

Thallium-201: The Elusive Radionuclide

During the past year, interest in the clinical applications of thallium-201 myocardial perfusion imaging (MPI) has diminished. Unquestionably, this has resulted from the high cost, lack of ready availability, and need of specialized image-processing equipment. The question of early redistribution and interobserver variability, however, has also contributed to this trend. A more important reason, we submit, is the clinician's reluctance to order the test because of the lack of well-defined indications. In light of current thinking (1), many feel that MPI should be employed as a screening test for the detection of coronary-artery disease. The clinical series of Bailey et al. (2) and of Ritchie et al. (3) suggested such to be the case. Other indications for thallium-201 imaging—myocardial infarct imaging, diagnosis of cardiomyopathies and idiopathic hypertrophic subaortic stenosis, and pulmonary hypertension—are much less well accepted.

The article of Verani et al. in the July issue of the *Journal* (4) will receive widespread attention by many clinicians. These authors addressed the role of MPI as an adjunct to the exercise electrocardiogram (GTX). They used surprisingly unsophisticated imaging techniques. No background subtraction, gating, cinematic display, or spatial count-rate normalization was applied. Instead, a gamma camera fitted with a LEAP collimator was used and exercise imaging with a count density of 1,500–2,000 counts/cm² in the region of the myocardium was performed. Their patient population was limited to symptomatic patients suspected of having ischemic heart disease. Asymptomatic patients with positive GTX were not studied. In patients with coronary-artery disease, the sensitivity of MPI was 79%; when GTX and MPI were combined, this was increased to 94%. However, the combination of GTX and MPI decreased specificity because of the large number (24%) of falsely positive GTX tests. Interobserver variation (5) was considered only briefly.

In this era of accountability and alarming increase in cost of medical care, it becomes imperative to define cost-effectiveness of diagnostic procedures. A major implication of the study of Verani et al. is that MPI is the most cost-effective adjunct of GTX in the diagnosis of ischemic heart disease. We submit, and in the past have pleaded for, specific clinical research to define whether the screening of symptomatic patients with ischemic heart disease should be GTX + MPI or GTX + exercise radionuclide angiography (6). It is evident that GTX + MPI + exercise radionuclide angiography would be least cost-effective. A decision must be made for the screening of patients with ischemic heart disease, patients with chest pain and normal coronary arteries, and asymptomatic patients with abnormal GTX. We strongly encourage clinical research in this field.

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Pertechnetate Demonstration of a Barrett's Esophagus Involving the Length of the Esophagus

In a Barrett's esophagus, the mucosa of the lower esophagus is lined with columnar epithelium of the gastric type rather than the normal stratified squamous epithelium. Frequently gastric mucosa extends to the middle esophagus and occasionally to the upper thoracic segment. In a review of the literature we found two cases with involvement of the cervical esophagus (1,2). This report describes a patient with extension of the columnar epithelium to the upper cervical esophagus. An abnormal barium esophagogram initiated a request for a pertechnetate radionuclide study.

The 61-year-old man with a history of alcoholism had a trans-thoracic hiatus hernia repair in 1964 for increasing "heartburn". Esophagoscopy at that time showed gastric reflux to the cervical esophagus. He was first seen at our institution in September 1976, for frequent episodes of hematemesis, black stools, dysphagia, "heartburn," upper epigastric pain, and iron-deficiency anemia. An upper GI series showed stenosis of the immediate proximal portion of the cervical esophagus (Fig. 1), irregular mucosa and thick folds in the lower esophagus, a hiatus hernia (Fig. 2), and gastroesophageal reflux.



FIG. 1. (Left) Stricture in cervical esophagus at C5 level. Dysplastic gastric mucosa extended to lower margin of stricture.