

September 2006

SPECIALISED ULTRASOUND PROCEDURES IN PAEDIATRICS

During the neonatal period ultrasound may be very useful in certain settings, which in other age groups would require other modalities such as plain x-rays or MRI scans. Two examples include assessment of the neonatal hip and spine. Both areas have cartilaginous elements, which allow good visualisation with ultrasound. During the neonatal period the **maternity services benefit** covers some of the cost of these scans which makes them a relatively cheap investigation.

Developmental Dysplasia of the Hip

This condition was previously called congenital dislocation of the hip, but the hip is not always dislocated and any problems generally occur postnatally. So **developmental dysplasia (DDH)** is the preferred terminology. A key component in the pathogenesis of DDH is ligamentous laxity present at birth. This laxity is short lived. Therefore if the hips are enlocated and appear developmentally normal on imaging, and are clinically stable, they are unlikely to dislocate at a later time.

As the femoral head is entirely cartilaginous at birth, assessment of plain radiographs can be difficult. **Ultrasound** can visualise the cartilage of the femoral head directly and determine if the hip is developmentally normal or not (Fig 1a & b). By four months of age 50% of hips will be beginning to ossify and by 6-7 months 90% of hips show some development of the femoral head ossification centre. In general **by 4 months a simple X-ray will suffice** and by 6 months ultrasound can become difficult to interpret.

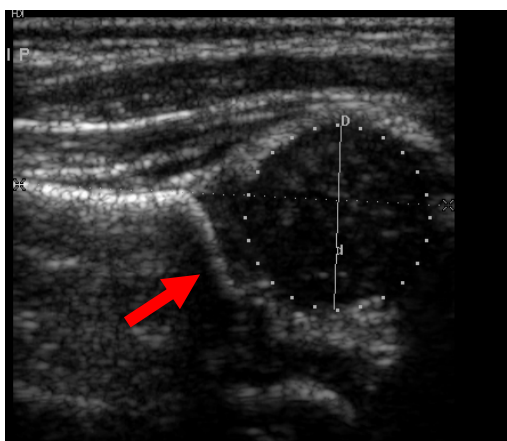


Fig 1a: normal left hip ultrasound scan of a 3 month old girl. The femoral head is located within a well formed acetabulum.

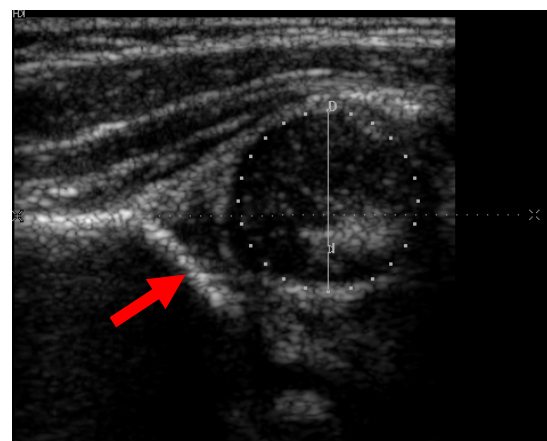


Fig 1b: the right hip of the same baby. The femoral head is subluxated from a shallow acetabulum with a steep roof.

Spinal Ultrasound

Sacroccygeal pits are a relatively common finding in newborn babies. When these are the typical shallow midline pits overlying the coccyx there is seldom any underlying pathology and imaging is not indicated. Atypical lesions may be unusually deep, off midline, higher in location or associated with hairy or pigmented patches. These may be associated with a tethered cord and other anomalies, which can be demonstrated on ultrasound. A normal ultrasound in the neonatal period will probably obviate the need for an MRI, which would require a general anaesthetic (Fig 2)

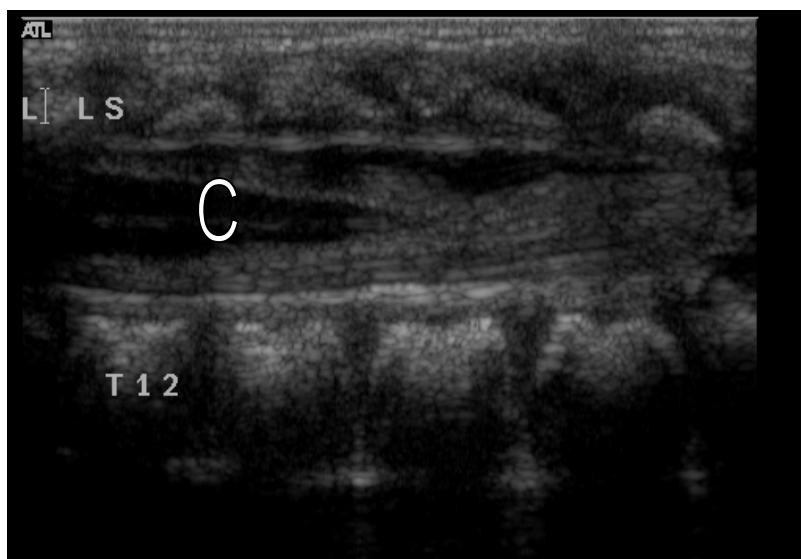


Fig 2: a sagittal scan of the spine in an infant with an atypical sacroccygeal pit. The conus of the spinal cord ("C") appears normal and is located normally at the L2 level.

ARG FOR PAEDIATRICS

No other private practice has a greater depth of experience in paediatrics than the Auckland Radiology Group.



Paul White - The managing partner of ARG trained in paediatric radiology at Boston Children's Hospital. He has decades of experience working as a paediatric radiologist at Princess Mary Hospital and Starship Hospital.



Glen Thomson – Fellowship trained as a paediatric radiologist at BC Children's hospital in Vancouver, Glen has worked at Starship Hospital in the past. He is currently head of paediatric radiology at Middlemore Hospital.



Sally Vogel – Sally has been Head of Radiology at Starship Hospital for over ten years and was instrumental in gaining a CT scanner for Starship in 2001.



Dawn Burkimsher – Trained as a paediatric radiologist at Red Cross Children's Hospital Cape Town, where she became Head of Radiology. Dawn emigrated to NZ in 1995 and has worked regularly at Starship Hospital since.