**MYOCARDIAL ISCHEMIA IN TRUE (IIA SUBTYPE) ISOLATED SINGLE CORONARY ARTERY**

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**Background.**Isolated single coronary artery (iSCA) is defined as presence of a solitary coronary ostium (SCO) in the aorta giving rise to all epicardial coronary arteries supplying the heart. The IIA subtype of iSCA consists of a single coronary artery arising from the right coronary sinus, coursing the entire length of the atrioventricular groove and terminating in the anterior interventricular sulcus as an anomalous left anterior descending (LAD) coronary artery. This “true” iSCA is extremely rare and is often associated with myocardial ischemia. We reviewed all previously reported cases of this variant to better understand mechanism of ischemia.

**Methods and Results**. An extensive literature search identified 32 (age 57±15 years, 65% male) cases of IIA subtype out of 713 cases of iSCA. The presenting complaints were exertional angina in 19 (59%), acute myocardial infarction in 3 (9%), exertional syncope, dyspnea on exertion and sudden cardiac arrest in 6 (19%). The method of diagnosis was invasive coronary angiogram (ICA) in 15 (47%), ICA and CT in 14 (44%) and autopsy in 3 (9%). Stress testing was done in 11 (34%) and was positive in 8 (anteroseptal /antero-apical ischemia in 6 and inferolateral ischemia in 2). Myocardial bridging was seen in 2 and hypoplastic or absent LAD equivalent with decreased blood supply to apex was seen in 4. Atherosclerotic coronary artery disease was seen in 44% {Obstructive in 10 [RCA=7, LCx=2, LAD=1, branch vessel=2] and non-obstructive in 4}. Revascularization was done in 10 patients (percutaneous coronary intervention in 6 and coronary artery bypass grafting in 4).

**Conclusion.**True iSCA (II A subtype) is seen in 4% of reported cases of iSCA. Myocardial ischemia in this variant may be caused by atherosclerotic CAD, failure of a short anomalous LAD to supply the antero-apical region, coronary vasospasm or myocardial bridging.