

Another Arrow in the Quiver — But at What Cost?

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Gamillscheg et al. report on a single patient who had a large pulmonary arteriovenous malformation with significant right-to-left shunting and a cerebrovascular accident secondary to presumed paradoxical embolism. The accompanying still-frame cineangiogram demonstrates a large arteriovenous malformation with a 10-mm feeding artery and no obvious narrowing, making it difficult to provide endovascular therapy.

We agree that not only does the Amplatzer occluder work in this instance, it is probably the optimal device for such a situation. It is adaptable to a wide range of vessel sizes, with a 4 mm to 38 mm central waist diameter. Its nitinol frame gives the device the plasticity needed to fit into tortuous vessel anatomy. Additionally, the connecting cable allows for multiple repositioning of the device and a safety margin from inadvertent embolization. Others have described such off-label use of the Amplatzer atrial septal occluder in pulmonary arteriovenous malformations¹ and other lesions.²⁻⁴

Other types of intravascular devices have also been used to deal with such lesions. The most common device is the Gianturco coil.⁵ While the Dacron-tufted stainless steel coil comes in a wide range of sizes (from the tiny 0.018" 2 mm coil to the large 0.052" 20 mm coil), there is still a higher likelihood of embolization in large feeding vessels without a discrete "choke" point. The Gianturco-Grifka vascular occlusion device has been utilized for embolization of pulmonary arteriovenous malformations,⁶ but given the large diameter of the feeding artery, the largest Gianturco-Grifka device (9 mm) might be inadequate. Large pulmonary arteri-

ovenous malformations can also be resected surgically, but such procedures are not without significant morbidity and mortality.^{7,8}

While intravascular device therapy has been shown to be less expensive than many comparative surgical procedures,⁹⁻¹⁵ one must still keep in mind the economic cost of the device used. Based on an analysis of the pediatric cardiac catheterization laboratory costs at our own institution, a pair of Gianturco coils costs \$52.25. The largest Gianturco-Grifka vascular occlusion device increases the cost ten-fold to \$658.35, and the same device the authors of this article utilized costs \$3650. Another commonly used device is the 17-mm CardioSEAL, which increases the cost factor to more than 100 times the cost of a pair of coils at \$5581.

So the off-label use of the Amplatzer atrial septal occluder should work quite well to occlude unwanted large vascular structures, but in this era of increasing cost containment the interventionalist would do well to weigh the economics of the therapeutic decision . . . or someone else will.

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