

Poster presentation

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Comparison of prenatal and postnatal MRI findings in the evaluation of intrauterine CNS anomalies

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from 50th Annual Meeting of the Society for Research into Hydrocephalus and Spina Bifida
Cambridge, UK. 30 August – 2 September 2006

Published: 21 December 2006

Cerebrospinal Fluid Research 2006, **3**(Suppl 1):S46 doi:10.1186/1743-8454-3-S1-S46

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Background

To assess the diagnostic capability and prognostic value of fetal Magnetic Resonance Imaging (MR) in children suspected antenatally to harbour CNS defects.

Materials and methods

Between 2003 and 2005, 14 foetal MRI scans were performed in mothers suspected on ultrasound scans to have foetuses with congenital CNS defects. Of those, 13 children have been born and assessed with postnatal MR scans. Comparisons between antenatal and postnatal scans were made with particular emphasis on accuracy of diagnosis and consequent prognostic value of the antenatal examinations.

Results

All mothers were scanned using heavily T2-weighted fat-saturated sequences, which allowed rapid acquisitions to avoid movement artefacts. Imaging quality was satisfactory in all 13 patients. Diagnoses made antenatally were: myelomeningocele in 6, diastematomyelia in 1, occipital encephalocele in 1, terminal myelocystocele in 1, meningocele in 2 and isolated hydrocephalus in 2 children. Of the 6 children with antenatal diagnosis of myelomeningocele, 1 proved to have spinal lipoma postnatally. This was one of the early antenatal MR scans. Antenatal diagnosis of hydrocephalus was made in 4 of the 5 confirmed myelomeningocele patients, which was verified postnatally. Antenatal diagnosis of Chiari II malformation was made in all 5 confirmed myelomeningocele patients but

in 1 baby this was not verified postnatally. The antenatal diagnoses of occipital encephalocele and isolated hydrocephalus were verified postnatally. Antenatal diagnosis of diastematomyelia was also not verified postnatally.

Conclusion

Fetal MRI scanning is an effective, non-invasive method of assessing in-utero CNS abnormalities. After an initial learning curve, accuracy of diagnosis has improved dramatically. While diagnostic accuracy of antenatal foetal MR scans may not be perfect still to allow counselling for termination of pregnancy, prediction of clinical outcome and counselling for possible necessary treatment can be very effective and has been appreciated by all mothers.