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Transcatheter closure of a giant right pulmonary artery-to-pulmonary vein fistula in two neonates – a lifesaving procedure.

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Introduction. Direct fistulous connection between the right pulmonary artery and the right pulmonary vein (rPA-rPV fistula), reported also as pulmonary artery to left atrium fistula, is extremely rare congenital anomaly. In neonates can cause severe cyanosis and heart failure, and as a life-threatening anomaly requires urgent, most often surgical treatment. To our knowledge only two cases of transcatheter closure of rPA-rPV fistulas in neonates were reported.
Material. Two neonates age 3 days – patient A, 1 day – patient B with echo diagnosis of rPA-rPV fistula (patient B diagnosed prenatally) were accepted for urgent percutaneous closure of fistulas using Amplatzer Duct Occluder (ADO). Both patients were in critical general condition, with severe cyanosis (patient A – 68%HbO2, patient B – 55%HbO2) and heart failure.
Methods. In each case both femoral veins access was obtained. Two diagnostic catheters were introduced, one to the rPA, second to the rPV (through the right atrium, foramen ovale, left atrium). On the base of pulmonary artery angiography diameter of the rPA-rPV connection was 4.7 mm (patient A) and 6 mm (patient B). A guidewire was inserted through the catheter positioned in rPV and snared in the rPA, a veno-venous guidewire circuit was created. The long sheath was introduced over the guidewire from the rPV via fistula to the rPA and 6/4 mm ADO (patient A) and 12/10 mm (patient B) were deployed in fistulas.
Results. Complete occlusion of fistula was achieved in both patients with immediate oxygen saturation reached 99%HbO2. No procedural related complications were observed. The result of the procedure has remained excellent during 8 years (patient A) and 6 months (patient B) follow-up.
Conclusions. Transcatheter closure of giant rPA-rPV fistula in neonates using ADO can be an effective method of treatment this life-threatening anomaly.