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Fetal growth, fetal development, and placental features in women with polycystic ovary syndrome: analysis based on fetal and placental magnetic resonance imaging

Key words: Polycystic ovary syndrome, Fetus, Magnetic resonance imaging, Growth and development, Placenta

Research Summary

This retrospective case-control study aimed to Investigate whether maternal polycystic ovary syndrome (PCOS) affects fetal growth, fetal development and placental features by a set of magnetic resonance imaging (MRI) measurements.

Study population

- Sixty pregnant women with diagnosed PCOS (PCOS group) and 120 pregnant healthy women without PCOS (served as a control group)

Maternal and neonatal clinical data

- Demographic and clinical characteristics, obstetrical and neonatal outcomes

MRI measurements

- Fetuses: head circumference (HC), abdomen circumference (AC), lengths of the liver and kidney diameters, signal intensity assessment of fetal lung and liver
- Placenta: Placental thickness, signal intensity of placenta and placental apparent diffusion coefficient (ADC) value

Follow-up assessments

- Growth of offspring during childhood (2 to 7 years of age): height, weight, body mass index (BMI), and z-scores for age

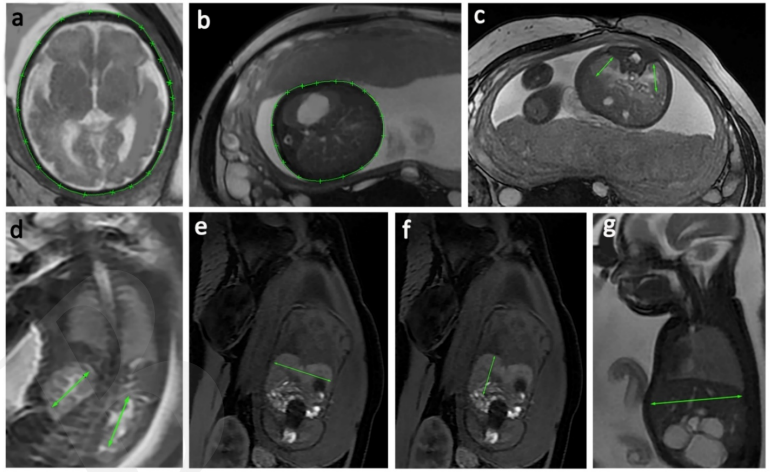

Figure 1

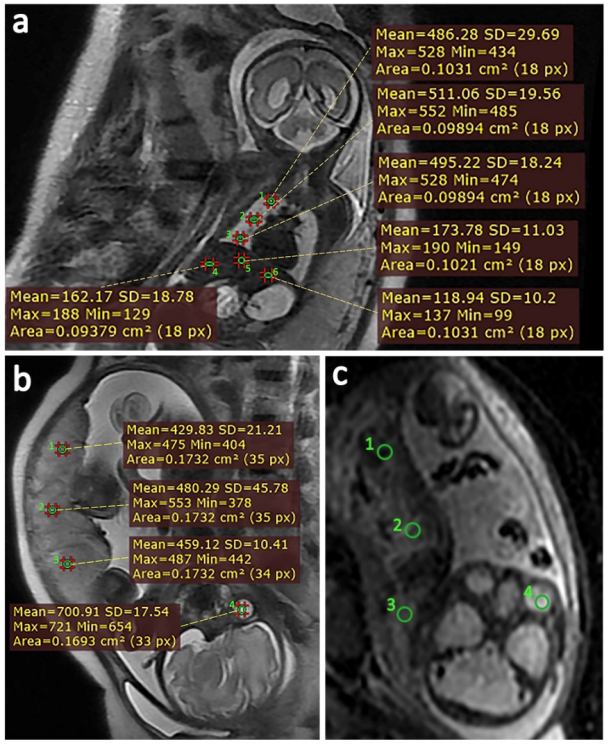

Figure 2

Innovation points

A series of comprehensive tables were generated to summarize the results of the study.

Table 1 | Population characteristics.

Table 2 | Obstetrical and neonatal outcomes.

Table 3 | Fetal growth.

Table 4 | Development of fetal lung, liver and kidneys.

Table 5 | Placental features.

Table 5 | Follow-up assessments of childhood growth.

Conclusion

There exist alterations of fetal growth, fetal development and placental features from women with PCOS.

Compared to the control group, the PCOS group showed the following characteristics: 1) smaller biparietal diameter and femur length in fetuses, 2) smaller HC in fetuses, 3) lower lung-to-liver signal intensity ratio (LLSIR, a prenatal marker of fetal lung maturity) and smaller dorsoventral length of liver in fetuses, and 4) smaller placental thickness.