

## Gastroesophageal reflux detected on the myocardial perfusion scan with $^{99m}\text{Tc}$ -MIBI

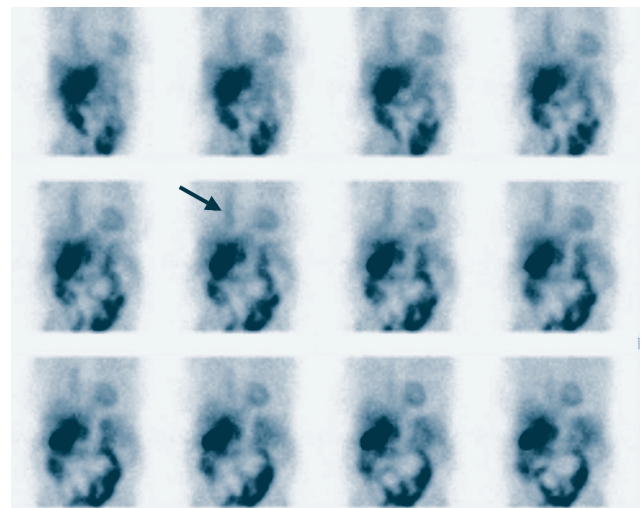
**To the Editor:** We have noticed that HJNM has recently printed two other cases of extracardiac activities diagnosed by a technetium-99m sestamibi ( $^{99m}\text{Tc}$ -MIBI) myocardial perfusion scan and by the rather similar agent  $^{99m}\text{Tc}$ -tetrophosmin [1, 2]. Gastroesophageal reflux (GER) was not included in the differential diagnosis of extracardiac activities in the above cases. Thus we wish to present a case of GER. Extracardiac activities during myocardial perfusion scan have been reported in a couple of other studies [3-5]. Due to hepatobiliary excretion of  $^{99m}\text{Tc}$ -MIBI, GER can be detected on a myocardial perfusion scan [5-9]. However, the frequency of GER during myocardial perfusion scan seems to be low [7] and as far as we know; only two case reports addressed the issue of GER in myocardial perfusion imaging [8, 9]. None of these cases has reported a scintigraphic confirmation of the diagnosis.

Our 50 years old female patient was referred to our department for a myocardial perfusion scan because of procardial pain. Retrocardial activity was noted on the raw projection images and GER was proved by GER scintigraphy.

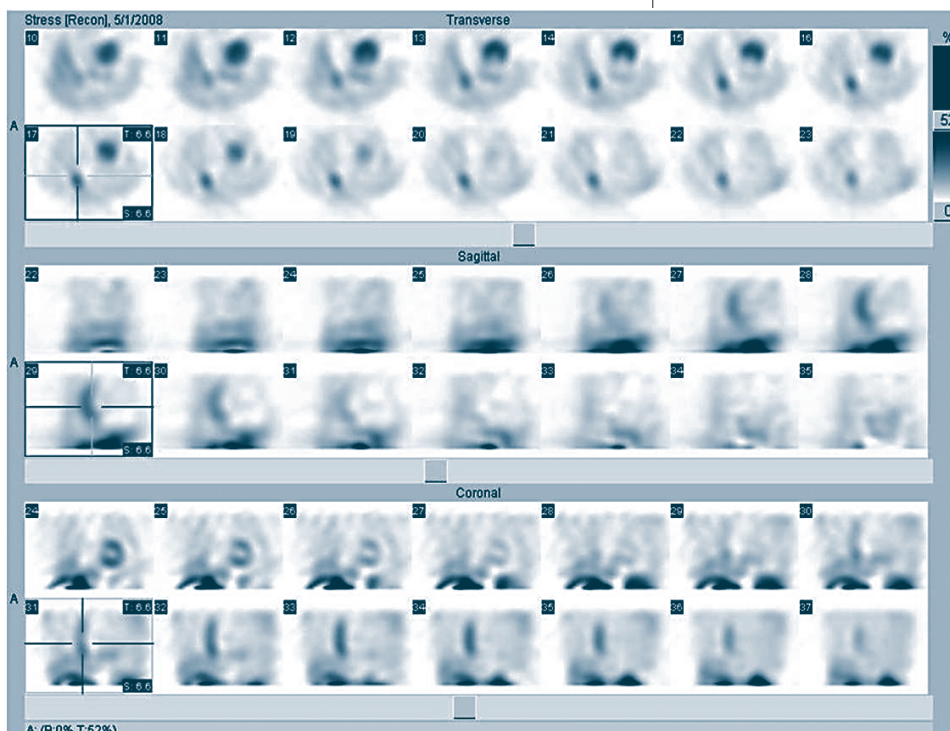
The patient underwent dipyridamole stress and subsequently 740 MBq  $^{99m}\text{Tc}$ -MIBI was injected intravenously. Sixty min after radiotracer injection, single photon emission tomography (SPET) imaging with a dual head gamma-camera (E.CAM, Siemens) was performed. On the raw projection images, a linear retrocardiac activity was noted (Fig. 1), which was suspected to be in the esophagus. Reconstructed slices also showed retrocardiac activity with a linear pattern (Fig. 2).

