

Mild fetal cerebral ventriculomegaly: association with corpus callosum

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PURPOSE

To determine the capability of MR imaging in evaluating agenesis of fetal corpus callosum in fetuses with mild cerebral ventriculomegaly at US.

METHOD AND MATERIALS

29 fetuses (mean gestational week: 28,9 weeks; range 17-37) with US diagnosis of mild ventriculomegaly (mean value 11,6; range 10-15) prospectively underwent MR imaging. The mean US/MR interval was 3.1 weeks. Post-natal references standard was: ultrasonography and clinical evaluation in all cases, autopsy 3/29, MR imaging in 2/29 patients. MR imaging data were compared to gold standard. Qualitative image analysis included: ventricular configuration (normal/parallel), agenesis of the corpus callosum (total/partial: 1/3, 2/3, 3/3), signal intensity changes of the nervous tissue. Quantitative image analysis included: diameter of the trigones of the lateral ventricles (left and right) and cerebral cortex thickness.

RESULTS

19/29 (66%) fetuses showed a normal configuration of lateral ventricle while 10/29 (34%) fetuses showed parallel configuration. Corpus callosum was completely present in 17/29 (58%) fetuses, 4/29 (14%) showed partial agenesis while 8/29 (28%) total agenesis. Compared to post-natal imaging (US/MR) 2 partial agenesis of the corpus callosum were misinterpreted: in one case overestimated and in the other case underestimated. The mean left lateral ventricle diameter was 11.8 mm (range 6-19 mm), the mean right lateral ventricle diameter was 11.5mm (range 8-17mm). The mean thickness of the cerebral cortex was 2.13 mm (range 1.8-3 mm). None of the fetuses showed signal intensity alterations of the nervous tissue.

CONCLUSION

Mild ventriculomegaly associated to corpus callosum agenesis occurred in 12/26 fetuses (46%). Total agenesis of the corpus callosum was detected in all cases; whereas partial agenesis was 2/4 patients

CLINICAL RELEVANCE/APPLICATION

MR imaging is able to identify corpus callosum abnormalities in fetuses with mild ventriculomegaly at sonography