

Septal perforators stemming from a very long left main coronary artery

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We report a case of a very long left main coronary artery (58 mm) with septal perforators before bifurcation. The coronary arteries were seen clear of plaques. To the best of our knowledge, this case is very rare because of the existence of the first and second septal perforator arteries originating from a very long left main coronary artery. (Folia Morphol 2012; 71, 4: 280–281)

Key words: long, left main coronary artery, septal perforator, stemming

INTRODUCTION

It is suggested that the length of the long left main coronary artery (LMCA) is a congenital, anatomical, and possibly a hereditary factor influencing the existence and the rate of development of atherosclerosis in the branches of the LMCA. Also, visualisation of aberrant origin of a septal perforator artery in living humans has been rarely described. We report a case of a very long LMCA with septal perforators before bifurcation.

CASE REPORT

A 48-year old woman presented with stable angina pectoris. She was hypertensive with a family history of cardiovascular disease. A triglyceride level of 264 mg/dL, HDL of 35 mg/dL, and LDL of 112 mg/dL were detected. Her other blood chemistry parameters were within normal ranges. Coronary angiography showed a very long LMCA, which was 58 mm long (Fig. 1), with septal perforators before bifurcation (Fig. 2). The coronary arteries were seen to be clear of plaques.

DISCUSSION

The average length of the LMCA was found to be 10.8 ± 5.52 mm on average (2–23 mm in range) [3].

The length of the LMCA was found to be significantly shorter in patients with coronary atherosclerosis than in subjects without angiographic evidence of coronary artery disease [2], and this relation was confirmed by a post-mortem study [1]. Also in cases over the age of 50 years, where disease is expected to have developed, it was shown that the degree of atherosclerosis in the left anterior descending and circumflex branches was inversely related to the length of the LMCA [1]. Thus it is suggested that the length of the LMCA is a congenital, anatomical, and possibly hereditary factor influencing the existence and the rate of development of atherosclerosis in the branches of the LMCA. Also, there was a positive correlation between the length of the LMCA and the angle of division of its terminal branches, with the longest LMCAs having the largest angle of division [3]. A short LMCA is also considered as a risk factor in coronary perfusion during surgical operations, such as during replacement of the aortic valve, and it makes carrying out coronary angiography difficult because when the catheter is inserted into one of the terminal branches the opacification of the other branch does not occur and an incomplete image of the coronary tree is seen.

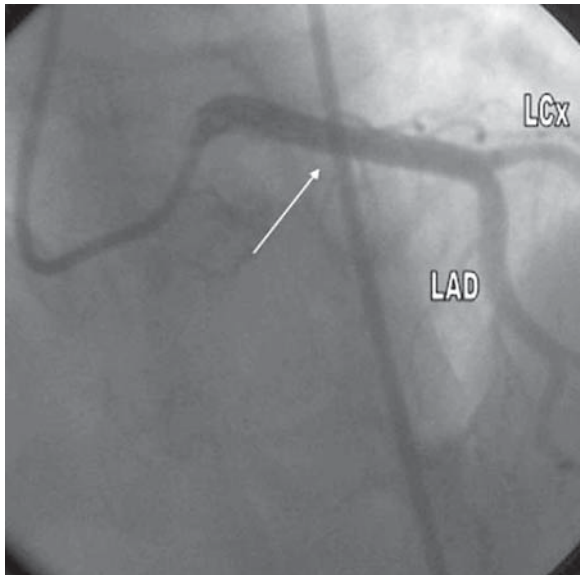


Figure 1. A very long left main coronary artery; LAD — left anterior descending; LCx — left circumflex artery.

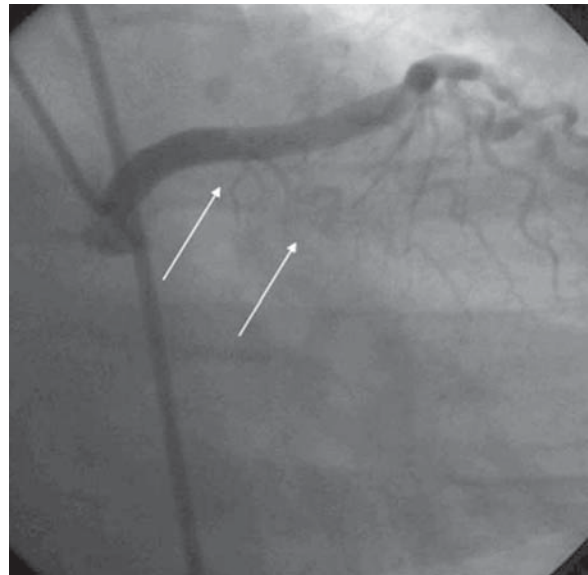


Figure 2. First and second septal perforators stemming from the left main coronary artery.

Because the first septal perforator (S1) may supply up to 15% of the blood to the myocardium, the recognition of its variable origin may have clinical implications and has to be considered as part of the complete evaluation of coronary arteriograms of patients referred for coronary artery revascularisation. Thus, its recognition is important in patients with coronary artery disease in order to avoid misdiagnosis and consequent management mistakes. It appears that an anomalous septal artery can serve as an important source for supportive circulation in severe coronary artery disease. In cases of significant atherosclerotic disease depriving flow in the major coronary vessels and their septal branches, an anomalous septal perforator artery can take over the task of supporting the function of the interventricular septum by supplementing essential collateral flow.

Visualisation of aberrant origin of a septal perforator artery in living humans has rarely been described but has been determined more commonly in a postmortem study in 12% of 427 human hearts [4]. The first septal perforator artery originated from the LMCA was seen in only one case [5], and also abnormal origin from diagonal, intermediate arte-

ries, sinus of valsalva, were very rarely seen. However, its clinical significance is unknown.

To the best of our knowledge, this is a very rare case because of the existence of the first and the second septal perforator arteries originating from a very long LMCA.

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