EP10.16 - Comparative study between cardiovascular cast and prenatal echocardiography in the demonstration of fetal congenital cardiovascular disease

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Objective
To compare prenatal echocardiography with postnatal cardiovascular casting for detection of fetal cardiovascular malformations, and to discuss the causes of prenatal misdiagnosis and missed diagnosis.

Methods
We retrospectively identified patients from November 2013 to July 2018 at our Maternal-Fetal Medicine Center, who had been reported to have a fetal diagnosis of severe congenital heart malformations (CHMs). Subjects had postnatal confirmation of CHMs. Prenatal and postnatal medical records, including ultrasound results and casting findings, were reviewed and analyzed.

Results
Postnatal casting showed that all 35 fetal specimens were confirmed to have complex CHMs. In these 35 cases, 90 cardiovascular malformations were found by postnatal casting, and 69 were detected by prenatal echocardiography. Among the other 21 cardiovascular malformations, seven were misdiagnosed and 14 were missed diagnosed by prenatal ultrasound.

Conclusion
Prenatal echocardiography may lead to misdiagnosis and missed diagnosis, especially in cases with great arterial branching anomalies. In comparison, postnatal casting can display the true anatomy of the cardiovascular system directly, and is even better in demonstrating the configuration of the great vessels and smaller branches. Thus, understanding of such malformations via postnatal casting may help to improve prenatal diagnostic accuracy.