

ROUNDUP³⁶⁰

Children's orthopaedics

Developmental dysplasia of the hip

■ Whether or not to perform a derotation femoral osteotomy for developmental dysplasia of the hip (DDH) is still hotly debated. This is largely because of the inconsistent findings of femoral neck anteversion in this condition. Although anteversion appears a simple concept it is actually quite complex. This has been well demonstrated by a team from **Shenyang City (China)** that investigated 62 patients with a mean age of 21.63 months who also had a unilateral dislocation of the hip. The researchers wished to establish what level of anteversion was present on the affected side and relate that to the Tönnis classification. By looking at femoral anteversion, acetabular anteversion, or so-called combined anteversion, they felt that a derotation osteotomy was not required in Tönnis II and III hip joints but should certainly be considered if a hip is Tönnis IV or has a combined anteversion angle of more than 62°.¹

■ If patients undergo a pelvic osteotomy for DDH, they appear still to have a higher-than-normal risk of developing avascular necrosis (AVN) and osteoarthritis (OA). It is thought this may be because of abnormal hip loadings. Researchers from **Taipei (Taiwan)**, tried to determine the lower limb loadings in adolescents who had undergone a Pemberton's osteotomy. Comparing 11 females who had received a Pemberton's osteotomy at a mean age of 1.6 years with 12 age-matched healthy controls, the pa-

tients were studied with gait analysis approximately nine years later. Those who had undergone a Pemberton's osteotomy showed greater peak axial forces at the hip, knee, and ankle in both legs.² *360* notes the suggestion that these increased forces, particularly through the affected hip joint, may contribute towards the development of both AVN and OA. Clearly more work is needed to monitor the loading conditions at the hip as *360* felt that one of the key reasons for undertaking pelvic osteotomy was to reduce load-bearing forces through the hip joint, not increase them.

Knee meniscal repair

■ The popularity of meniscal repair appears to wax and wane. However, for children and young athletes it is certainly one solution for the torn meniscus. Surgeons from **Ann Arbor (USA)** undertook a level III study on 49 knees in 45 patients, all of whom were aged less than 18 years. The meniscus had been repaired using an inside-out technique. After a mean follow-up of 27 months, clinical outcomes were excellent in 43 of the 45 patients.³ *360* agrees with the authors that meniscal tears in the skeletally immature athlete may have a greater reparative potential and that repair should be considered irrespective of the time since injury or the location of the tear.

Effects of general anaesthesia

■ *360* feels that, as surgeons, we do not always think of the effects of general anaesthesia on our patients. Researchers in **Melbourne**

(Australia) have reported that many general anaesthetic agents, including ketamine and propofol, can cause changes in the morphology of dendritic spines in the developing brains of animals. These effects are dose dependent. Some human clinical studies have also found evidence for an association between major surgery and changes in neurobehavioural outcome, although the evidence is less clear for minor surgery. It thus still remains unclear what role anaesthesia exposure in infancy might play in determining neurobehavioural outcome.⁴ For *360*, it seems sensible to proceed with caution when administering general anaesthesia to children. The long-term effects may not be quite as harmless as were once thought.

Cerebral palsy

■ Improvement in life quality is a significant issue in the allocation of healthcare resources. Consequently, work from **Zurich (Switzerland)** that reported on the impact of spinal fusion for scoliosis in patients with cerebral palsy is particularly interesting. Although only a level IV study, workers undertook a retrospective review of 50 patients with cerebral palsy who had undergone spinal fusion for scoliosis. Minimum follow-up was two years. Health-related quality of life (HRQL) was assessed using a modified version of the Caregiver Priorities and Child Health Index of Life with Disabilities questionnaire. There was a high satisfaction rate for both patients and their carers with a significant improve-

ment in HRQL.⁵ *360* was particularly interested to read that changes in HRQL did not necessarily correlate with objective radiographic changes. Further confirmation, perhaps, suggesting how differently surgeons and patients interpret success.

■ Crucial to performing an acetabuloplasty for spastic hip subluxation is to identify the degree and location of any acetabular deficiency. Researchers, again from **Taipei (Taiwan)**, have looked into this for 25 children with spastic cerebral palsy. Of the 50 hips, 22 were subluxated and 28 were not. Subluxation was defined as a migration percentage > 30%. All hips underwent three-dimensional CT scanning. Spastic non-subluxated hips had similar CT acetabular indices to normal hip joints. However, spastic subluxated hips showed significant differences from the normal, predominantly in the anterior aspect of the acetabulum.⁶

Scoliosis

■ Spinal fusion for scoliosis, is a demanding procedure at the best of times. Workers in **Minneapolis** and **Atlanta (USA)** undertook a retrospective cohort study in order to look at the outcomes for patients who had undergone a selective thoracic instrumented fusion. The patients were compared with those who had undergone a long fusion into the lumbar spine. They reviewed 28 patients at a mean of 20 years after surgery and found that outcome scores between the two groups of

patients were similar. Spinal balance and correction of the lumbar curve remained stable over time for selective thoracic fusion, which appears to deliver similar outcomes over time to long fusions.⁷

Infection

■ Methicillin-resistant *Staphylococcus aureus* (MRSA) has emerged as an increasingly important cause of childhood osteomyelitis. Differentiating clinically between MRSA and methicillin-sensitive *Staphylococcus aureus* (MSSA), before formal culture is available, would allow the prompt administration of appropriate antibiotics. Researchers from **Boston (USA)** developed a clinical prediction algorithm in order to distinguish between the two organisms by looking retrospectively at 129 children who had presented over a ten-year period. There were four criteria that pointed towards an osteomyelitis being caused by MRSA. These were a temperature of > 38°C, a haematocrit of < 34%, a white count of > 12 000 cells/ μ L and a C-reactive protein level of > 13 mg/L. If all four measurements were present, there was a 92% chance that MRSA rather than MSSA was the cause of the infection.⁸



■ Childhood spondylodiscitis is both uncommon and difficult to diagnose, a fact highlighted by researchers from **Derby (UK)** and **Prague (Czech Republic)**. They retrospectively reviewed 16 children treated over an eight-year period and who had been followed up for a mean of 24 months. For patients aged less than two years there was a mean delay to diagnosis of 25 days. Only five of the children presented with localising symptoms and signs and only seven showed radiological changes. There was a clear message that the early use of MRI could avoid the delay in starting treatment and might also prevent longer-term problems.⁹

Feet

■ The treatment of clubfoot is hotly and widely debated, the Ponseti method perhaps being one of the more common treatments. Workers from **Iowa City (USA)** and **London (UK)** undertook a systematic review of the results of the Ponseti method for clubfoot. They found 308 relevant citations in the English literature, of which 74 full-text articles met the inclusion

criteria. This work showed that the Ponseti method gave excellent results in approximately 90% of cases and that it should thus be regarded as best practice in the management of clubfoot.¹⁰

■ A dominant cause of heel pain in children between the ages of eight and 15 years is Sever's injury (apophysitis calcanei). Treatment with insoles is commonly recommended. Researchers from **Karlstad** and **Örebro (Sweden)** investigated the effect of a heel cup on heel pad thickness and heel peak pressure in 50 patients. The heel cup significantly improved the heel pad thickness while also reducing the heel peak pressure. These effects correlated well with a reduction in pain when using the heel cup in a sports shoe." The 360 view? It is good to see that a widely used treatment now has the scientific proof that it actually works.

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