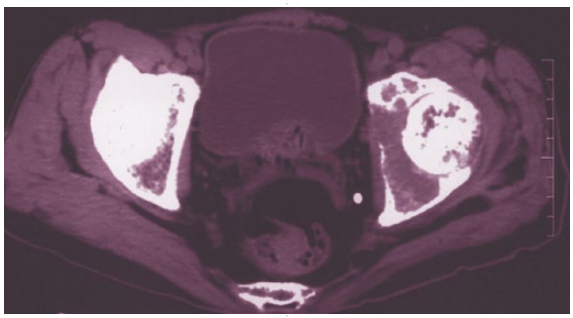
a more conservative approach, away from intervention. The research team from **Sacramento, California (USA)** based their paper on the outcomes of 47 serial patients, all with a diagnosis of desmoid tumour.[5] The authors compared those with conservative management (n = 20) to those with surgical excision (n = 24), with outcomes assessed as tumour recurrence *versus* tumour progression. Follow-up data were available to around three years. Perhaps surprisingly, those patients who did not have excision actually had a more successful outcome with significantly fewer progressions and recurrences than in the patients managed with excision.



### Trabectedin in chondrosarcoma

■ Chondrosarcomas are traditionally thought of as insensitive to chemotherapy, nonetheless, there may be some light at the end of this proverbial tunnel from collaborators in **Tokyo, Japan**. Their subanalysis of trabectedin compared with best supportive care suggested a mild benefit in favour of the chemotherapy.[6] This is a very small study, and readers should always be cautious of giving too much weight to secondary analyses of randomised controlled trials with small subgroups. However, this does give a hint that there may be a drug treatment possible for various types of chondrosarcoma. Further investigation is clearly warranted here.

### Ewing's sarcoma, primary management and outcomes X-ref

■ This paper from a North American collaborative examines differences in primary management of patients with Ewing's sarcoma of the femur and how this might impact on outcomes. Based in **Houston, Texas (USA)**, the authors report the outcomes of 115 patients across three complementary group trials, and outcomes in terms of recurrence were analysed according to local control method.[7] The group consisted of 84 patients with surgery only, 17 with surgery plus radiation, and 14 patients had radiation only. The overriding message here is that the authors find no differences in the outcomes in terms of survival between those having surgery alone, surgery and radiotherapy, or radiotherapy alone. They do not, however, clarify exactly why that particular modality was chosen, and therefore do not detail the various confounding factors and potential selection biases. Radiotherapy alone, for instance, would usually only be chosen for very well-responding tumours while a combination would be administered in those with a poorer response rate. In addition, the authors do not discuss issues with regard to function. Although a laudable attempt to compare the three strategies, one cannot help thinking that there are too many flaws and too few patients to really take much of value away from this paper.

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# Children's orthopaedics

**X-ref** ***For other Roundups in this issue that cross-reference with Children's orthopaedics see:*** *Spine Roundups 5, 6, 7; Oncology Roundup 7.*

### Hip arthroscopy for paediatric hip septic arthritis? X-ref

■ Arthroscopy has been used routinely for the diagnosis and irrigation of septic arthritis of the knee and other joints, and had become the gold standard of care, offering visualisation washout and adequate debridement of the whole joint. Used routinely in the knee, shoulder, elbow and ankle, it strikes us as odd that it isn't standard of care in the adult hip at least. Although arthroscopy has been used in childhood knee septic arthritis (SA), it has not replaced open arthrotomy in the treatment of childhood hip SA, mostly due to the requirement for traction and utilisation of lateral-sided portals. This makes 'standard' hip arthroscopy difficult to perform in children. Previous authors have described single portal techniques without traction, but there are obvious advantages to washing out a joint with dual portals. These authors from **San Diego, California (USA)** describe a medial-based portal and assessed its safety and efficacy in accessing the hip joint in children.[1] The structures at risk include the obturator nerve, medial circumflex artery and the saphenous vessel. This study utilises previously obtained magnetic resonance imaging (MRI) of a paediatric population to determine the safety of a medial portal placement. A retrospective review was performed of 47 children below the age of seven years with a diagnosis of septic arthritis. The safest insertion position of the portal was posterior to the adductor longus, with insertion at the convergence of the gluteal and inguinal creases at the posteromedial location behind adductor longus. MRI images were then used to define the base of a cone, which would reflect the possible variation in the trajectory of the needle being placed

for the cannulated medial arthroscopy portal. The authors established that utilising the gluteal and inguinal crease convergence to identify the distance from the pelvis to form the vertex of the cone of entry minimises the risk to the femoral neurovascular structures, with a margin of safety of around 2 cm at the needle insertion and 1 cm at the hip joint. Although previous adult studies have confirmed that the posteromedial portal is safe, this is the first study to suggest that the posteromedial portal could be used safely in the child. The authors acknowledged that the posterior branch of the obturator nerve is at risk but point out this is at no greater risk than when this site is used for a needle aspiration of the joint. Surprisingly, despite the smaller size of the patients, the distance to the femoral neurovascular structures from this portal is approximately the same as that seen in the adult.

