Screening for breast cancer should be an integral part of myocardial perfusion imaging

Jean Lette MD¹, François Lette MD²

A 65-year-old woman with a history of myocardial infarction was referred for dipyridamole myocardial perfusion imaging for risk stratification. Stress and rest myocardial images were normal. However, on the nonmagnified raw projection technetium (Tc)-99m sestamibi images of the thorax, there was a focal intense hot spot (arrows in Figure 1) in the outer quadrant of the left breast shown in the anterior (Ant), left anterior oblique (LAO) and left lateral (L Lat) tomographic views, which proved to be a 4.5 cm undiagnosed infiltrating ductal carcinoma (T2N0M0). The lesion in the outer quadrant of the breast (arrows in Figure 2) was even more obvious on the nonmagnified volumetric three-dimensional reconstruction of the thorax, shown in the Ant, LAO and L Lat tomographic views. Tracers used for myocardial perfusion imaging, such as Tc-99m sestamibi, Tc-99m tetrofosmin, F-18 fluorodeoxyglucose and others, have a high affinity for tumours including breast and lung cancer with a sensitivity in excess of 85% for the detection of primary tumours (1-4). In the United States alone, it is estimated that there were 275,000 new cases of breast cancer in 2006, and more than six million myocardial perfusion studies are performed annually. Image processing is usually performed by nuclear medicine technicians. Physicians who interpret the studies usually only look at the processed and magnified images of the myocardial slices,

and dismiss breast activity as a nuisance (an 'artefact'), which is equivalent to not reporting and disregarding more than six million screening scintimammograms annually. Screening for breast and lung cancer should be an integral part of myocardial perfusion imaging.

REFERENCES

1. Horne T, Pappo I, Cohen-Pour M, Baumer M, Orda R. 99Tc(m)-tetrofosmin scintimammography for detecting breast cancer: A comparative study with 99Tc(m)-MIBI. *Nucl Med Commun* 2001;22:807-11.
2. Rodrigues M, Chehne F, Kalinowska W, Berghammer P, Zielinski C, Sinzinger H. Uptake of 99mTc-MIBI and 99mTc-tetrofosmin into malignant versus nonmalignant breast cell lines. *J Nucl Med* 2000;41:1495-9.
3. Mavi A, Cermik TF, Urhan M, et al. The effects of estrogen, progesterone, and C-erbB-2 receptor states on 18F-FDG uptake of primary breast cancer lesions. *J Nucl Med* 2007;48:1266-72.
4. Rosen EL, Turkington TG, Soo MS, Baker JA, Coleman RE. Detection of primary breast carcinoma with a dedicated, large-field-of-view FDG PET mammography device: Initial experience. *Radiology* 2005;234:527-34.

Figure 1

Figure 2

¹Department of Nuclear Medicine, Maisonneuve Hospital, Montreal, Quebec; ²Department of Medicine, Mayo Clinic, Jacksonville, Florida, USA
Correspondence: Dr Jean Lette, Department of Nuclear Medicine, Maisonneuve Hospital, 5415 Assomption Boulevard, Montreal, Quebec H1T 2M4.

Telephone 514-252-3400 ext 3219, fax 514-289-1813, e-mail jlette@lette.com

Received for publication September 8, 2007. Accepted November 8, 2007