of LV outflow tract due to the cardiac tumor, and two cases had decrease of pre-load of LV because of giant tumor. Of 15 cases, eight terminated pregnancy and diagnosed cardiac rhabdomyomas by autopsy, two were followed-up after birth with one diagnosed tuberous sclerosis.

CONCLUSIONS Fetal cardiac rhabdomyomas is the most common cardiac tumor in fetus, which can be single or multiple. Multiple cardiac tumors are closely associated with tuberous sclerosis. Fetal echocardiography plays an important role in detailed diagnosis and prognosis evaluation of cardiac tumors.

GW26-e2148

Dissection of the Interventricular Septum Echocardiographic Features

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OBJECTIVES Dissection of the interventricular septum (IVS) is an extremely rare entity. Few cases have been reported. An institutional data base review identified 13 pts with the diagnosis that were confirmed by cardiac surgery. The purpose of the study was to determine the value of transesophageal echocardiography (TTE) in establishing the diagnosis and to summarize the TTE features of IVS dissection.

METHODS The 13 pts with IVS dissection, 8 males and 5 females (age range: 36-75 yrs; mean: 52 $\pm$ 12 yrs) were taken from 789,114 TTEs performed between 1985 and 2014. The etiology, location, two dimensional morphology, and color Doppler findings of the IVS dissection were noted.

RESULTS The incidence of IVS dissection in our center was 0.000016%. Among the 13 patients with IVS dissection, the right sinus of Valsalva (SOV) was involved in 11 pts. In 5 pts, a single aneurysm of the right SOV was seen dissecting into the IVS. In 4 pts, aortic valve endocarditis caused the IVS dissection, including one pt with bicuspid valve infection, 2 pts with abscess formation adjacent to an aortic valve replacement dissecting into the IVS, one pt. with a combination of a bicuspid aortic valve and right SOV dissected into the IVS, and one pt with an aortic prosthetic paravalvular leak following abscess formation dissecting into the IVS. In one patient, a bicuspid aortic valve combined with right SOV dissected into the interventricular septum. Also, in one pt, mechanical aortic valve prosthetic replacement was complicated by annular detachment and a severe paravalvular leak causing IVS dissection. In all 11 pts, TTE showed a dissecting cystic-like mass in the IVS from the base to mid-septum or confined to the septal base in all 11 pts. The path of the dissection in all these pts was traced to the right SOV. Also, communication between the dissection and the aortic root were seen in these 11 patients. In the other 2 pts, IVS dissection followed septal rupture due to a myocardial infarction. In these pts, communication between the dissection and the right ventricle was seen.

CONCLUSIONS The study showed that most dissections of the IVS commenced in the right SOV, due to either congenital anomalies, infective endocarditis or following aortic valve replacement. The TTE characteristic of IVS dissection is a cystic-like mass in the IVS. The other cause of IVS dissection is a myocardial infarction.

GW26-e2129

Premature Restriction or Closure of Foramen Ovale in Fetuses with Structurally Normal Hearts

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OBJECTIVES Premature restriction and closure of foramen ovale (FO) is associated with right ventricular remodeling, tricuspid regurgitation, pericardial effusion, heart failure and poor perinatal outcomes but data is lacking in this rare entity.

METHODS A total of 9704 fetuses were studied in Beijing Anzhen Hospital from 2010 to 2014. A complete fetal echocardiogram, including 2-dimensional imaging, color and pulse Doppler, was performed to ascertain the presence of restriction and/or closure of FO with or without septal aneurysm. Restriction of FO was defined as: (1) the diameter of FO<3mm, (2) FO Doppler >40 cm/s,(3) FO/aortic root diameter < 0.52, (4) FO/right atrial diameter <0.3. Closed FO was diagnosed as without a detectable right to left flow across the FO in the color Doppler. Perinatal course and follow-up have also been noted.