### Epidemiology of paediatric fractures X-ref

■ Fractures in children pose a large burden on the health system of any given country, and though among the cheapest to treat (given the tendency from non-interventional treatments) the burden in volume and clinician time is significant. In the US there is an estimated annual treatment cost of approximately $350 billion for all paediatric fractures. These authors from **Memphis, Tennessee (USA)** set out to identify the most frequent fractures in the paediatric population[2] using a combination of the 2010 National Electronic Injury Surveillance System (NEISS) and the 2010 US census. The 2010 NEISS report estimated that there were overall 5 333 733 emergency department visits for all diagnoses in children up to 19 years of age, of which 788 925 (14.7%) of visits were related to fractures. The 10 to 14 years age group had the largest annual occurrence of fractures at 15.23 per 1000 children. Perhaps unsurprisingly, fractures of the upper extremity were by far the most common (17.8% of all fractures), with the distal radius leading the way (25% to 43% of all fractures in children, according to the literature), followed by the fingers and carpal bones. Males had a higher fracture rate in all age groups, which was dramatically increased between the ages of 10 and 19 years. They were also nearly twice as likely to sustain a fracture at up to 19 years of age. The overall healthcare burden was significant, with around 1:5 children sustaining a fracture during childhood, and just 1:18 of these requiring hospitalisation or intervention even in what is perhaps the most aggressively interventional healthcare system in the world.

### Unthreaded fixation in slipped capital femoral epiphysis? X-ref

■ In this retrospective study from **Lund (Sweden)**, the authors set out to establish the long-term of effects of an unthreaded Hansson Hook-Pin (Stryker; Selzach, Switzerland) for the physiodesis of slipped capital femoral epiphysis (SCFE).[3] The authors report the outcomes of 54 patients with SCFE who were treated using the Hansson Hook-Pin by analysing the immediate radiograph, and the radiograph first taken after physeal closure (a mean of 34 months post-surgery). The authors established the use of the smooth pins, allowing for the continued growth of the capital epiphysis, with an average of 7.1 mm of further femoral neck growth after surgery compared with an average of 10.0 mm on the contralateral uninjured side. Patients who were younger than 11 years of age at time of surgery grew more than the older patients by 12 mm *versus* 4 mm. The use of unthreaded modes of fixation allows for further growth of the proximal femoral physis, which provides a more anatomical head—neck offset in adulthood. These findings will undoubtedly add fuel to the ongoing debate among paediatric orthopedic surgeons regarding the treatment of this common hip pathology.

### Curve progression in young scoliosis? X-ref

■ Scoliosis patients with an open triradiate cartilage are known to have a greater risk of curve progression, even after surgical treatment. This is mainly due to 'distal adding-on' and the crankshaft phenomenon. However, the amount of progression that can be expected with modern pedicle screw fixation is not quite clear. A group of authors from across the US and centred in **Baltimore, Maryland (USA)** set out to assess whether fusion-only posterior spinal surgery can effectively arrest deformity in these immature patients, or if a comparator group of anterior—posterior spinal fusion (PSF) patients did better.[4] Their study reports the outcomes of 49 children with scoliosis who underwent posterior and/or anterior spinal fusions. There were 20 patients with an open triradiate cartilage and posterior fusion alone, nine with an open triradiate cartilage who underwent anterior and posterior fusions and a comparison group of 20 patients with a closed triradiate cartilage and posterior fusions alone. The current literature suggests that pedicle screws maintain correction even in growing children, as they provide control of all three columns of the spine. However the results of this study were somewhat different. Although the authors observed no early changes in position at the six week follow-up, seven of the 20 patients (35%) with open triradiate cartilage treated with PSF had > 10° of curve progression at two-year follow-up. Patients treated with the combination of anterior and posterior fusion had no increase of the curve at two-year follow-up. The authors also examined the choice of levels to be fused, and — specifically if stopping the fusion short of the stable vertebra (seen in six of seven patients with open triradiate cartilages treated with PSF) — also contributed to curve progression by distal adding-on at two-year follow-up. Fusing short of the stable vertebra in the anterior - posterior group (done in eight out of nine patients) had no consequences, as there was no curve progression in this group. This paper reinforces the widely-held view that anterior and posterior fusion provides a more stable fixation; however if the added morbidity of a combined anterior and posterior approach can be avoided by fusing down to the level of the stable vertebrae, perhaps a slightly more extensive posterior fusion is the best of all worlds.

