Transcatheter treatment of subclavian and pulmonary steal phenomenon in an infant

Bir bebekte subklavyen ve pulmoner çalma fenomeninin transkateter tedavisi

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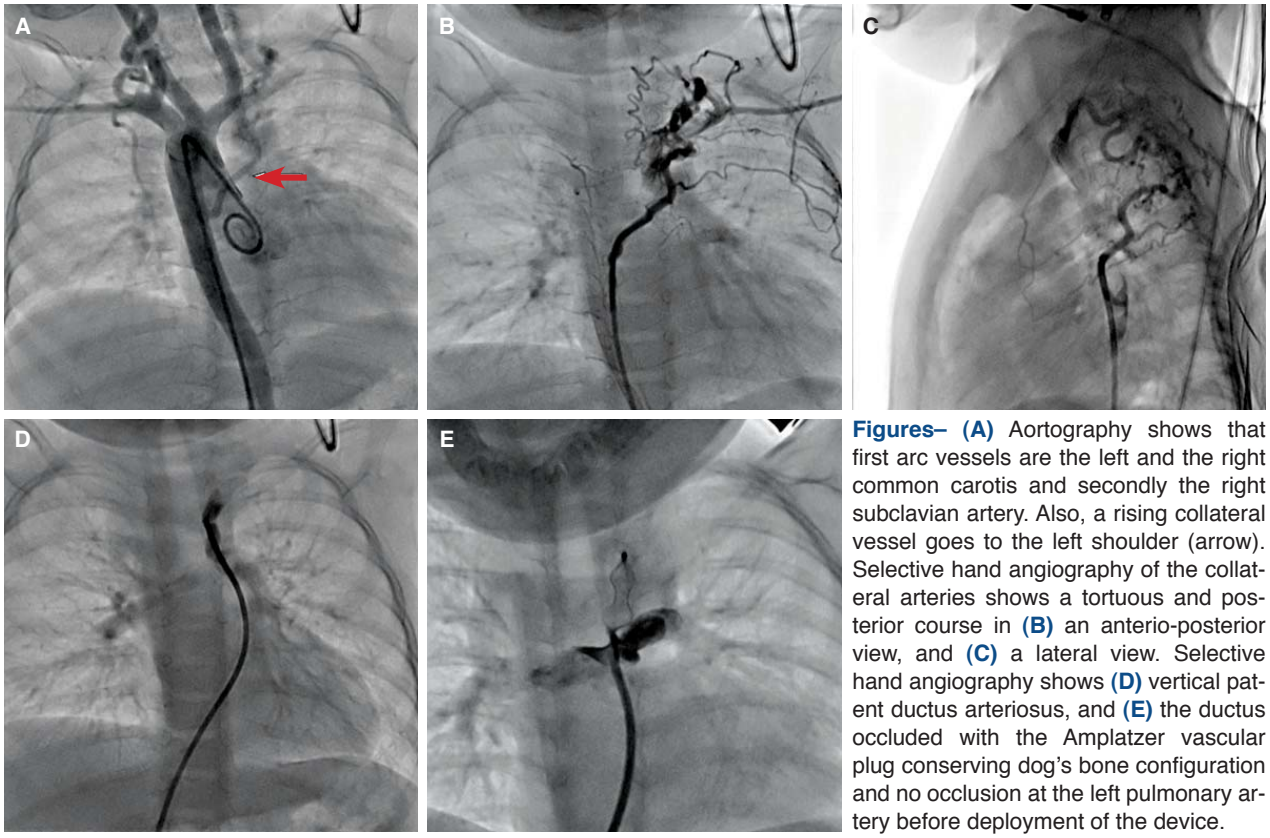
An 8-month-old symptomatic girl was referred to our hospital with the clinical diagnosis of patent ductus arteriosus. Echocardiography demonstrated dilated left chambers, a right aortic arch, and a left-sided moderate patent ductus arteriosus, but no direct connection to the descending aorta. Aortography showed that the left subclavian artery had become opacified via the long tortuous aortal collateral (Fig. A). The collateral vessel was arising from the left aortic wall, was continuing at the posterior chest wall, and was pouring the left vertebral arteries (Figs. B, C). The left subclavian artery was connected with the main pulmonary artery via a vertical left-sided patent ductus arteriosus, creating a left to right shunt. The subclavian artery steals the flow of the left vertebral artery while the pulmonary artery steals the flow of the isolated left subclavian artery through the ductus. The ductus arteriosus was entered in an antegrade approach (Fig. D). The ductus measured 4.1 mm in diameter near the main pulmonary artery, and its length was 13 mm. The shunt ratio was 1.5:1, and the mean pulmonary artery pressure was 27 mmHg. The Amplatzer Vascular Plug (10 mm) was implanted at the vertical patent ductus arteriosus (Fig. E). The subclavian and pulmonary steal have the potential for neurological squeals and development of congestive heart failure. If pulmonary artery steal is evident, the ductus arteriosus should be closed. If subclavian steal symptoms occur, an isolated subclavian artery should also be surgically reimplanted into the aortic arch. We believe this represents the first use of the plug in the management of a patient with this rare congenital vascular anomaly. This experience leads us to conclude that transcatheter occlusion of ductus arteriosus in patients with a right aortic arch and an isolated left subclavian artery is feasible and effective.



Figures– (A) Aortography shows that first arc vessels are the left and the right common carotis and secondly the right subclavian artery. Also, a rising collateral vessel goes to the left shoulder (arrow). Selective hand angiography of the collateral arteries shows a tortuous and posterior course in **(B)** an anterio-posterior view, and **(C)** a lateral view. Selective hand angiography shows **(D)** vertical patent ductus arteriosus, and **(E)** the ductus occluded with the Amplatzer vascular plug conserving dog's bone configuration and no occlusion at the left pulmonary artery before deployment of the device.