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Successful Percutaneous Closure of Complicated Residual Patent Ductus Arteriosus Shunts Resembling Pig Nostrils Following Second-Time Surgical Treatment

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An 82-year-old woman with a history of second-time surgeries for patent ductus arteriosus (PDA) was admitted with heart failure. PDA ligation was performed 24 years ago and 10 years ago, patch closure was performed from the pulmonary arterial side. However, the PDA remained. Despite pulmonary vasodilator (tadalafil 20 mg/day) administration, severe pulmonary hypertension was observed (mean pulmonary arterial pressure [mPAP], 39 mmHg). Computed tomography still showed PDA shunts with calcification (**Figure A**).

Although transesophageal echocardiography (TEE) showed 2 complicated PDA on the pulmonary arterial side (**Figure B**) resembling a pig's nostrils, we planned percutaneous closure. We approached from the left femoral artery and right femoral vein using a 6Fr, 90-cm-long guiding and 10Fr short sheath respectively. A 5Fr Judkins-4.0 was inserted into the arterial sheath, and a guidewire with microcatheter was passed through the PDA. Thereafter, we established double-wire externalization from the left femoral artery to the right femoral vein via the PDA using another microcatheter with 1 for the plug and the other for the coil. We implanted a 6-6 mm Amplatzer™ Duct Occluder II (ADO-II; Abbott) through the delivery catheter; however, a residual shunt remained (**Figure C**). Therefore, we used the microcatheter previously passed through the PDA and filled the ADO-II with 8.0×200-mm and 6.0×200-mm microcoils (Target XXL; Stryker) (**Figure D**), residual Shunt flow was not observed on subsequent TEE (**Figure E**) and her hemodynamic markers improved (mPAP, 29 mmHg; pulmonary vascular resistance, 5.2 WU).

Conflict of Interest

None.

IRB Information

The Ethics committee of Toho University granted an exemption from requiring ethics approval.

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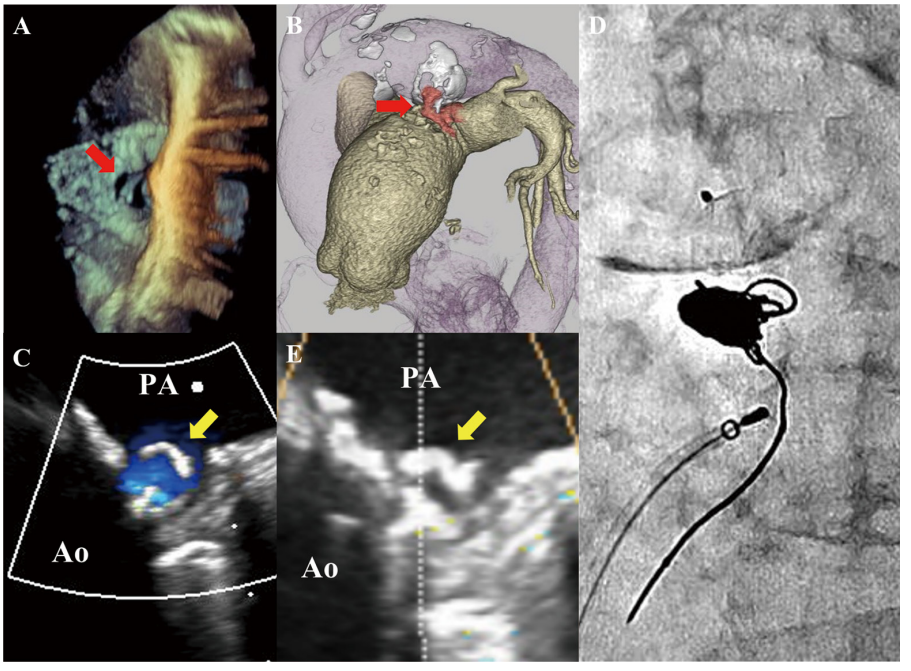

Figure. Patent ductus arteriosus (PDA) treatment. (**A**) The 2 PDA exit points on the pulmonary arterial side (red arrow) on transesophageal echocardiography (TEE). (**B**) PDA (red arrow) on computed tomography. (**C**) Residual shunt on TEE after plug (yellow arrow) implantation. (**D**) Microcoils in the plug technique. (**E**) No residual shunt on TEE after microcoils used with the plug (yellow arrow) technique. Ao, aorta; PA, pulmonary artery.