### Paediatric orthopaedic surgery – a dangerous specialty for the surgeon?

■ In this study from **Montreal, Québec (Canada)** the authors' focus shifts from the patients to the surgeons. This paper tries to determine the prevalence of musculoskeletal injuries in paediatric orthopedic surgeons and identify risk factors.[5] A modified physical discomfort survey was sent to all members of the Pediatric Orthopaedic Society of North America, of which 402 members returned the questionnaire. Of the respondents, 76% were male, 84% were < 65 years of age and 82% were in practice for < 30 years. A massive 67% of the surgeons reported that they had sustained a work-related injury at some point during their career, for which 26% needed surgical treatment and 31% had to take time off work. The most commonly-reported injuries were of the lower back and upper extremity, with the reported number of injuries increasing significantly with age, those working at a non-academic setting and those working in more than one institution. These perhaps alarmingly high numbers demonstrate that paediatric orthopedics is a high-risk profession, and warrant further research in ergonomics

and surgeon education in order to improve the working environment and conditions for these surgeons.

### Timing of slipped upper femoral epiphysis surgery and success

■ The etiology of avascular necrosis (AVN) following slipped upper femoral epiphysis (SUFE) is not thoroughly known. Authors from across **Japan** have asked the question, does the timing of surgery have any impact on the likelihood of development of AVN following SUFE?[6] They designed and reported their multicentre study which includes the outcomes of 60 patients, all with an unstable slip presenting over a 29-year period - just two a year. The group was divided into those with an acute fixation (< 24 hours from onset of symptoms), between one and seven days, and a late fixation group > 7 days, with the outcome of AVN within the follow-up period. In their series, closed reduction had a lower rate of AVN than open reduction (27% *vs* 35%). Perhaps most interestingly, the authors established that — in their series at least — fixation in the middle period was associated with the highest AVN rate (77%), as opposed to acute (18%) and later (20%) rates. This does raise a number of questions, and it certainly could be that the 'late' ones represent acute chronic slips and as such are not really 'late'. However, the authors' multivariable analysis did identify the 'middle' period as an independent risk factor for AVN, even when potential confounders were taken into consideration. This reinforces the findings of the most recent meta-analysis[7] which suggests that the lowest AVN rates are seen when done acutely with *in situ* fixation. What this adds over the meta-analysis is the suggestion that the later fixation group do nearly as well.

### Developmental dysplasia of the hip in Japan X-ref

■ Developmental dysplasia of the hip (DDH) is the most major hip problem in Japan, with incidence rates higher than in many other parts of the world. This new epidemiology paper from **Okayama (Japan)** sheds some light on how this has changed over the past 40 years with the implementation of prevention and screening programmes.[8] The authors conducted a prospective audit of 1987 treating medical institutions over a two-year period in Japan. During the period of the audit the authors were able to capture information on 783 institutions, reporting 1295 cases of DDH-related hip dislocation requiring treatment. The overwhelming majority were girls (89%) with recognised risk factors present in 27% for family history, 56% being new born babies and 15% being associated with an abnormal lie. Rather worryingly, 15% of cases (n = 199) were diagnosed at over one year of age. Despite the majority of these children having received an earlier routine screening test, the diagnosis had not been made. There is ongoing debate in the majority of healthcare systems about the value or otherwise of screening for developmental dysplasia. This is one of the largest series reporting late DDH presentations. There is clearly the need for more clarity on the indications for screening, and this paper raises two key questions: should there be early routine screening, and for those with risk factors on an equivocal initial screen, should there be a second point of screening a few months later?

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# Research

**X-ref** ***For other Roundups in this issue that cross-reference with Research see:*** *Knee Roundups 3, 4, 7; Foot & Ankle Roundup 3; Hand & Wrist Roundup 3; Trauma Roundup 8.*

### Chondrocyte implantation *versus* microfracture in the longer term X-ref

■ Researchers in **Tromsø (Norway)** have set out to answer one of the remaining difficult dilemmas in knee research: that of the osteochondral lesion.[1] Although there have been a large number of papers published on a variety of new methods of regeneration, the production of hyaline cartilage following a chondral lesion remains a controversial area, with the 'definitive' treatment and study probably yet some way off. There are still proponents of the simple 'microfracture' citing simplicity, ease of surgical technique and well published longer-term outcomes, while other surgeons prefer other, more complex procedures ranging from stem cell therapies to platelet-rich plasma and collagen sponges. We were delighted to read this updated report of a previously reported, randomised controlled trial comparing autologous chondrocyte implantation (ACI) to microfracture. Last reported at mid-term (five-year) follow-up, this cohort did not previously show an advantage to the ACI approach, and we were very pleased to see that these investigators have published their long-term results. The initial cohort consisted of 80 patients, all with an isolated symptomatic cartilage defect, randomised to one treatment or another. Outcomes were assessed using the International Cartilage Repair Society, Lysholm, SF-36, and Tegner scores along with objective weight-bearing radiographs. The bottom line — perhaps surprisingly — is that at long-term follow-up there were no differences between the two groups with regard to the clinical scores. However, there was a higher rate of failure in the ACI group (17 *vs* 13 patients) and more patients subsequently required total knee arthroplasty (6 *vs* 3 patients). However, those patients for whom