Two days later, the patient underwent a scintigraphic evaluation for GER after an overnight fast. Acidified orange juice (150 mL orange juice and 150 mL hydrochloric acid) admixed with 111MBq of  $^{99m}\text{Tc}$ -sulfur colloid were administered orally to the patient. Subsequently, 20 mL of water was taken by the patient to clear any residual activity from the esophagus. The patient was positioned supine under the camera and dynamic images were acquired. After performing Valsalva maneuver, GER was obvious on the acquired images (Fig. 3).

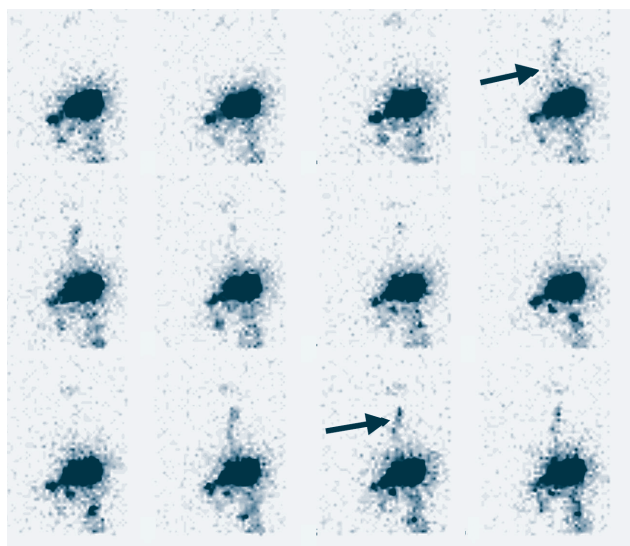
Endoscopic evaluation of the patient revealed mild in-



**Figure 1.** Raw projections of the myocardial perfusion SPET demonstrating a linear retrocardiac activity (arrow).



**Figure 2.** Reconstructed slices of the myocardial perfusion SPET. Note linear retrocardiac activity (cross-bar).



**Figure 3.** Scintigraphic evaluation of the patient with acidified orange juice admixed with  $^{99m}\text{Tc}$ -sulfur colloid. After performing Valsalva maneuver, gastroesophageal reflux was apparent.

flammation in the distal part of the esophagus. Anti-reflux drugs (ranitidine and omeprazole) were started and symptoms of the patient were much improved.

Various pathological and normal conditions can cause extracardiac activities during myocardial perfusion scan with  $^{99m}\text{Tc}$ -MIBI [1-10]. Some of these extra-cardiac activities are only of reconstruction concern, such as: sub-diaphragmatic activity [5-6]. The remainder of the extra-cardiac activities are usually incidentally discovered and warrant further evaluation. Many of these activities can be due to potentially treatable diseases, which are otherwise neglected [1-3, 10]. This was true for our patient, in whom the cause of atypical chest pain was diagnosed only after suspicion of GER on myocardial perfusion scan images.

Usually, pathological extra-cardiac activities are only apparent on the raw projections or cinematic views of the myocardial SPET. Considering our case, we recommend that evaluation of the raw projections of the myocardial perfusion SPET with  $^{99m}\text{Tc}$ -MIBI should include the search for a possible GER.

## Bibliography

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