Reviewer's report

**Title:** Primary Congenital Anomalies of the Coronary Arteries and Relation to Atherosclerosis: An angiographic study in Lebanon

**Version:** 1  **Date:** 6 September 2009

**Reviewer:** Pankaj Kaul

**Reviewer's report:**

This is a retrospective angiographic study, over 7 years, of 4650 patients, out of a Lebanese population of 4, that sets out to look at the incidence of significant coronary artery disease in patients with anomalies of coronary arterial origin from aorta. 95 (2.4%) patients had anomalous origin of coronary arteries from the aorta – 61 (1.31%) of these were separately arising anterior descending and circumflex arteries from the left coronary sinus and were considered normal variants and, therefore, excluded from the study. 34 (0.73%) patients had genuine anomalies of coronary origin from aorta. 19 patients out of these 34 (55.88%) had an anomalous left circumflex artery arising either from right coronary sinus (3 patients) or from right coronary artery (16 patients), all of them pursuing a retro aortic course. 9 patients out of 34 (26.47%) had anomalous origin of right coronary artery from left sinus of Valsalva, all of which coursed between ascending aorta and pulmonary artery with potential for malignant compression. 5 patients out of 34 (14.7%) had an anomalous origin of left main coronary artery from right coronary sinus and 1 patient (2.94%) had left anterior descending artery arise anomalously from right coronary sinus with the left circumflex artery arising normally from left coronary sinus. The overall incidence of significant (I presume) coronary artery disease, in this angiographic retrospective study is 50%. On the other hand, only 6 out of the 34 patients (17.46%), with anomalous origin of coronary arteries from aorta, had significant coronary artery disease in the anomalous arteries. 5 out of these 6 patients had an anomalous left circumflex arising from right coronary sinus or right coronary artery (not separately specified) and 1 patient had a right coronary artery arising from left coronary sinus. This has led the authors to conclude that anomalous origin of coronary arteries from aorta does not predispose the anomalous coronary arteries to a higher incidence of atherosclerotic coronary artery disease necessarily.

I have following comments to make:

1. Most of the reported studies of coronary anomalies across the globe show a relatively constant incidence of less than 1.5%. Incidence of 0.73% in this study conforms to this.

2. Right coronary anomalies are the commonest in most studies except CASS study [1] where Circumflex artery was the commonest anomalous vessel. In this Lebanese study, 55.88% had anomalous left circumflex arising from either the right coronary sinus or right coronary artery.
3. Studies from Florida [2], where 41% patients were of Hispanic origin and from Shanghai [3] have previously shown that the anomalous coronary arteries are not at a higher risk for the development of coronary atherosclerosis. The latter study found 15.6% incidence of atherosclerosis in anomalous coronary arteries as against the overall incidence of 34.3%. The authors might want to look at these and perhaps acknowledge these two studies.

4. The authors should clearly mention what they mean by the presence or absence of coronary atherosclerosis. Perhaps “significant stenotic coronary atherosclerotic disease” might be more easily understood.

5. There are no absolute figures on the incidence of significant stenotic coronary artery disease in the main group of patients who did not have anomalous coronary arteries, who number 4616 patients. Again, there is no description of the arteries involved in 17 of the 34 patients – do these include the 6 who had atherosclerotic disease in the anomalous vessel? Does the anomalous origin of one artery increase the shear stresses on the normally arising vessel?

6. I would have liked to see a detailed description of the arteries involved in the 6 patients with anomalous coronary arteries who had stenotic coronary artery disease, in particular whether arteries other than the anomalous coronary artery were involved as well. A Chinese study found no patients out of the 32 with coronary anomalies (out of 4094 diagnostic angiograms) in whom anomalous vessel was the only one involved in coronary atherosclerosis [3].

7. Finally, I would like to see some hypothetical reasoning from the authors regarding why might it be that anomalous coronary arteries are less prone to coronary atherosclerosis in their study – is it the small size of the study, or does a particular origin selectively protect an artery from the shear stresses?

References


Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.
Declaration of competing interests:

I declare I have no competing interests