

ROUNDUP³⁶⁰

Children's orthopaedics

Open reduction for DDH – not always successful

■ One problem with children's orthopaedics is knowing how patients might fare in the longer term. There is an ill-defined point at which a child transfers from paediatric care into the adult world. Consequently, work from **Salt Lake City (USA)** on the long-term follow-up of open reduction surgery for developmental dislocation of the hip (DDH) is fascinating. The authors reported the results of an initial group of 148 patients (179 hips) who had been treated by open reduction over a 40-year period from 1955 to 1995. They located 53 patients (66 hips) from the original group. Using the Severin classification, they found that 22 of the 66 hips had a Severin IV outcome or worse, which included seven total hip replacements and two arthrodeses. Approximately half of the hips required further surgery for dysplasia. All hips that sustained avascular necrosis had Severin IV outcomes or worse, and hips that redislocated and required revision surgery only achieved Severin I or II ratings 18% of the time. Furthermore, nine "normal" hips became dysplastic and three required pelvic osteotomies as teenagers. Two other normal hips developed avascular necrosis during treatment of the contralateral hip.¹ *360's* view? Although this was a level IV study with a fairly high drop-out rate, it seems that results deteriorate as the age at surgery increases and that open reduction does not always achieve the perfect result we seek.

What would happen, one wonders, if the hips had been left alone from the start? Perhaps that is something we will never know.

Growing rod instrumentation for scoliosis

■ Treatment of significant, progressive, early-onset scoliosis has been researched extensively. A big challenge is to achieve and maintain any correction of the deformity while allowing adequate spinal and lung growth. Growing rod instrumentation is said to be successful, so work from **Ankara (Turkey)** is particularly interesting. Surgeons undertook a level IV retrospective study of 19 patients with progressive congenital spinal deformities and who had undergone growing rod surgery with a minimum follow-up of two years. The mean age at surgery was 6.9 years, the mean number of affected vertebrae was 5.2 and the mean major Cobb angle improved from a pre-operative 66° to 47° by final follow-up. There were complications, none neurological, in eight patients (42%).² Although this was a level IV study, *360* notes that it makes a case that growing rods are safe and effective in selected patients with congenital spinal deformities. Particularly good news was that the deformity, spinal growth and space available for the lung to grow all improved.

Acute patellar dislocation – another unhappy triad

■ A common traumatic injury in active adolescents is the acute patellar

dislocation. The prevalence has been reported as being up to 77 per 100 000 people, with major risk factors including female gender, patellofemoral dysplasia and a positive family history. Common though it may be, how much damage does it actually create? Workers from **Ann Arbor (USA)** have looked at this by studying 111 patients with a mean age of 14.9 years. They found a triad of injuries to the medial patellofemoral ligament (MPFL), the chondral surfaces and the vastus medialis, which have not been previously reported. The MPFL was injured in 78.4%, osteochondral fractures seen in 34% and the vastus medialis showed oedema in 56%.³ *360* feels that however common this injury might be, we should clearly not underestimate the damage it can cause.

Management of the relapsed clubfoot

■ Management of the relapsed clubfoot can be extraordinarily challenging and is not always successful. If an Ilizarov frame has been used for the primary treatment, soft-tissue contracture and scarring can lead to a recurrence of the deformity. Researchers from **Seoul (South Korea)** have investigated this by asking whether transfixing the midfoot joints by temporary K-wires during the consolidation stage, after short-term application of an Ilizarov frame, would maintain the correction of a relapsed clubfoot. As part of a level IV case series study they retrospectively reviewed 18 patients (19 feet) with relapsed clubfoot who underwent correction with an

Ilizarov ring fixator. The mean age of patient was eight years, the mean duration of frame application was five weeks and the mean duration of overall treatment was 11 weeks. By the latest follow-up, 16 of the 19 feet were painless and plantigrade, and only three of the 19 demonstrated a recurrence. The three were treated by corrective osteotomies and further Ilizarov frame application.⁴ These are interesting results, *360* notes, as they do suggest a simple method of reducing the recurrence rate for a condition that is a huge cause of morbidity worldwide.

Clubfoot in Iran

■ Different countries see clubfoot differently, as highlighted by a paper from **Tehran (Iran)**. By using the original Ponseti method and following up their patients for a mean of 24.7 months, surgeons reported on the outcome of 78 patients (129 feet). By final follow-up they found that 24 (18.6%) clubfeet had relapsed. A significant association was found between recurrence and the severity of the original deformity, the number of casts needed for complete correction, and non-compliance with bracing and stretching exercises.⁵ Despite this recurrence rate, *360* feels that the Ponseti method, widely used as it is, represents a successful treatment protocol for clubfoot. As the authors report, its success rate will increase with the use of an abduction orthosis after complete correction and also by performing regular stretching exercises.

