

CORONARY ARCADE - A RARE VARIANT OF CORONARY CIRCULATION

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INTRODUCTION

In general population, the prevalence of congenital coronary anomalies is about 1-2%. The clinical presentation of these anomalies is variable and may present as clinically silent or cause potentially life-threatening situations, such as acute myocardial infarction or sudden death. Anastomotic connections between normal coronary arteries are a rare variant of normal coronary artery termination, whose estimated prevalence is about 0,05%. This anomaly of the coronary circulation results from a congenital malformation, hence it should not be understood as collateral circulation secondary to obstructive coronary heart disease.

CASE DESCRIPTION

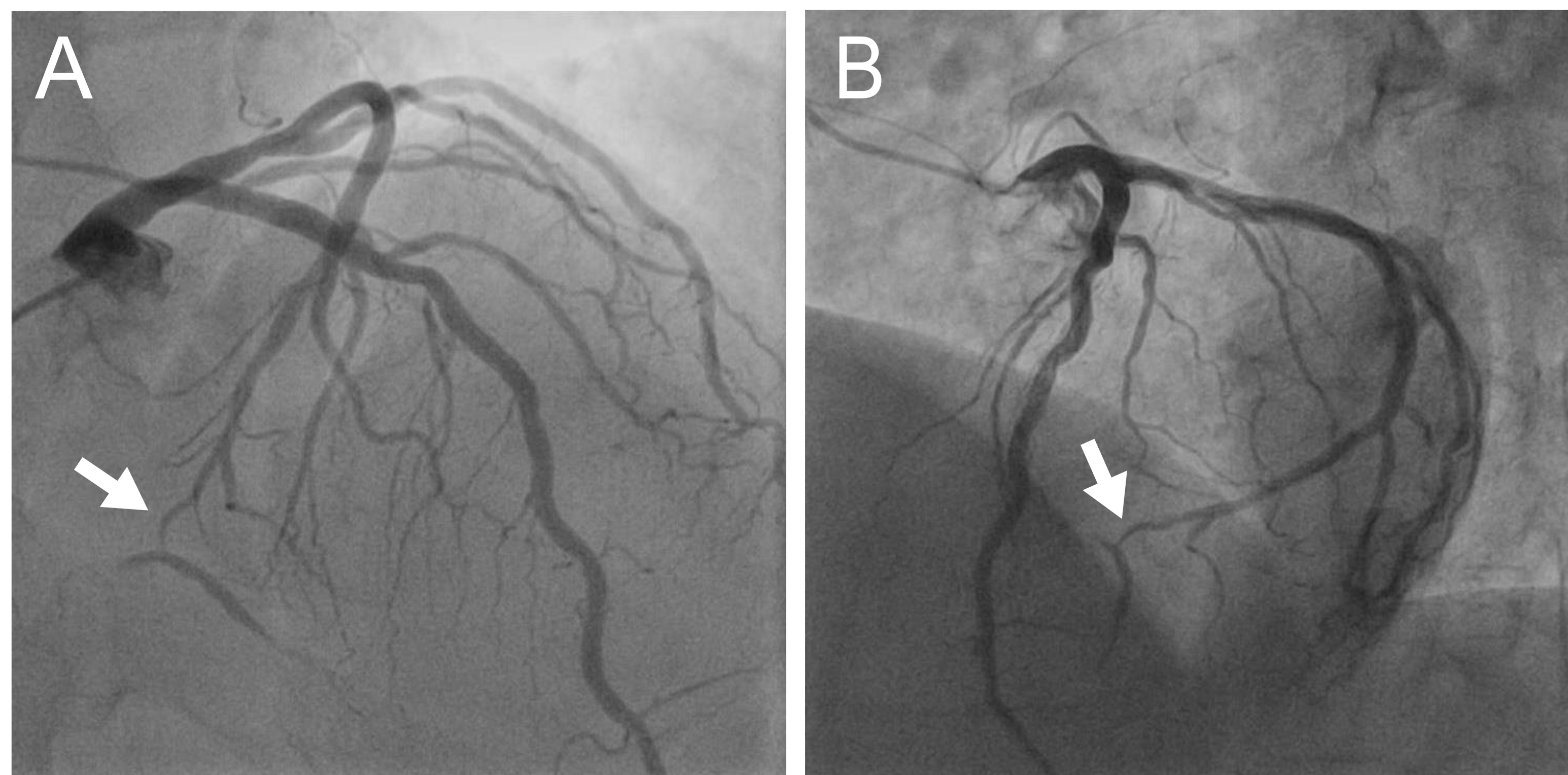
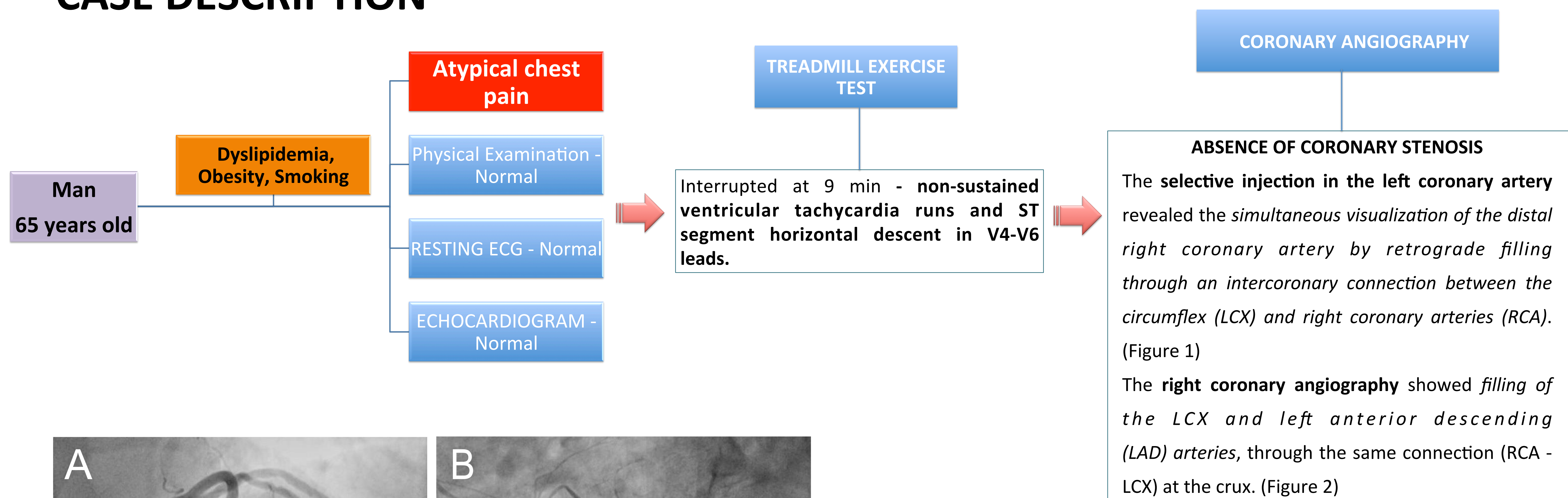


