Almost four centuries, ago William Harvey wrote his De Motu Cordis and firmly established the concept of the heart as a pump. Harvey's fame as the creator of modern medical science has dominated thinking about him, although actually at the time the work was regarded as no use to medicine. In fact, Harvey's reputation during that period depended on his clinical expertise: the clinical records that supported this idea were all destroyed during the Great Fire.

The idea of the heart as a pump persisted, however, although from time to time, especially in recent years, there has been a growing awareness that the heart's function is not primary but is in fact part of an extremely complex functional system in both health and disease. For example, the idea insists that the microcirculation within the heart participated in the status of the intracardiac small vessels in cardiac collateral circulation to a marked degree, and in fact in many instances it submerged the role of the larger epicardial vessels in this regard. In recent years, the pain of hypertrophic cardiac myopathy has come to be related to cardiac microcirculation function. Moreover, the anginal pain that occurs in patients with normal coronary angiograms has been ascribed to changes in the intracardiac microcirculation. This is perhaps to be expected, but what has been somewhat of a surprise is the fact that in such patients the peripheral microcirculation exhibits abnormalities as well.9

This occurrence raises questions about peripheral vasomotor and microcirculatory functions in other forms of heart disease as well. Actually there has been interest in these phenomena for about half a century. A review of fragmentary early data on these phenomena was presented then. In the interval since then, the vasomotor and microcirculatory function of the skeletal muscle have been studied extensively in patients with congestive heart failure. One such study is that of Zelis et al.11 The published studies have included the findings in patients with congestive failure.12,13 Noteworthy among the published studies has been a detailed account of the mechanisms involved.14

We thus see the evolving picture of a participation of peripheral vasomotor and microcirculatory phenomena in different forms of heart disease. There is currently at hand no solid concept of the role that these phenomena play in the pathophysiology or clinical symptomatology of heart disease. Nevertheless, some old-time clinician may recall seeing a patient during an attack of angina pectoris in whom the pain was accompanied by blanching of the skin of the left arm from the shoulder to the finger-tips, the patient insisting that the only way to ameliorate the cardiac pain was to apply heat to the arm. Clinicians will continue to see clinical phenomena that have as yet no demonstrable basis in pathophysiology. Perhaps this ignorance will yield in the future to acceptance of the belief that the heart is part of a large and complex meshwork of functions and is not merely an isolated, more or less passive, pump.

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