

ROUNDUP³⁶⁰

Children's orthopaedics

Conservative treatment still OK in paediatric clavicular fractures [x-ref](#)

■ There has recently been an about turn undertaken by adult trauma surgeons with clavicular fracture fixation becoming a more widespread and accepted treatment, although the pendulum is starting to swing the other way again with a number of studies now showing conflicting results. Despite the rekindling of interest in adult clavicular fractures there has been no real renewed interest in children's fracture fixation. Researchers in [Lørenskog \(Norway\)](#) set out to establish if conservative treatment is still appropriate for the majority of children's clavicular fractures.¹ The study team reviewed all clavicular fractures occurring at their institution over a two-year period in adolescents (aged 10 to 18 years) and identified the patients using electronic records. The research team reviewed records and radiographs to classify fracture patterns, displacement and shortening. Clinical outcomes were assessed with the Oxford Shoulder score and the QuickDASH scores, along with specific and general satisfaction scores. The study team were able to review the records of 185 patients (mean age 14 years) with an overwhelming majority of midshaft (93%) undisplaced (62.2%) fractures. Just nine fractures underwent operative fixation (and all of these were displaced midshaft fractures). It is surprising that given the low operative rate, just one patient developed nonunion. From a

functional perspective the overall results were superb for most patients, although shortening was associated with poor clinical outcome scores (Oxford Shoulder Score, cosmetic and overall satisfaction scores). In this series, the long-term functional and clinical outcomes were excellent for the majority of adolescents with clavicular fractures. The results of this paper do not support a change in practice and conservative management should remain the mainstay of management for fractures of the clavicle in this age group.

Femoral anteversion not the usual suspect in patellar inversion [x-ref](#)

■ Femoral morphological abnormalities (particularly cam and pincer deformity of the hip joint and abnormal neck morphology) have become the height of orthopaedic fashion. Clinicians and radiologists alike are turning their beady eyes to possible new associations with proximal femoral abnormalities. One of the most widely accepted of these suppositions is the association between femoral neck anteversion and patellar mal-tracking. Many clinicians accept femoral rotational abnormality as the cause of patellar mal-tracking, and particularly 'inturned patellar gait'. This is, however, accepted without much evidence. A study team in [Paris \(France\)](#) undertook a study of 188 spastic diplegic children, all with cerebral palsy.² The research team undertook clinical examination and kinematic 3D gait analysis. Although not all patients had

complete data, the research team were able to include data from over 100 children (206 lower limbs). The computer-generated kinematic data suggested that examination findings were erroneous in around 25% of lower limbs, leaving a sample of 158 limbs with pronounced inversion of the patella. The researchers identified a subgroup of around three quarters of these patients (n = 117) who exhibited excessive femoral neck anteversion. Amazingly, of these, only 56% exhibited excessive hip internal rotation, with the remainder due to excessive pelvic rotation or hip muscular contraction. The researchers argue, quite reasonably, that an internally rotated patellar gait is not due only to excessive femoral neck anteversion and that in their series the combination of internal hip rotation and pelvic rotation was equally to blame in many cases.

Shoulder dislocation best treated with an operation [x-ref](#)

■ There has been much interest in stratifying shoulder dislocation recurrence rates with conservative treatments over the past decade, such that patients likely to suffer recurrent dislocation can be identified early and undergo stabilisation surgery prior to the development of the sequelae of recurrent dislocation (such as Hill-Sach's lesions, Bankart lesions and SLAP lesions, to name just a few). The general thrust of current adult literature is that the younger the patient the more likely they are to benefit from operative

