attempted for all patients if necessary. For the waist pre-releasing method, the waist of AOD was released immediately following the expansion of the distal umbrella and withdrawn to wedge the defect in order to enhance the self-centralisation of the occluder; for the dumbbell-shaped releasing method, the distal umbrella was released within the upper left pulmonary vein to constrain the expansion of the umbrella, and the delivering catheter was further withdrawn slowly until the proximal umbrella was expanded in the right atrium, and finally, the original shape of the distal umbrella could quickly recover by slightly shaking or pulling the catheter, meanwhile the AOD could well fixed the defect.

Results The average diameter of ASDs in group A and B were 27.2±11.7 mm and 28.5±11.9 mm, respectively ($p>0.05$), and the average diameter of finally used AODs was 34.5±10.2mm and 38.7±11.9 mm, respectively ($p<0.01$). The technical successful rates respectively for group A and B were 61.5% and 26.1% ($p<0.05$) by using the conventional releasing method, increased to 70.1% and 39.1% ($p<0.05$) by trying the waist pre-releasing method, and further increased to 100% and 100% by attempting the dumbbell-shaped releasing method. Neither major complications no occluder dislodging occurred peri-procedurally in the two groups.

Conclusions Trans-catheter closure of no rim large-to-huge ASD with the AOD may be safe and feasible; closuring no rim large-to-huge ASD needs bigger AODs and more use of the dumbbell-shaped releasing method.

e0487 ONE YEAR OUTCOME OF TRANSCATHETER CLOSURE OF VERY LARGE ATRIAL SEPTAL DEFECT WITH AMPLATZER OCCLUDERS

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Objective This study was to investigate the outcome of transcatheter closuring large-to-huge ASD with the AOD within one year.

Methods 35 consecutive patients with large-to-huge ASD (330 mm) underwent transcatheter defect closure and then were followed up peri-procedurally, at 1-, 6-, and 12-month periods following the operation by clinical assessment, electrocardiographic and echocardiographic examination. All patients received 6-month antithromboembolic therapy by using either aspirin or warfarin at the discretion of the operator. The major adverse cardiac events (MACE) include cardiac death, occluder dislodgment leading to urgent cardiac surgery, occluder occupation significantly impeding haemodynamics or cardio-electrical activities, AOD-related thromboembolism, AOD-related atrial rupture, the minor adverse cardiac events (MACE) include occluder occupation with or without slight interference of haemodynamics, AOD-related arrhythmia and residual shunting.

Results The average diameter of ASD in 35 patients was 33.7±5.2 mm (range 30 mm to 38 mm), and the average diameter of final AOD used was 38.1±7.1 mm (range 32 mm to 42 mm). The immediate technical success was 100% without severe peri-procedural complications. MACE was not found in each stage within a one year follow-up, but MAC Ewas frequently encountered, among which occluder occupation with asympathetic haemodynamic interference occurred 45.7% peri-procedurally, 42.9% at 1-month, 40.0% at 6-month, and 34.3% at 12-month, and AOD-related atrial arrhythmia occurred 51.4% peri-procedurally, 14.3% at 1-month, 8.6% at 6-month, and 2.9% at 12-month. Persistent small residual shunting was found in 24 (68.6%) patients and I°AVB in one (2.9%) patient.

Conclusions The large-to-huge ASD can be occluded by using AOD without technical difficulty, but the long-term safety and efficacy requires further study.

e0488 TRANSCATHETER CLOSURE OF PARAPROSTHETIC VALVE LEAKS AFTER SURGICAL VALVE REPLACEMENTS

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Objective To elucidate the techniques of transcatheter closure of paravalvular leak (PVL) by Amplatzer occluder, and evaluate its feasibility, effectiveness, and safety.

Methods 5 patients with PVL (4 males and 1 female), with a mean age of 58.6±17.2 (ranged from 38 to 81). Aortic mechanical valve (2), mitral bioprosthetic valve (2), and double mechanical valves (1) replacements were involved. We attempted percutaneous transcatheter closure of PVLs in 4 patients of single valve replacements. Patients requiring double mechanical valves replacement were treated by a team formed by interventionalist and cardiac surgeons. The team used a mini thoracotomy with direct transapical puncture of the left ventricle via a 'hybrid' approach, in order to close mitral PVL under general anaesthesia.

Results We used Chinese-made Amplatzer occluder to close PVLs. All procedures were technically successful. 5 patients of our group reported significant symptomatic improvements during short term follow-up after procedure. 2 patients of aortic PVLs had achieved complete occlusion without residual regurgitation, 3 patients of mitral PVLs closure demonstrated that there had been tiny or mild mitral paraprosthetic leak. However, no interference with valve leaflet motion were diagnosed by transthoracic echocardiography after the procedure. In our group, cardiac perforation and pericardium tamponade occurred in 1 patient with aortic PVL during interventional therapy, who recovered after being given emergent pericardiocentesis. Other 3 patients treated by mitral PVLs closure had transient severe haemolysis, which were resolved after 1 to 3 weeks.

Conclusions Percutaneous or transapical left ventricular access closure of PVLs is technically demanding, but is feasible and safe in selected patients, with a reasonable degree of technical and clinical success. However, there are still a variety of complications, technical and device improvement. Methodology standardisation is further required.

e0489 PULMONARY VEIN STENTING FOR THE TREATMENT OF ACQUIRED SEVERE PULMONARY VEIN STENOSIS COMPLICATING ABLATION FOR ATRIAL FIBRILLATION

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Introduction Ablation procedures for atrial fibrillation (AF) are being performed with increasing frequency. One of the most serious complications is the development of pulmonary vein stenosis, which occurs in 1% to 3% of current series. The preferred therapy for symptomatic PVS is pulmonary vein (PV) angioplasty, but this treatment modality is still uncertain in China. The aim of this study