Ultrasound detection of olfactory sulci in normal fetuses
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Objective
Abnormal development of olfactory sulci is a key feature of CHARGE syndrome. We aimed to describe the timing of ultrasound appearance of olfactory sulci in normal fetuses according to gestational age.

Methods
Olfactory sulci were prospectively assessed based on coronal planes on routine brain ultrasound examinations of 85 fetuses with normal anatomy between 22 and 31+6 weeks gestational age. Examinations were divided in 5 groups according to gestational age: group 1 from 22 to 23+6 weeks (n=20), group 2 from 24 to 25+6 weeks (n=8), group 3 from 26 to 27+6 weeks (n=21), group 4 from 28 to 29+6 weeks (n=19) and group 5 from 30 to 31+6 weeks (n=17). For each fetus, olfactory sulci were assessed as « absent », « developing » and « formed ».

Results
It was possible to assess the development of sulci in all cases. Olfactory sulci were constantly absent in group 1 and they were all formed in group 5. In group 2, 50% of fetuses had absent olfactory sulci and 50% had developing sulci. In group 3, 17 (81%) of fetuses had developing olfactory sulci and 4 (19%) had formed sulci.

Conclusion
Fetal brain ultrasound can detect developing olfactory sulci from 26 weeks gestational. After 28 weeks all fetuses have formed olfactory sulci. These results should help improve the prenatal diagnosis of CHARGE syndrome.