by our team, we do pay attention to the choice of the SVG segment to be used in the LIMA-SVB. We believe that a valveless segment is preferable, and the diameter of the SVG should match the LIMA as closely as possible. In the ongoing prospective-randomized clinical trial AMI-POINT (ClinicalTrials.gov NCT01585285 [3], CIHR funded), we are assessing whether the LIMA-SVB patency is not inferior to the conventional CABG strategy combining a separated LIMA graft to the LAD and an SVG to the other coronary artery in the anterolateral territory. To avoid the risk of competitive flow that can jeopardize the LIMA-SVB patency, we require a significant stenosis of >70% of all the native coronaries connected to the LIMA-SVB. Intraoperative blood flow is measured quantitatively with the MediStim Flowmeter (Medtronic, MN, USA) in the LIMA pedicle with and without temporary occlusion of the SVG, and in the SVG itself. We found the graft flow in the LIMA pedicle to be higher in the LIMA-SVB compared with the LIMA-LAD alone [2]. If the venous segment is patent and there is no competitive flow, the sum of the measured flow into the SVG and the LIMA when the SVG is occluded should be similar to the flow in the LIMA pedicle without occlusion of the SVG. Moreover, during graft patency assessment by cardiac computed tomography angiography, we are also recording the presence of valves, if any, in the short venous segment used in the LIMA-SVB.

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REFERENCES


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The left and right internal thoracic arteries may not have equivalent histological structures

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I commend Kinoshita and his colleagues for their effort in producing information on the histomorphometry of the right and left internal thoracic arteries (ITAs) [1]. While histological structure of the left ITA (LITA) has been adequately studied, the right ITA (RITA) has remained relatively overlooked with scarce information. Undoubtedly, the excellent results with the use of the LITA in coronary artery bypass grafting are due to, to a great extent, its histological structure.

However, part of Kinoshita’s paper conclusion may be misleading and does not represent the real picture. The statement that the right and left ITAs have equivalent histological and morphometric properties are not endorsed by the method employed in this work. For comparing both ITAs, only the redundant distal portion has been trimmed off and sent to the laboratory for morphometric analysis. Extrapolation of findings from these small fragments to the whole artery extension is uncertain and precarious, and the heterogeneity of the LITA histological structure along its downstream course is fairly well known [2].

We studied histomorphometrically both ITAs and compared sequentially their entire extension, and our findings revealed subtle but considerable differences. In relation to the size, the RITA proximal segments presented significantly larger perimeters when compared with LITA. Also, slight differences between the ITAs were noted in the thickness of the tunica media and the tunica intima. But most notably, regarding the number of elastic layers, a statistically significant difference was found among both ITA segments. In the LITA, the amount of elastic layers was concentrated in the intermediate segments and relatively reduced in the proximal and distal segments. In the RITA, a more regular wall histological structure throughout its length, with a relatively steady amount of elastic layers and a virtual uniformity in the distribution of elastic layers, was observed among its segments [3].

These data positively correlate and reinforce the findings of the previous anatomical studies [4, 5]. In part, the explanation could be attributed to the embryological origin. The left subclavian artery arises from the left seventh intersegmental artery, while the right subclavian artery originates from a multiple embryological origin: proximally to distally arises from the fourth aortic arch, the right dorsal aorta (between the fourth and the seventh intersegmental arteries), and from the right seventh intersegmental artery.

Even among specimens of ITA distal segments a great histological variability exists. A study on the structure of the ITA distal segment in 100 patients found a large variation in the composition of the tunica media. The media could be classified into three different types: muscular, hybrid and elastic type. In 52%, the elastic type dominated in the distal part, while hybrid and muscular patterns were found in 22 and 26%, respectively [6].

In summary, despite suggested structural differences between the right and left ITAs, the authors’ clinical data are comfortably reassuring on the excellent patency rates of both ITA grafts, thus strengthening the recommendation for their enhanced clinical use.

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