



## Proximal cerebral hemisphere: we should not continue to assume fetal brain symmetry

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### Objective

Due to technical difficulties in the visualization of proximal cerebral hemisphere during basic ultrasound examination, most guidelines have suggested to assume symmetry of the fetal brain. Once a significant number of fetal cerebral pathologies are unilateral, we propose a method of visualizing both hemispheres in order to not miss antenatal diagnosis of compromising brain anomalies.

### Methods

We retrospectively analysed videos and volume datasets of number fetuses with unilateral brain pathologies and verified if angling the transducer cranially, using an angle of up to 45° from the axial transthalamic plane, could improve the visualization of the proximal cerebral hemisphere and be useful in the diagnosis of unilateral brain pathologies. The parameters of normality checked were: if the lateral ventricle walls (frontal and occipital horn and part of the body) and the periventricular zone were smooth and regular; if the choroid plexus filled the cavity of the atrium and were closely apposed to both the medial and lateral walls of the ventricle; if the Sylvian fissures were present and their morphology were compatible with the gestational age, and if the brain surface and the homogeneity of the white matter were normal.

### Results

We found that this manoeuvre reduced the near-field reverberation to the bony calvarium and also allowed ultrasound access through the sphenoidal and mastoid fontanelles as well as squamosal, coronal and lambdoidal sutures, improving significantly the visualization of the fetal proximal hemisphere and allowing diagnosis of pathologies such as unilateral schizencephaly, ventriculomegaly and cortical anomalies.

### Conclusion

We should not continue to assume symmetry of the fetal brain when proximal cerebral hemisphere is not well visualized, in order to not miss diagnosis of unilateral cerebral anomalies that can affect the neurologic outcome. Angling the transducer from the axial transventricular plane can be an option to improve proximal hemisphere visualization.