Figure 1 - Selective injection in the left coronary artery (A - projection RAO 10°, cranial 40; B - projection LAO 45, cranial 25°), showing the distal segment of the right coronary artery and posterior descending through a intercoronary connection with circumflex, at crux level (arrow).

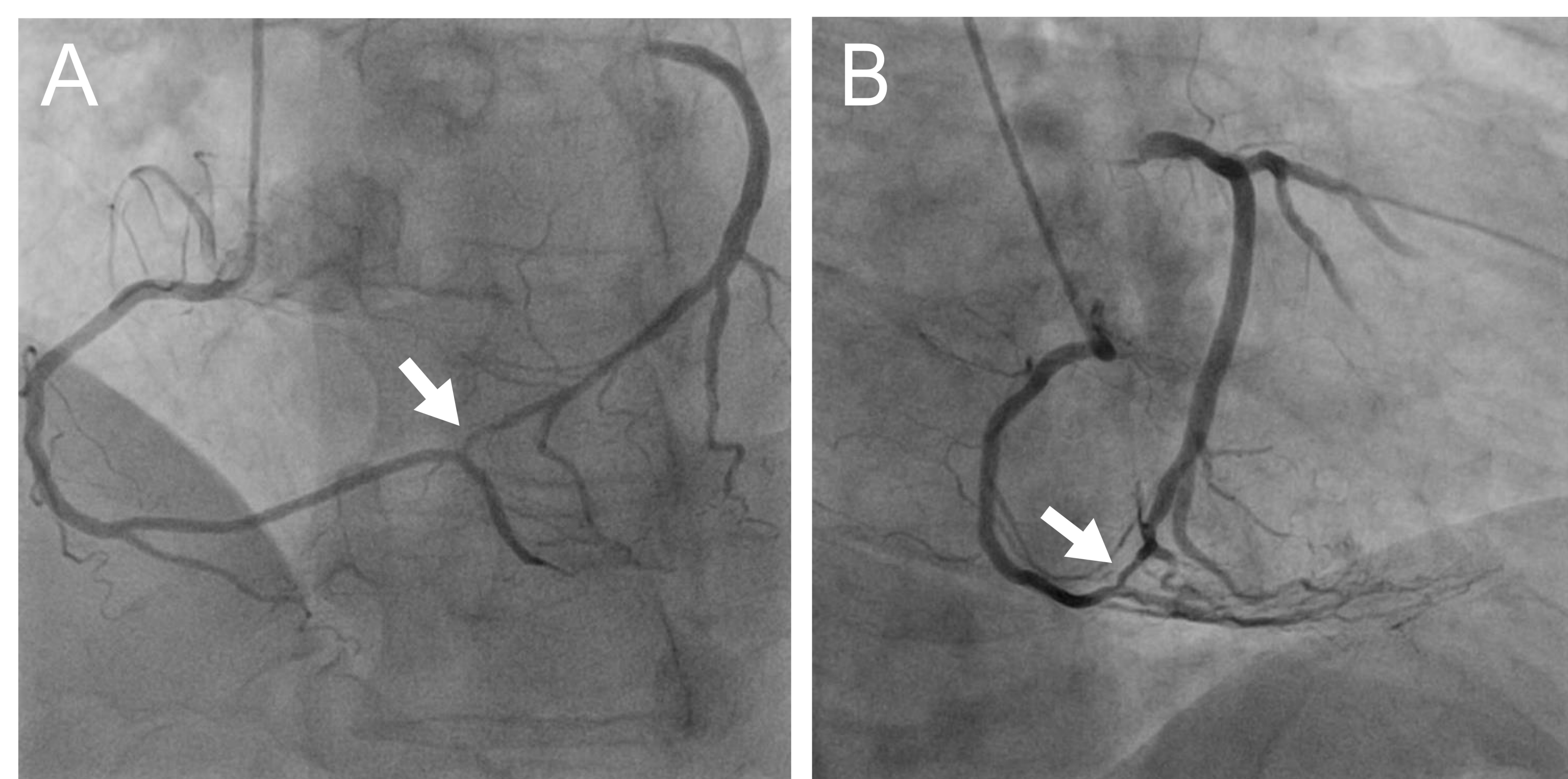


Figure 2 - Right coronary angiography (A - 20° LAO projection, cranial 20°, B - 30° RAO projection) showing the connection between the right coronary and circumflex (arrow). The projection in panel A, resembling a "coronary arch" and the projection in panel B allows delineation of the atrioventricular groove, with atria on the left and ventricles on the right of the image.

DISCUSSION

The intercoronary continuity or coronary arcade is a rare variant of the coronary circulation and consists in a direct communication between two major coronary arteries. Two types have been described: one between the RCA and LCX, in the posterior atrioventricular groove and another between the LAD and posterior descending coronary arteries, in the interventricular groove. Compared to collaterals, intercoronary artery connections have a well-developed muscle layer, are larger in diameter (≥ 1 mm), extramural and straight. Unlike collaterals, which are often related with significant coronary arteries stenosis, coronary arcades are visualized in normal coronary vessels.

The functional importance of this variant has not been clarified, but it can function as a natural bypass and it may possibly exert a protective role in myocardium if significant atherosclerosis develops. On the other hand, it can be a cause of myocardial ischemia if the unidirectional intercoronary communication causes a coronary steal phenomenon, resulting in inadequate perfusion.