Microaneurysms in the Diabetic Human Heart

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Diabetes mellitus often leads to microvascular disease in the body, including thickening of the capillary basement membrane and capillary microaneurysms in the retina and glomerulus. These microaneurysms are saccular and fusiform expansions of capillaries, arterioles, or venules. They have been reported in the retina and glomerulus, but do they also occur in the heart? In a study by Factor et al. [1], the hearts of six insulin-dependent diabetic patients and eight controls were perfused with microfil, a silicone-rubber compound, and prepared for histologic examination. Three of the six diabetic patients were found to have typical microaneurysms in the heart, as seen in retinal vessels. Two of them had occlusive (> 75%) coronary artery disease, and the third had juvenile-onset diabetes mellitus with severe nodular glomerulosclerosis and retinonopathy. None of the eight control hearts were found to have microaneurysms, although they had varying degrees of coronary artery occlusion [1]. In another study, 13 diabetic human hearts and 5 non-diabetic controls were analyzed using scanning electron microscopy. Microaneurysms were found in 11 of 13 diabetic hearts, and capillary microaneurysms in all diabetic hearts. No microaneurysms were found in any of the control hearts [2]. These findings show that although not often described, microaneurysms do occur in the hearts of diabetic patients.

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References

1. Factor SM, Okun EM, Minase T. Capillary microaneurysms in the human diabetic heart. *N Engl J Med* 1980; 302: 384-8.
2. Ono T, Shimohara Y, Fujiwara K. Scanning electron microscopic studies on coronary microvascular architecture in diabetic human hearts by corrosion cast. *Med Electron Microsc* 1998; 31: 177-84.

Two limbs of separate capillary loops from the myocardium of the patient with juvenile-onset diabetes mellitus. Two saccular aneurysms are present

Myocardium from a patient with adult-onset diabetes. Two saccular microaneurysms and three fusiform microaneurysms are present