RESULTS In this large single-institutional cohort, 6707 fetuses had structure normal heart, 83 (1.23%) fetuses had restrictive FO and 5 (0.07%) had closed FO diagnosed between 23 and 37 weeks of gestation. Right atrial and/or ventricular dilation was noted in 32 (36.4%) fetuses, tricuspid regurgitation in 19 (21.6%) (9 with moderate or severe regurgitation), pericardial effusion in 10 (11.4%)(3 with moderate pericardial effusion). Three (3.41%) died in neonatal period and 2 had abortion and 29 lost for follow-up.

For autopsy (n=2), nearly closed FO was found in both fetuses and one had abdominal infection and one had atrial rhabdomyoma. For neonatal mortality, one is delivered in 28 gestation weeks and died after 4 days, the fetal echocardiography showed a closed FO with severe mitral regurgitation and severe tricuspid regurgitation, a decreased ejection fraction of left and right ventricles, moderate pericardial effusion, severe hydrothorax and severe ascites. The other one is detected restrictive FO with a diameter of 2.5mm in 30 gestation weeks. The maternal delivered because of severe preeclampsia and placental abruption; the neonate died 3 days after birth because of a neonatal asphyxia. For two neonates died after birth, the umbilical artery S/D is both higher with the value is 4.15 and 3.8 respectively.

CONCLUSIONS Both premature FO restriction and/or closure are rare in fetuses with structurally normal hearts. They may cause right atrial and ventricular remodeling, tricuspid regurgitation, pericardial effusion, fetal hydrops and fetal and neonatal mortality and significant morbidity. Close follow-up in the last trimester is critical for fetuses with FO restriction or closure.

GW26-e0398

Fibroatheroma Morphological Features of Borderline Coronary Lesion Plaques on Stable Angina Pectoris Patients

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OBJECTIVES The aim of this study was to report the patient and lesion-related specific morphological characteristics of borderline coronary lesion plaques responsible for stable angina pectoris.

METHODS We analyzed 86 borderline coronary lesion plaques from stable angina pectoris patients by using virtual histology-intravascular ultrasound. Plaque burden and lumen area were measured with intravascular ultrasound (IVUS). Compare patients characteristics, laboratory findings, coronary artery disease distribution and virtual histology-intravascular ultrasound (VH-IVUS) detected thin-cap fibroatheroma(TCFA) and thick-cap fibroatheroma(ThCFA) phenotype groups.

RESULTS Analysis the borderline coronary lesion plaques, the ratio of fibroatheroma are major, next is PIT, and FT is the least. TCFA and ThCFA occupied only 1/4 and 1/3proportion of the plaque lesions, which means that few borderline coronary lesions, belonged to "vulnerable plaque". Fibrofatty and dense calcium tissues improved significantly in TCFA group ($P<0.05$), and VH-TCFA III, IV were the major types of subtypes, 45.9%, 43.3% repressively.

CONCLUSIONS These findings suggest that for angina pectoris with borderline coronary lesion plaques, TCFA occupied only 1/4 proportion of the plaque lesions, the clinical characteristics similar to ThCFA patients, which may be responsible for the cardiovascular events.

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In vivo ultrasound molecular imaging of SDF-1 expression in a swine model of acute myocardial infarction

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OBJECTIVES Stromal cell-derived factor -1 (SDF-1) plays a pivotal role in the homing of stem cells to an injured myocardium. The purpose of this study was to determine whether contrast-enhanced ultrasonography that targets SDF-1 might facilitate the molecular imaging of SDF-1 expression in a swine model of acute myocardial infarction (AMI) *in vivo*.

METHODS Three of the 24 *miniswine* were randomly selected as the control group (n=3, sham operation); the remaining 21 *miniswine* underwent ligation of the left anterior descending coronary artery (LAD). Three animals were died, so the remaining 18 *miniswine* was randomly assigned to one of the six experimental groups (n=3, the groups were divided based on the duration of the myocardial infarction). All animals were injected with a targeted microbubble ultrasound contrast agent (T + T group) and a normal ultrasound contrast