Esophageal perforation due to an Amplatzer Vascular plug IV

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The Amplatzer vascular plug IV (AVP IV) is a self-expandable, replaceable occluder made of Nitinol wire mesh, which allows a safe and effective interventional occlusion of medium size vessels. We report about an infant diagnosed with PA-VSD and multifocal collateral lung perfusion through 4 MAPCAs. A central aorto-pulmonary shunt was performed at the age of 4 months. Because of postoperative pulmonary hyperperfusion one of the MAPCAs was closed interventionaly using a 5 mm AVP IV. This MAPCA originated from the descending aorta (DAO) near the 5th thoracic vertebra and coursed behind the esophagus to the right lower lung lobe. The MAPCA was closed near its origin from the DAO. Four weeks later the patient presented an episode of severe gastrointestinal bleeding, caused by perforation of the AVP IV into the esophagus. The occluder was extracted surgically, the MAPCA was clipped and the esophageal injury was oversewn. A broad antibiotic therapy was successful to prevent severe mediastinits and the esophageal perforation healed without complication. Later on the patient underwent unifocalisation and biventricular repair.

Until now there are no reports describing esophageal perforation due to an AVP IV. In our case the perforation was favored by the fact, that the AVP IV was implanted near the aorta in a MAPCA segment that was located directly in front of the spine and behind the esophagus. Another possible factor in our patient was the chronic requirement of a gastrointestinal feeding tube. Although the occluder is soft and flexible, the spindle-shaped ends can become potentially traumatic if they are located in close relationship to other structures. If the implantation of the AVP IV is considered in vessels originating from the descending aorta, one should be aware of potentially dangerous anatomical relations of the target vessel with the spine and adjacent organs. Close spatial relations might favour late perforations due to erosion by the relatively stiff ends of the vascular plug.