First Selective Coronary Arteriogram

To the Editor:

I enjoyed reading Dr Ryan’s superb recount of the historical development of coronary arteriography, but I wish to make a comment on its chronology.

Dr F. Mason Sones, Jr, of the Cleveland Clinic performed the first selective coronary arteriogram on October 30, 1958. The selective right coronary arteriogram photographed by Sones on October 30, 1958, was inadvertently obtained during an aortic root injection in a 26-year-old patient with rheumatic heart disease, when the catheter whipped into the ostium of the right coronary artery. Although the performance of this selective coronary arteriogram was unintentional, it was the first direct injection of a contrast agent into a coronary artery (Figure).

I wish to thank Dr Earl Shirey of Cleveland Clinic for providing me with this historical cine frame. Sones and Shirey published the landmark article on cine coronary arteriography in 1962 in the now defunct monthly publication of the American Heart Association, the Modern Concepts of Cardiovascular Disease.

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Response

I appreciate Dr Cheng’s comments regarding my recent account of the historical development of coronary arteriography and his interest in its chronology. Comparing his cine frame with Figure 1 of our publication, I am quite confident they are both frames from the same cine run slightly separated in time. I was gratified to learn that Dr Earl K. Shirey concurs with this interpretation (personal communication, Earl Shirey, MD, Cleveland Clinic, October 22, 2002). My frame was provided some 20 years ago through the kindness of Dr Delos M. Cosgrove, noted cardiovascular surgeon at the Cleveland Clinic, with the notation, “Sones’s first selective coronary arteriogram, October 30, 1958.”

Like many recollections of events occurring 25 to 50 years ago, there would be expected variations. Dr Cheng’s account and ours are in complete agreement that initially there was an inadvertent selective injection of contrast media into the right coronary artery of a 26-year-old man with rheumatic mitral and aortic valve disease. Our versions differ on whether the catheter that had been in the left ventricle was withdrawn to a position in the ascending aorta to assess the degree of aortic regurgitation by a power injection of 40 to 50cc of contrast media or positioned in the right coronary sinus to carry out a 20cc injection of contrast media under reduced pressure. The former version is the more commonly recounted one, as told here by Cheng and popularized by Dr J. Willis Hurst in his history of cardiac catheterization. I have chosen the latter version as the more likely scenario for 3 reasons. Firstly, it is the vivid account of the only eyewitness able to tell the story at this point in time; (2) it is consistent with the report by Dr William L. Proudfit, the scholarly cardiologist who was both close friend and advisor to Sones at the Cleveland Clinic and himself a stickler for detail; and (3) because the cineangiogram recorded on October 30, 1958, does not have the opacification characteristics of a high powered injection from a spring-loaded Gidlund injector. In point of fact, in reviewing a copy of the complete cineangiogram made available recently by Dr Cosgrove, both Dr Sosa and I agree that it has the characteristics of an injection of approximately 20cc of 90% Hypaque (Nicomed) delivered via a side-hole NIH catheter selectively in the right coronary artery using a mechanical injector set at very low pressure and a prolonged delivery time. The catheter is withdrawn to the ascending aorta before the injection is completed and outlines a normal size aorta with no evidence of aortic regurgitation.

Putting all conjecture aside, the principle message of our brief historical account is that F. Mason Sones, Jr, MD, was a true visionary who had extraordinary capacity and the genius to capitalize on a serendipitous event that opened the way for selective coronary arteriography.

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_Circulation_. 2003;107:e42
doi: 10.1161/01.CIR.0000053958.38681.81
_Circulation_ is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
Copyright © 2003 American Heart Association, Inc. All rights reserved.
Print ISSN: 0009-7322. Online ISSN: 1524-4539

The online version of this article, along with updated information and services, is located on the World Wide Web at:
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