The application of "left innominate vein–aortic branches view" in prenatal diagnosis of congenital cardiovascular anomalies.

Haiyan Cao, Mingxing Xie, Liu Hong, Xiaoyan Song. Department of Ultrasound, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan, China.

Introduction
To investigate the application of "left innominate vein-aortic branches (LINV-AoB) view" in the prenatal diagnosis of congenital cardiovascular anomalies.

Methods
From Oct 2016 to Oct 2017, 2011 fetuses underwent echocardiography in our hospital. Based on 3VT view, moving the transducer slightly cranially to demonstrate the long axis of LINV and short axis of aortic branches, which is "LINV-AoB view". The number, course, dimension, relative position, flow direction of LINV and aortic branches were carefully observed in LINV-AoB view. Meanwhile, other related intracardiac anomalies were also evaluated.

Results
A total of 227 (227/2011, 11.29%) fetuses demonstrated abnormal findings in "LINV-AoB view" during the detailed echocardiography, including 131 cases (131/227, 57.71%) of LINV anomalies and 115 cases (115/227, 50.66%) of aortic branching anomalies. LINV anomalies included 103 cases of absent LINV (double SVC), 25 cases of anomalous courses of LINV(including 1, 10 and 14 cases of intrathymic LINV, subaortic LINV and PLSVC with absent RSVC, respectively), 3 cases of supracardiac-type APVC. Aortic branching anomalies included 37 cases of aberrant right subclavian artery, 42 cases of right aortic arch with aberrant left subclavian artery, and 36 cases of RAA with mirror-image branching. 19 fetuses (19/227, 8.37%) had multiple LINV and aortic branching anomalies. Fetal cardiac conventional views combined with LINV-AoB view had obvious advantage in the demonstration of subaortic/intrathymic LINV.

Conclusion
LINV-AoB view plays a vital role in the prenatal diagnosis of congenital cardiovascular anomalies, it can help us detect different variations of LINV and aortic branches. Fetal cardiac conventional views combined with LINV-AoB view can improve the detection rate of subaortic/intrathymic LINV. We recommend to add this view into the routine fetal cardiac screening.