Objective
To explore the application values of prenatal ultrasound, vascular cast in the diagnosis of fetal aortic arch and its branches anomalies and to analyze the genetic characteristics by gene detection.

Methods
22 cases of the vascular cast specimens of the fetal aortic arch and its branches anomalies were analyzed and studied by comparing with their prenatal ultrasonography. Then the characteristics of each type of fetal aortic arch and its branches anomalies, the missed diagnosis and misdiagnosis were summarized and the results of their gene detection were also analyzed.

Conclusion
There are various kinds of fetal aortic arch and its branches anomalies, which are often associated with intracardiac malformations and venous branches variation. And prenatal ultrasound is of great value in diagnosing them. Vascular cast can visually display their characteristic changes, which is helpful to improve the differential diagnosis of the different aortic arch and its branches anomalies. The detailed genetic detection can improve the further understanding of its etiology.