Introduction

- Prenatal treatment with transplacental antiarrhythmic drug administration is effective for resolving fetal tachyarrhythmia, but it is necessary to measure VA time and AV time by the fetal echocardiography to choose the antiarrhythmic drug. However, it is difficult to diagnose arrhythmia in early pregnancy.

Case

- A 31-year-old mother was referred to our clinic at 12 weeks' gestation in order to undergo a detailed examination of her fetus. Fetal echocardiography showed tachyarrhythmia with a fetal cardiac rate of 300. We recorded the four-chamber view by the STIC method with color Doppler and analyzed it offline. The patient returned to sinus rhythm at the examination the next day and did not require prenatal treatment.

Arrhythmic analysis

We conducted M-mode indication at the line linking the left ventricle to the left atrium of the right pulmonary vein (Fig A). The VA time was 91 sec, and the AV time was 123 sec according to the M-mode method (Fig B).

Based on the findings of the M-mode method with color display, the VA time was 91 sec and the AV time 123 sec short VA was diagnosed by the M-mode method with color display (Fig C).

Discussion

Making arrhythmic diagnoses in early pregnancy is difficult due to the small cardiac size and frequent fetal movement. Further complicating matters is the fact that diagnosis by the Doppler method may be particularly invasive for fetuses in early pregnancy because such a diagnosis is time-consuming. In contrast a diagnosis by the STIC method is not invasive, as we can acquire a sample in a few seconds.

In addition, the problems associated with fetal movement are reduced because the scan time is short, and we can also obtain various measurements from many angles offline. The STIC method may have a number of advantages over other approaches with regard to making an arrhythmic diagnosis in early pregnancy.
We conducted M-mode indication at the line linking the left ventricle to the left atrium of the right pulmonary vein.

The VA time was 91 seconds, and the AV time was 123 seconds according to the M-mode method.

Based on the findings of the M-mode method with color display, we concluded that red color in the atrium indicated pulmonary vein back flow and the initiation of atrial contraction, while red color in the left ventricle indicated the initiation of ventricular contraction. Because the VA time was 91 seconds and the AV time 123 seconds, short VA was diagnosed by the M-mode method with color display.