Transcatheter Therapeutic Embolization of Multiple Coronary Artery Fistulas

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Coronary artery fistulas, although rare, are the most prevalent and hemodynamically significant congenital malformation of the coronary circulation. Diffuse, multiple fistulas involving both the left and right coronary arteries are even rarer. This disorder has traditionally been managed by surgical ligation. However, now that closure by a transcatheter technique has been successful, endovascular therapy with different methods (including embolic coil devices, Rashkind double umbrella device, Amplatzer duct occluder, detachable balloons, and covered stents) has recently been used with encouraging results.

A 61-year-old man presented with exertional angina and myocardial ischemia, as evidenced by a positive stress exercise test. Percutaneous transcatheter retrograde embolization of multiple fistulas was performed using twenty-one 0.18-inch fibered Platinum coils (9 coils at 6×6 mm, 7 coils at 4×7 mm, and 5 coils at 2×5 mm). The Figure shows his coronary angiogram.

Coronary angiography showing multiple coronary fistulas from the branches of the right coronary artery. A, Fistula from ventricular branch of right coronary artery that was 3 mm in diameter (arrows). B, Control angiography reveals occlusion (arrow) of the fistula. C, Selective angiography showing multiple fistulas (arrows) from atrioventricular nodal branch of right coronary artery, which was 5 to 6 mm in diameter. D, Visualization of right coronary artery (bottom arrow) after procedure; upper arrows indicate closure of multiple fistulas. E, Coil embolization of fistula (arrows) from septal branch of left anterior descending artery; this fistula was 6 mm in diameter. F, Patent left anterior descending artery (arrows) and no flow in fistula.