pulmonary vein was further to interatrial septum from the 4-chamber view, connected with left atrium obliquely. The left inferior pulmonary vein was close to descending aorta from 4-chamber view, connected with left atrium vertically. The right inferior pulmonary vein was located to anterior descending aorta from aortic arch view, and formed 90° angle with descending aorta. The right superior pulmonary vein was close to apical right atrium and superior vena cava from 4-chamber view, connected with left atrium. The right inferior pulmonary vein was near to spine, parallelled to interatrial septum, connected with left atrium.

Conclusions: There is an advantage in visualizing and locating in fetal pulmonary veins by EFI combine with 2 dimensional echocardiography. Pulmonary veins anatomy should be checked during fetal heart examination.

OP15.08 Feasibility and accuracy of enhance flow in the diagnosis of fetal heart malformation
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Objectives: Congenital heart disease (CHD) are the most common congenital malformations. Enhanced flow (e-Flow) apply to broadband receiver, embed motion artefact inhibition, separate the color Doppler flow signal and two dimensional echo, improve flow sensibility accordingly. Our objective was to determine the feasibility and accuracy of enhance flow for the diagnosis of CHD.

Methods: This study included 660 fetuses between 18 and 36 weeks of gestation, using Aloka 10 equipment with e-Flow and two dimensional echocardiography. 26 cases were diagnosed severe cardiac malformation, and compared with the pathological anatomy of termination of pregnancy and fetal echocardiography. 25 cases were diagnosed single cardiac malformation, and compared with the surgical procedures after birth and fetal echocardiography. 609 cases were diagnosed normal, and compared with the echocardiography after birth and fetal echocardiography. The degree of diagnostic consistency were determined using a kappa statistic analysis.

Results: The sensitivity, specificity, false-positive and -negative rates for the identification of fetuses with CHD were 93.3%, 91.3%, 8.7%, 6.7%, respectively. There was excellent degree of diagnostic consistency (kappa = 0.83).

Conclusions: e-Flow with two dimensional echocardiography is an accurate and reliable method for fetal echocardiography.

OP15.09 Comparison of real-time three-dimensional echocardiography and spatio-temporal image correlation in assessment of fetal interventricular septum
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Objectives: To compare the role of real-time 3DE and STIC technology in assessment of the fetal IVS.

Methods: 50 pregnant women with singleton pregnancies were invited to attend this study. All the fetuses were examined by both STIC and real-time 3DE. There were totally six images of IVS obtained for each fetus: live xPlane image, live 3D image, multiplanar image and rendered image with the four-chamber view as the starting plane, multiplanar image and rendered image with the sagittal view of the fetal thorax as the starting plane. These images were grouped into six groups and randomized them in each group for the further analysis. The images were scored and compared according to the image quality, the outline of the fetal IVS and motion artefact. The operator was also asked to judge whether VSD existed or not and the results were compared with the final diagnosis.

Results: There were 15 cases with VSD and 4 cases without VSD in CHD fetus and 31 cases of normal fetus in this study. A total 300 images of the lateral view of fetal IVS were obtained and grouped into six groups. The image quality in the group of STIC with the four-chamber view as the starting plane is much worse than the group of STIC with the sagittal view as the starting plane and real-time three-dimensional echocardiography (P < 0.05). There were no significant differences in image quality between the group of STIC with the sagittal view as the starting plane and real-time three-dimensional echocardiography (P > 0.05).

Conclusions: The image quality of real-time 3DE is similar to the images acquired by STIC from the sagittal view and superior to that obtained by STIC from the four-chamber view. Real-time 3DE can be used to assess the fetal IVS with the higher image quality and specificity compared to the STIC technique, which has the potentials to improve the detection rate of fetal VSD.

OP15.10 A new indirect sign of minor atriointerventricular septal defects (AVSD): aitioal disappearance of atriointerventricular valves (AVV)
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Objectives: Atriointerventricular septal defects (AVSD) are presents in 40% of trisomy 21, improved to 80% considering linear insertion of atriointerventricular valves (LIAV) demonstrated by Dr C. Fredouille since 2002. Meanwhile some of AVSD are unknown before birth because of their position just under AVV: interventricular septal defect (IVS). We had the opportunity to notice AVV’s disappearance in diastole in IVS defect. The aim of this study was to confirm the accuracy of this sign.

Methods: During one year we studied the crux of the heart with different pathways, particularly with US incidence perpendicular to the septum, taking great care to diastolic position of AVV.

Results: We could examine 3000 fetuses from 18 to 36 weeks of gestation. We also could precise this sign with 3 IVS defects. If settings are correct, particularly the zoom, AVV thickness is well seen and can be distinguished from the septum in all cases, thanks to their hyperechogenicity. In our 3 IVS defect we hoped to see the defect easily in systole particularly in perpendicular incidence. But an emphasis of AVV’s septal chords occurs so that the defect can’t be seen, as in diastole because of the AVV. Apical incidence revealed not to be better because AVV movement in IVS defect can be easily taken for coronary sinus. The only constant sign we could easily recognized in every incidence was the AVV diastolic disappearance, easily thanks to the training to have a look on the AVV thickness against the septum.

Conclusions: Diastolic disappearance of atriointerventricular valves is a reliable sign in the interventricular septal defect, easy to find if we notice in routine the thickness of the AVV against the septum. It takes all its interest if we consider the great frequency of trisomy 21 in AVSD. As if every of our IVS defect had this sign, more cases are necessary to confirm this.