stabilisation and although it seems logical that this would extend to children, there is surprisingly little evidence to support operative stabilisation following shoulder dislocation in children. Given the rarity of the diagnosis, it is hardly surprising that there is little published in the literature, however, a multicentre study has been undertaken by researchers in [Thessaloniki \(Greece\)](#) and [Herne \(Germany\)](#) as a comparative prospective cohort series (level II evidence) to identify the outcomes of adolescent patients (age 15 to 18 years) with a first time shoulder dislocation.³ The study team identified 72 patients of whom 60% were treated operatively and 40% non-operatively. Patients were treated with identical rehabilitation protocols, and clinical outcomes were established with the Rowe score at 12, 24 and 36 months. The differences in recurrence rates were marked with a higher than 70% failure rate in the conservative group and just 13% in the operative group. A total of 38 shoulders in the surgical group and 27 shoulders in the conservative group could be completely evaluated. From the conservative group, 19 patients (70%) suffered a recurrence of the instability whereas in the arthroscopic group, five patients (13%) suffered a recurrence of the instability. Unsurprisingly, these results strongly mirror the evidence for adult patients and it would seem sensible for these patients to undergo arthroscopic stabilisation in the same way that adults do.

Perthes' disease results in poorer quality of adult life

■ Legg–Calvé–Perthes' disease (LCP) is an idiopathic condition of the femoral head which is associated with idiopathic necrosis of the femoral head. While the aetiology and best method of treatment have been heavily studied (although hardly resolved), there is little known about the longer-term outcomes of Perthes' disease, and specifically the quality-of-life ramifications for sufferers of LCP are unknown. Authors from **Uppsala (Sweden)** have studied the longer-term consequences of LCP in adulthood within the Swedish general population.⁴ The study team used a population of 145 patients, all diagnosed with LCP at their centre and undertook a prospective longitudinal cohort study. Patients were followed using quality-of-life questionnaires (EQ-5D), physical activity scales (IPAQ) and an attention deficit hyperactivity disorder (ADHD) self-reporting tool (ADHD self-reporting checklist). In addition, prospective records of details of soft-tissue injuries or fractures requiring medical care were also recorded. These results were compared with normal values from the general Swedish population. The reported cohort consisted of 145 patients (of whom 116 had complete responses) and were established to have significantly lower quality-of-life scores than the Swedish general population (as measured by the EQ-5D) in both the VAS and dimensions portions of the score. Interestingly, the researchers established that over a quarter of the study population had scores suggestive of ADHD, and there was a strong correlation between impaired EQ-5D scores and higher ADHD indices. Despite impaired quality-of-life scores, over 90% of study patients had moderate or high physical activity scores and the authors comment that this may be in part associated with the aetiology of LCP disease.

Physiotherapy little benefit in supracondylar fractures **x-ref**

■ There are precious few randomised controlled trials in paediatric orthopaedic surgery so it was with some excitement that we read a report of a clinically relevant randomised controlled trial from researchers in **Seattle (USA)**.⁵ Their study was designed to establish the role (if any) of physiotherapy in restoring function after a paediatric supracondylar fracture. The study team randomised their patients to no treatment or physiotherapy following treatment of their supracondylar fracture and included all patients sustaining a supracondylar fracture between the ages of five and 12 years. Patients treated with both plaster immobilisation and percutaneous pinning were included in the study and outcomes were assessed using a combination of self-assessment of activity levels; the ASK-p (Activities Scale for Kids-performance version) score, anxiety scores and movement assessment by a blinded physiotherapist. The study cohort consisted of 61 patients who were randomised to one of the two treatment modalities and then assessed for upper limb performance at weeks 1,9,15 and 27 following injury. The two intervention groups consisted of either six sessions of standardised hospital-based specialist physiotherapy or no treatment. The ASK-p scores (primary outcome measure) were significantly better in the no-therapy group at nine and 15 weeks after injury ($p = 0.02$ and 0.01 , respectively), however, this difference had normalised by 27 weeks with no differences in performance of activities of daily living or time to return to sports. Objective blinded assessment of range of elbow movement did not show any differences at any time points, and severity of injury was not associated with

outcome in either group. This useful study demonstrates no advantage of physiotherapy over no treatment for children following a supracondylar fracture of the humerus. Given the added health economic burden of physiotherapy and poorer short-term outcomes, we would tend to agree with the authors here at 360, that patients received “no benefit involving either return of function or elbow motion from a short course of physical therapy”.