Laughing gas and fracture manipulation

■ If the offspring of 360 staff are anything to go by, children spend a fair amount of time breaking their bones. Forearms seem particularly common, so a study from **Dublin (Ireland)** made interesting reading. The authors took 28 paediatric forearm fractures presenting to their accident and emergency department over a six-month period in order to establish the outcomes for those fractures that were manipulated under conscious sedation using nitrous oxide as compared with those manipulated under general anaesthetic. Alas, there appeared to be a significant difference between the need for remanipulation in the nitrous oxide group (nine) compared with the need for remanipulation in the general anaesthetic group (three).⁶ 360 was puzzled by the authors' conclusion that despite a higher failure rate, manipulation of fractures in the accident and emergency department using conscious sedation can achieve an adequate reduction and a high quality of cast. Failures, they say, were due to inherently more unstable types of fracture. Perhaps time for a controlled trial?

Vascularised periosteal fibular grafting for nonunion

■ Surgeons from **Barcelona (Spain)** have come up with a good idea by reporting a new technique to enhance bone union in children - the vascularised periosteal fibular graft. This is a vascularised periosteal flap harvested from the fibula for the enhancement of bone union. The authors report 13 such flaps used in 12 children, with a mean age of 12.6 years. In nine the periosteal flap was harvested as a free flap, and in four it was pedicled. Serial radiographs and CT scans were used to assess callus formation and bone healing. The results were impressive as all flaps succeeded in promoting bone

union at a mean of 2.8 months for the metaphysis and 7.1 months for the diaphysis. It appears that a vascularised fibular periosteal flap, either pedicled or free, is a good way to promote bone union in children.⁷ More to follow, we suspect.

Slipped upper femoral epiphysis – pinning the normal side

■ Whether or not to prophylactically pin the contralateral hip in a unilateral slipped upper femoral epiphysis is still controversial. Yet what are the risks? Surgeons from **Ulm (Germany)** have looked at this by studying 66 patients treated for a unilateral slip. All but one underwent prophylactic fixation of the contralateral side. Major complications such as avascular necrosis were not seen but minor complications were. Wound revision was required in 4.6% and loss of fixation, with the need for a second fixation, occurred in 16.9%.

Children who needed a second fixation were significantly younger (11.8 years) than those who did not (13.1 years).⁸ 360 was pleased to find that this retrospective study shows prophylactic contralateral fixation to be a safe procedure with no major complications and an acceptable rate of minor complications. When K-wires were used for prophylactic pinning, there was a possibility of secondary loss of fixation. Perhaps this might be avoided if screw epiphysodesis was used instead?

Intramedullary leg lengthening – the Fitbone System

■ Leg lengthening by using an external fixator is not always problem free. Pin-tract infections, muscle

contractures, and joint stiffness are among some of the problems seen. So writes a surgeon from **Jeddah (Saudi Arabia)** when reporting the results of ten adolescent patients who underwent intramedullary lengthening with a motorised lengthening device, the Fitbone System. In the ten patients, there were nine femoral nails and five tibial. The mean lengthening was 4.8 cm, the mean hospital stay was eight days and the mean consolidation index was 24 days/cm. There were no bone or soft-tissue infections seen.⁹ 360 agrees with the authors that their

results do avoid some of the difficulties encountered with external fixators and that this could well be a promising procedure for limb lengthening in the adolescent.

Orthopaedic imaging and defensive medicine

■ A very telling paper from a children's hospital has appeared from **Philadelphia (USA)**, looking into the prevalence of defensive orthopaedic imaging. The authors looked at 72 orthopaedic surgeons, members of the Pennsylvania Orthopaedic Society, and found that a total of 2068 imaging decisions were made during the day that their practices were audited. Of these imaging requests, 19.1% were ordered for defensive reasons, representing 34.7% of the total cost. MRI represented 48.7% of the defensive orders. The proportion of defensive imaging ordered by orthopaedic surgeons who had been sued for negligence within the previous five years was greater than the proportion ordered by those who had not been sued during this period (24.6% versus 15.1%). Additionally, the proportion of defensive imaging ordered by orthopaedic surgeons who had been in practice for more



than 15 years was significantly greater than the proportion ordered by those who had less experience (20.8% versus 17.1%).¹⁰ These findings worry 360 as we should surely be struggling to minimise radiation exposure? At least the bulk of defensive imaging requests were for MRI rather than plain radiography.

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