advantages, major uses and pitfalls.[5] For those considering including EOS in their practice, this article is well worth a read, making the argument that for correction and evaluation of scoliosis in the paediatric spine, the 3D reconstructions are achieved at a fraction of the dose of plain film radiation, let alone a CT scan. The review, however, highlights the need to have a skilled operator of the workstation as 3D reconstructions are not produced automatically and can be tricky to achieve.

Osteonecrosis after paediatric femoral neck fractures X-ref

The femoral neck fracture in children is a rare and significant problem. In adults, osteonecrosis from displaced femoral neck fractures can be difficult enough to treat, however, in children the prospect of lifelong disability and difficulties associated with successful reconstruction are of great concern. Surgeons at **Harvard Medical School, Massachusetts (USA)** have set out to review the potential risk factors for osteonecrosis, in an attempt to identify what is most likely to lead to the condition.[6] They were able to assemble a cohort of 70 fractures treated over a ten-year period and undertook a comprehensive, multivariable logistic regression analysis to identify factors associated with osteonecrosis. They were able to evaluate the effect of patient factors (age, sex), injury factors (mechanism, time to treatment, fracture location and displacement) and treatment factors (time to surgery, fixation method, capsular decompression and post-operative alignment) as potentially causally linked to the development of osteonecrosis. Their cohort had an event rate of around 30%, which is in line with previous literature. The significant risk factors uncovered by the authors for the development of osteonecrosis are fracture displacement, fracture location and time to treatment (< 24h). Interestingly, capsular decompression does not make a difference to eventual outcome. This paper represents probably the most reliable data on this topic with a cohort of 70 patients, all with reasonable follow-up. Although to a certain extent the die is cast at the time of injury, clearly providing timely surgery will improve the likelihood of head survival.

Calcaneal scoring for SUFE?

To pin or not to pin? There has been much recent work on prophylactic pinning of the contralateral hip in unilateral slipped upper femoral epiphysis (SUFE). The current literature suggests that if only one option is available, it is safer and cheaper to pin the contralateral hip prophylactically. However, there have been several recent studies suggesting that the modified Oxford Hip Score may be an effective way of screening for an impending SUFE and, as such, could potentially be used to aid decision-making surrounding prophylactic pinning. These authors from **Yale School of Medicine, New Haven (USA)** propose a different approach, instead using ossification of the calcaneal apophysis to guide the decision-making surrounding pinning.[7] They reason that the calcaneal scoring system provides a 'bone age' that relates directly to peak height velocity, and that this may be used in place of the Oxford score for an easier to apply approach which is comparable, but less complex, than the modified Oxford method to aid in the prediction of a contralateral slip. The authors report a purely imaging-based study where they examined 279 matching hip and feet radiographs of 94 children. They were able to establish that there was a reasonable correlation between the modified Oxford score and the calcaneal scoring system. The weighted risk of contralateral slipped capital femoral epiphysis (SCFE) – referenced from the literature on the Oxford score – was therefore 94% for calcaneal stage 0, 86.5% for stage 1, 90.3% for stage 2, 55.8% for stage 3, 6.1% for stage 4, and 0% for stage 5.

This paper is certainly of substantial interest regarding an easier method for quantifying the risk of SUFE, however, we do have some concerns about the conclusions that have been drawn, here at *360*. This study does not actually evaluate the value of calcaneal scoring as a predictor of SUFE; it evaluates the ability of the calcaneal score to predict modified Oxford Hip Scores – a completely different thing.

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