Congenital Aneurysm of a Coronary Artery with Associated Arterio-Cameral Fistula

A 55 year old female, presented with atypical chest pain of 1 hour duration. On examination her vital parameters were normal and there was no gross cardiovascular abnormality. Electrocardiogram revealed slight ST depression in infero-lateral leads. On stress test there was slight increase in ST depressions. Chest skiagram and transthoracic echocardiogram were normal. On coronary angiography, left coronary vessels were normal. Right coronary artery (RCA) injection revealed fistula arising from SA nodal artery with a tortuous path and terminating in right atrium. There was an additional fusiform aneurysm (A) of right ventricular (RV) branch of RCA and one branch of this has fistulous communication to RV free wall (Figure 1).

Congenital coronary arterio-cameral fistula is direct communication between a coronary artery and the lumen of any right sided cardiac chamber, the coronary sinus, pulmonary artery or superior vena cava. It is a rare anomaly observed in 0.1 to 0.2% cases and it’s association with coronary artery aneurysm is even rarer. Small fistula may be totally asymptomatic but large coronary fistula may predispose to congestive heart failure, myocardial infarction (MI), angina, bacterial endocarditis, stroke, arrhythmias, and rarely myocardial rupture and sudden death. All symptomatic patients with coronary fistula should undergo closure of the fistula by either operative or non-operative techniques – transcatheter embolization of detachable balloon, platinum micro-coils, and steel coils.

Coronary aneurysm on angiography is reported in 1-3% cases. Out of these, congenital coronary aneurysm comprises about 20% and are most commonly found in RCA. To the best of our knowledge aneurysm involving a small branch of coronary artery has not been reported. Angina, or acute MI in patients less than 20 years of age should prompt suspicion of congenital coronary artery aneurysm. Usually these discrete coronary aneurysms do not rupture. Hence, their resection is not warranted. Angioplasty with covered stents can isolate aneurysms arising from main vessels and prevent their further expansion. This is not practical in aneurysm arising from very small vessel as in our case.

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