angina. Indeed, it would be useful to have a sensitive technique for the detection of this group of patients. The problem in the coronary care unit, however, is the separation of patients with unstable angina from those with frank infarction and with a higher risk of more immediate life-threatening complications. It is evident from the study of Abdulla et al that scintigraphy for detection of acute myocardial infarction probably does not separate these two groups of patients. The technique is still useful, however, in separating patients with chest pain of noncardiac origin and stable angina pectoris from acute coronary insufficiency or myocardial infarction.

There are still potentially important applications for this technique in the coronary care unit, however. Because of its very high sensitivity in the detection of acute infarction, a negative scintiscan obtained within six days of the onset of chest pain is quite useful in ruling out acute infarction. A potential application of this technique, particularly with the advent of interventions aimed at limiting infarct size, is the estimation of the extent of damage and hence the determination of the efficacy of these medical and surgical therapies. This approach is currently undergoing evaluation in a number of clinical centers and requires further validation. The accurate separation of patients with unstable angina from those with frank infarction by scintigraphic techniques will probably await the development of radiopharmaceuticals similar to $^{99m}$Tc-tetracycline which limit their uptake to acutely necrotic tissue, but with improved biologic characteristics to enable rapid imaging such as is currently available with $^{99m}$Tc-pyrophosphate.

B. Leonard Holman, M.D.*
Boston

*Department of Radiology, Harvard Medical School and Peter Bent Brigham Hospital.
Reprint requests: Dr. Holman, Department of Radiology, 721 Huntington Avenue, Boston 02115

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Coexisting Left Anterior Hemiblock and Inferior Wall Infarction

Left anterior hemiblock is widely accepted as a frequent cause of abnormal left axis deviation. Equally familiar is the knowledge that inferior wall or diaphragmatic infarction can record an abnormal left axis because of the location of the infarct; however, when an inferior wall myocardial infarction occurs in a patient with left anterior hemiblock, the diagnosis of the left anterior hemiblock becomes difficult. The question arises as to whether the abnormal left axis is due to the infarction per se or is a result of the concurrent left anterior hemiblock.

Moleiro and Mendoza (see page 418) present a report illustrating a rare example where the QR pattern of acute inferior wall myocardial infarction alternates with a QS pattern of combined left anterior hemiblock and inferior wall myocardial infarction. Spatial vectorcardiograms, which help differentiate the abnormal left axis of inferior wall myocardial infarction from that of left anterior hemiblock, were not recorded. The electrocardiograms, nevertheless, satisfy a criterion of Grant which emphasized the need for serial electrocardiograms in order to record the changes in QRS morphologic patterns before and after the appearance of the conduction abnormality. In addition, the electrocardiographic traces verify the observations in a previous report, in which the vectorcardiogram and the electrocardiogram were correlated in cases of “pure” inferior wall myocardial infarction and in those with inferior wall myocardial infarction complicated by left anterior hemiblock. Standard lead 2 was shown to be the most valuable in differentiating the etiology of abnormal left axis deviation, ie, (1) Rs pattern in left anterior hemiblock, (2) QR or Qr pattern in inferior wall myocardial infarction, and (3) QS pattern or minute slurred r wave with deep S wave in combined inferior wall myocardial infarction, and left anterior hemiblock.

The report of Moleiro and Mendoza clearly identifies the concurrence of left anterior hemiblock and inferior wall myocardial infarction by the presence of a QS configuration in lead 2, which can be seen to alternate with a QR pattern of “pure” inferior wall myocardial infarction. Unipolar lead aVF in this
case shows similar alternations.

Of equal importance is the critical electrocardiographic analysis of a narrow QS pattern in lead aVF when it is seen following a diaphragmatic infarction in cases with prior left anterior hemiblock. Myers has emphasized that the r-wave deflection in the rS pattern of lead aVF (seen in left anterior hemiblock) reflects the potential variations of the right side of the septum and the diaphragmatic wall of the right ventricle. When a QS configuration replaces an initial rS pattern in lead aVF, the loss of the r wave is attributed to abnormal or right-to-left septal activation. The causes of this reversal of the septal vector are similar to those which are attributed to a QS deflection in the leads on the right side of the chest, i.e., septal infarction, septal fibrosis, or anterior left bundle-branch block.

A narrow QS configuration in lead aVF would, thus, be compatible with septal infarction, septal fibrosis, or anterior left bundle-branch block with or without complicating left anterior hemiblock, rather than an extensive dead zone in the diaphragmatic surface of the left ventricle. A widened QS configuration in lead aVF (excluding bundle-branch block) is consistent with extensive damage of the inferior wall of the left ventricle with or without complicating left anterior hemiblock, as reported by Moleiro and Mendoza. Quite often, however, careful examination of an apparently widened QS configuration in lead aVF will reveal a late embryonic r wave, especially if the trace is recorded during deep breathing. This identifies the Qr pattern of inferior wall myocardial infarction. The frontal plane spatial vectorcardiogram differentiates these two QS patterns in lead aVF. With a narrow QS configuration in lead aVF, the loop is superior and counterclockwise. With a widened QS configuration in lead aVF (excluding bundle branch block), the loop is superior and clockwise.

The prognostic and therapeutic implications are obvious and are determined by the size of the infarcted myocardium.

Louis Lemberg, M.D., F.C.C.P. 
Professor of Clinical Cardiology, University of Miami School of Medicine.

Reprint requests: Dr. Lemberg, University of Miami School of Medicine, PO Box 520675, Miami 33152.

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