Coronary artery fistulas: a single-center case series

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Introduction: Coronary artery fistulas (CAFs) are rare anomalous connections between a coronary artery and a major vessel or cardiac chamber. Currently they are being increasingly encountered due to the more widespread use of various imaging modalities and coronary angiography. Although the vast majority of CAFs are incidentally diagnosed and have no clinical relevance, they can cause significant morbidity such as myocardial infarction, congestive heart failure and endocarditis.

Methods: A consecutive series of 55867 coronary arteriograms performed in our Cardiology Department from 2007 to 2019 was retrospectively investigated for the presence of coronary artery fistulas. Patients clinical, angiographic and therapeutic data up to november 2019 were analyzed. Data were obtained from medical records of hospital stay and subsequent consultations.

Results: We identified 50 patients who were diagnosed with one or more CAFs, with ages between 5 and 85 years (mean 59 years). 62% (n=31) were males.

The great majority of patients had a single fistula (n=34, 68%), 11 patients had two fistulas (22%), 1 patient had 3 fistulas (2%) and 4 patients had multiple fistulas (8%).

CAFs arose more frequently from the left anterior descending artery (n=27), followed by the right coronary (n=18), left circumflex (n=15), left main (n=5) and intermediate artery (n=2). The most frequent drainage site was the pulmonary artery (n=38).

The majority of CAFs were incidentally found (n=32; 64%) and thought to have no significance for the patients' clinical status. As for the rest of the patients, CAFs were diagnosed during evaluation of: a heart murmur (n=7); exertional chest pain with no associated significant atherosclerotic coronary artery disease (n=7); exertional dyspnea (n=2); positive exercise stress test (n=1); NSTEMI and cardiac arrest (n=1).

Regarding treatment, watchful waiting was the main approach (n=40; 80%). 3 patients had their CAFs closed during surgery for another heart condition (CABG/aortic valve replacement). In 1 patient, heart surgery was specifically conducted for fistula closure. 6 patients (12%) underwent fistula transcatheter closure.

Conclusion: CAFs are rare coronary anomalies and the majority has no clinical relevance, so watchful waiting is the commonest approach. When they are hemodynamically significant or symptoms/complications arise, surgical or transcatheter closure should be considered. This study describes the angiographic, clinical and therapeutic data of CAFs detected along the last 12 years in a single tertiary care center catheterization laboratory.