Transcatheter closure of ruptured sinus of Valsalva aneurysm with new types of nitinol wire mesh PDA occluders – short and midterm results.

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Introduction: Ruptured sinus of Valsalva aneurysm (RSOVA) is a rare shunt lesion frequently treated percutaneously. Lately for this purposes have been used also Chinese PDA nitinol wire mesh devices very similar to Amplatzer Duct Occluder type I (ADO). Experience with this occluders is scant. Aim: To present results of transcatheter closure of RSOVA with Chinese PDA occluders taking in consideration short and midterm results.

Methods: From September 2010 to August 2014, 8 patients (pts) from 17 to 72 years old (mean age 40 y) have closed their RSOVA with nitinol wire mesh PDA occluders (produced by 3 different Chinese companies). All but two pts had congenital sinus of Valsalva aneurysm. Two pts had acquired RSOVA after previous cardiac surgery (one after aortic valve replacement, another after surgery of tight subaortic stenosis – LVOTO). In all pts arterio-venous loop was created and PDA devices were implanted transvenously. There were used devices 2-6 mm bigger than orifice of RSOVA. There were 7 connection between right coronary or noncoronary sinus with right atrium and 1 between noncoronary sinus and right ventricle.

Results: All PDA devices (sizes from 12/10 to 18/16) were successfully implanted in RSOVA. In one pt with iatrogenic RSOVA (after LVOT operation) device have been retrieved because of massive aortic regurgitation after implantation provoked by the device. In 72 y old woman, after aortic valve replacement, Chinese duct occluder was applied in proximal entrance to the RSOVA. Because of the presence of important residual leak on the edge of the implant the procedure had to be supplemented by closing of the distal RV orifice of RSOVA with 10 mm Muscular VSD Occluder. In one pt after embolization of ADO to pulmonary artery and its transcatheter retrieval, bigger device (Chinese one) were applied. In another pt after ADO implantation 2 y later (during pregnancy) recanalization of SOVA occurred treated successfully by Chinese PDA occluder after delivery. In follow-up (ranged from 0.5 till 4 years) no complications were observed in any pt.

Conclusions: Transcatheter closure of ruptured sinus of Valsalva aneurysm with new PDA nitinol wire mesh occluders are safe and effective procedures.