**Discrepancy in fetal head biometry between ultrasound and MRI in suspected microcephalic fetuses**
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**Objective**
Microcephaly is one of the most common fetal structural abnormalities, and prenatal microcephaly is considered a group I malformation of cortical development diagnosed according to ultrasonographic (US) skull measurements. The objectives of this study is to evaluate the agreement between fetal head US and MRI biometric measurements of suspected microcephalic fetuses.

**Methods**
This institutional review board-approved retrospective study with waived informed consent included 180 pregnant women and was conducted at our medical center from March 2011 to April 2013. Biparietal and occipitofrontal diameter results of fetal head US normograms were compared to normograms for MRI. We used Pearson and Spearman rho non-parametric correlation coefficients to assess the association between two quantitative variables, paired t-test for paired quantitative variables, and McNemar test for paired qualitative variables.

**Results**
The average biparietal diameter but not the average occipitofrontal diameter percentiles in fetal head US differed significantly from the MRI results (P < 0.0001). When looking at the accepted microcephaly threshold, both biparietal diameter and occipitofrontal diameter percentiles differed significantly from MRI (P < 0.0001 and P < 0.004, respectively). There was no correlation between US-measured skull biometry and MRI-measured brain biometry. Estimated CSF volumes were significantly lower in the study group compared to 120 fetuses with normal findings in prenatal head US and MRI. Also, we have created a MRI-based normogram of fetal head circumference and gestational age.

**Conclusion**
The diagnosis of microcephaly by US alone may be insufficient and ideally should be validated by MRI before a final diagnosis is established.