Congenital vertical talus addressed at the midtarsal joint **x-ref**

■ Congenital vertical talus (CVT) can be a challenging condition to diagnose and treat. Rarely amenable to conservative treatment the condition is also uncommon, making decision making complex. Patients usually require a pan-talar release which has been a staple accepted treatment for many years. Surgeons in **Paris (France)** have been using an alternate, less significant surgical approach for over 35 years, just releasing the midtarsal joint.⁶ This rare condition is reported in a ‘lifetime’ series of 31 complex foot reconstructions in 21 patients. The surgical team treated 31 feet over 32 years of which around half (15 feet) were isolated CVT and the remainder were associated with other conditions (usually arthrogryposis or a neuromuscular disorder). The feet were relatively severe with a mean tibiotalar angle of 150° and calcaneal pitch of -19° (-72° to 4°). The French surgical team used a reproducible surgical tactic undertaking midfoot capsulotomies (at the talo-navicular and calcaneocuboid joints) in combination with Achilles tendon and extensor tendon tenotomies. Outcomes as assessed by the Adelaar score were good in around three quarters of feet, with no detectable differences between



isolated and combined disease. Radiological outcomes were also satisfactory with improvement of the tibiotalar angle to 120° (90° to 152°) and calcaneal pitch angles to 4° (-13° to 22°). There were three patients requiring subsequent further surgery for planovalgus free and two who required a later pantalar release. This paper certainly supports the concept of limited midfoot releases as the best initial surgical option in CVT. There were no cases of talus AVN seen in this series and those patients who required further surgery were addressable with a peri-talar release. Certainly a paper with food for thought in a rare condition.

Single-sitting DDH surgery worth the effort

■ Late diagnosis of developmental dysplasia of the hip (DDH) poses challenges for surgeons, patients and carers. Often associated with cerebral palsy, later onset DDH is often bilateral and treatment can often interrupt schooling and rehabilitation for the patient. Surgeons in **Izmir (Turkey)** aimed to establish if a staged approach or combined bilateral procedure yielded best outcomes for patients with bilateral DDH diagnosed after walking age.⁷ Outcomes were assessed with a combination of radiological (acetabular index) and clinical outcomes. The study group consisted of 24 prospective patients split into two different groups, with 12 treated with each method (bilateral procedures or a single unilateral procedure). Follow-up was to just over 4.5 years and there were no significant differences in any of the outcome measures between groups including clinical and radiological outcome measures. The inference from this paper is that the clinical and radiological outcomes are identical between unilateral and bilateral simultaneous procedures. If outcomes are the same and bilateral hips can be addressed at a single sitting, then it would seem best to do so, minimising disruption to the patient and carers without compromising outcomes.

Cubitus valgus associated with simple elbow dislocation

■ Simple elbow dislocation is relatively common in children and may be associated with a capitellar or trochlear fracture (making it a complex dislocation) and these are widely recognised to be associated with cubitus varus and valgus in later life. For this reason patients are usually followed-up long term. There is, however, little evidence informing decision making in simple traumatic elbow dislocations with regards to follow-up. Almost universally treated conservatively, the rates of late instability are tiny – so do these patients require follow-up at all? Investigators in **Istanbul (Turkey)** set out to establish if ‘simple’ elbow dislocations really are that simple.⁸ They enrolled 11 patients (ten male) into a cohort study, all of which were posterolateral closed simple disloca-

tions. Outcome measures were specifically designed to establish the rate (or otherwise) of longer-term deformity and therefore carrying angle (as compared with the uninjured side) and the Mayo elbow performance score were used to assess patients clinically in the longer term. Outcomes were assessed at a little over two years of mean follow-up and all patients achieved good or excellent results according to the Mayo elbow score. However, patients did have some restriction of flexion (mean flexion angle 137° and extension (mean fixed flexion 8.6°). Although a small series, there were alterations seen in the carrying angle of around a third of patients (n = 4/11) with a clinically relevant increase in cubitus valgus of 14.5° (10° to 20°) when compared with the other side. It is always dangerous to draw wide-ranging conclusions

from small clinical series, however, this series does make the interesting observation that on occasion clinically relevant valgus can occur following simple elbow dislocation. It would be nice to see a larger series reported, and with eight authors one could be tempted to wonder what contribution each has had to a paper reporting just 11 patients!

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