LETTERS TO THE EDITOR

Symbiotic Circulation

There have been excellent reviews of the pathways, distribution and functional significance of the coronary collateral circulation (1–4). However, none of the reviews has described a unique pattern of *symbiotic circulation* which occurs when two diseased vessels each supply collateral circulation to the other. This collateral *symbiotic circulation* pattern is present in an estimated 1% of the 950 coronary arteriograms performed annually in our laboratory.

An example of this phenomenon is shown in Figure 1. In panel A there is injection of contrast material into the right coronary artery in the left anterior oblique projection. There is complete occlusion of the distal right coronary artery and no filling of the posterior descending branch. This diseased right coronary artery provides collateral channels to the left anterior descending artery (arrows) via the conus branch of the right coronary artery. Panel B is a right anterior oblique projection of the left coronary injection. The left anterior descending artery is occluded proximally. However, this left system provides collateral channels to the posterior descending branch (arrows) of the right coronary artery by way of collateral vessels from the obtuse marginal branches of the left circumflex artery. There are also collateral vessels from the diagonal branches to the distal left anterior descending artery.

Other patterns of double coronary collateral circulation are possible, but when two diseased arteries are in mutual dependence, it may be called a *symbiotic circulation*.

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Comment

Dr. Dodek's "symbiotic circulation" is an elegant term for a phenomenon commonly observed in the coronary arteriograms of

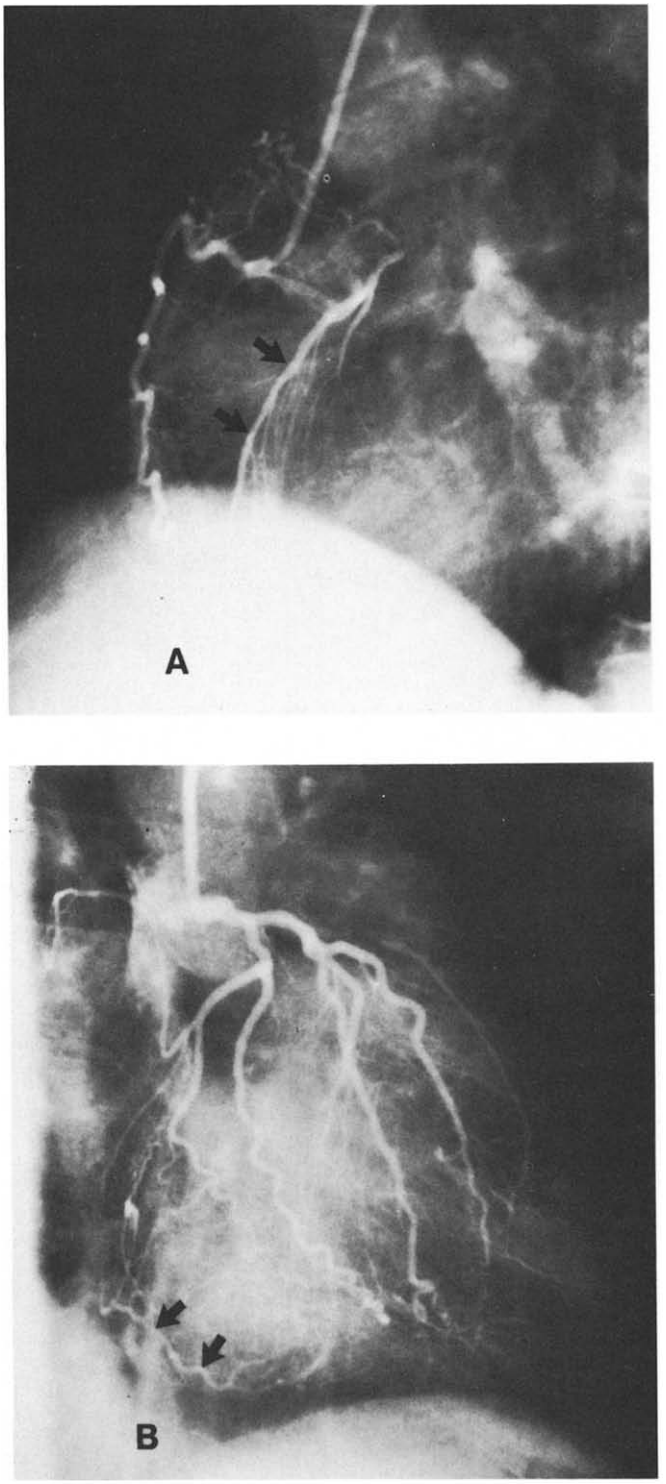

Figure 1. Coronary arteriograms demonstrating pattern of symbiotic circulation. See text.

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most patients with occlusive double and triple vessel disease. His choice of words from the Greek "living together" is both illustrative and accurate, though I disagree as to the frequency of its incidence. I have observed it often, whenever there are at least two critically obstructed or occluded arteries and some of their branches are proximal to the obstructive lesion. For years I described this phenomenon to my students as a case of the blind who is helping the blind. Now, thanks to Arthur Dodek, we may flaunt a little erudition and add to our homely expression the term "symbiotic circulation."

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