

The association of increased stomach wall radiotracer uptake with prolonged use of Omeprazole capsules on myocardial perfusion imaging (MPI) using ^{99m}Tc -sestamibi SPECT

Hamid Javadi¹, Sara Jallalat¹, Shahriar Semnani¹, Mehdi Mogharrabi¹, Iraj Nabipour², Seyed Masoud Tabib³, Moloud Abbaszadeh³, Majid Assadi⁴

¹Golestan Research Center of Gastroenterology and Hepatology (GRCGH), Golestan University of Medical Sciences (GUOMS), Gorgan, Iran

²The Persian Gulf Tropical and Infectious Diseases Research Centre, Bushehr University of Medical Sciences, Bushehr, Iran

³Department of Gastroenterology, School of Medicine, Bushehr University of Medical Sciences, Bushehr, Iran

⁴The Persian Gulf Nuclear Medicine Research Center, Bushehr University of Medical Sciences, Bushehr, Iran

[Received 2 III 2013; Accepted 10 VI 2013]

Abstract

Myocardial perfusion imaging (MPI) is widely used in routine practice for diagnosis and risk stratification of coronary artery disease (CAD). Intense curvilinear activity in the stomach wall of a patient was seen on MPI raw data. This phenomenon was completely dissimilar to the familiar intraluminal gastric reflux of sestamibi. This observed activity could have resulted in false-positive or false-negative artifacts — and inaccurate diagnosis — of the inferior wall of the left ventricle after MPI processing. On further exploration, the current researchers found

that the patient had a history of 10-year Omeprazole capsule consumption. The authors present this infrequent case of intense stomach uptake to stress the related clinical and diagnostic implications with the aim to stimulate acute awareness of possible, unexpected infringements on image quality that could potentially interfere with accurate interpretation of the data.

KEY words: ^{99m}Tc -sestamibi cardiac SPECT, myocardial perfusion imaging, gastric wall, proton pump inhibitors

Nuclear Med Rev 2013; 16, 2: 91–94

Introduction

Myocardial perfusion imaging (MPI) with exercise or pharmacological stress, either with thallium-201 (^{201}Tl) or technetium- ^{99m}Tc -sestamibi, is widely used for preparation of diagnostic and prognostic information regarding patients with proved or possible coronary artery disease (CAD) and it facilitates the accurate management of CAD patients [1]. However, with present myocardial radiotracers, such as ^{99m}Tc -sestamibi, rather high extra-cardiac activity is usually seen, which is mostly associated with physiologic hepatobiliary or renal excretion [2]. In contrast, there are limited reports suggesting possible non-physiologic reasons for these visceral uptakes, and occasionally, indicating different underlying pathologies [2]. Indeed, accidental pathological findings during myocardial perfusion imaging are not scarce and cautious examination of the full field of image acquisition has been useful in identifying these accidental findings [3–5]. Alternatively, most efforts concentrate on dissolving these interfering abdominal activities without attention to the clinical importance of such findings [6, 7].

On the MPI raw data of one such patient, intense curvilinear activity in the stomach wall was evident. This phenomenon was completely dissimilar to the familiar intraluminal gastric

Correspondence to: Majid Assadi, MD, Associate Professor of Nuclear Medicine
 The Persian Gulf Nuclear Medicine Research Center, Bushehr University of Medical Sciences
 Boostan 19 Alley, Sangi Street Bushehr 7533934698, Iran
 Tel.: 0098–771–2580169
 Fax: 0098–771–2541828
 E-mail: assadipoya@yahoo.com, asadi@bpums.ac.ir

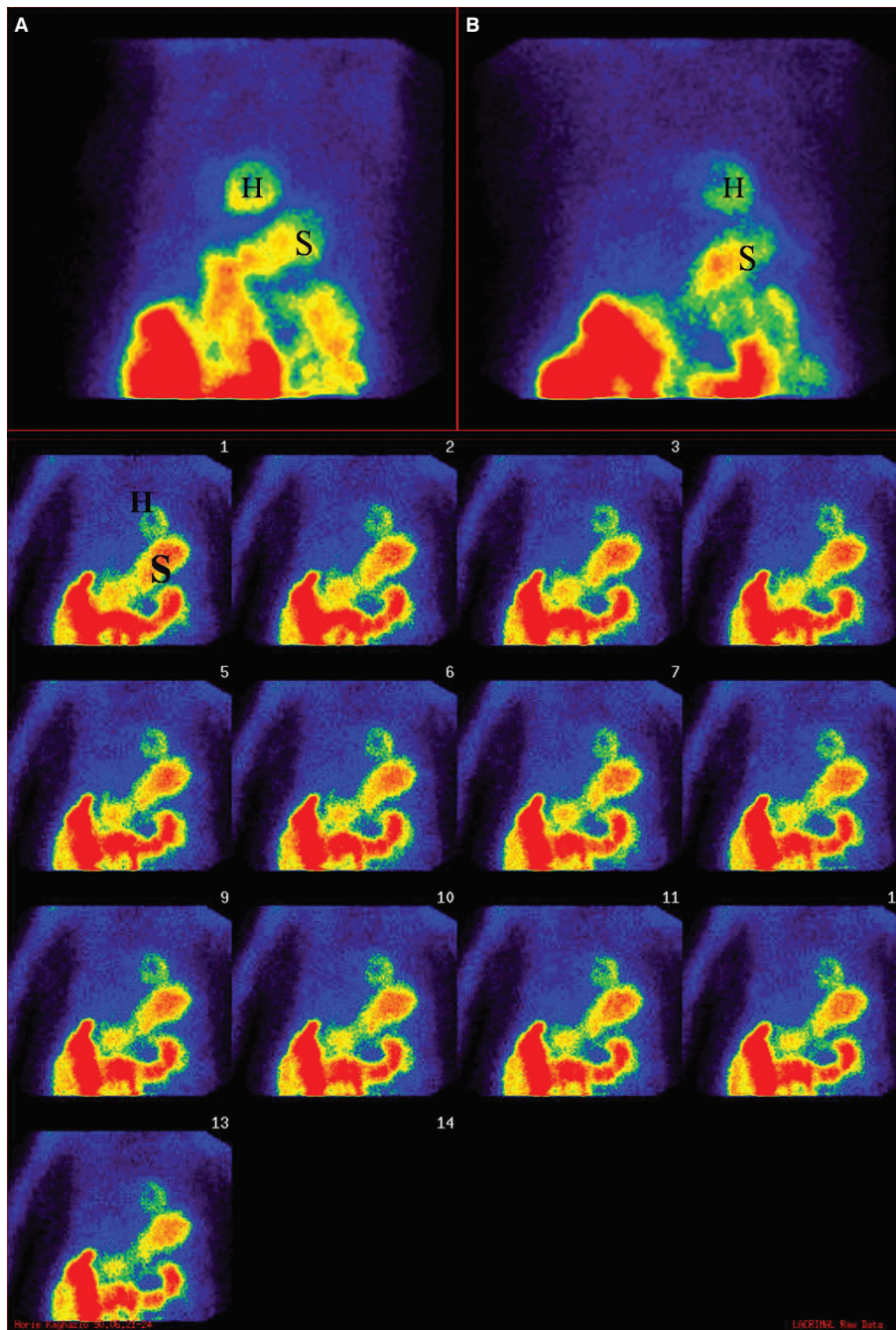


Figure 1. There is curvilinear activity with more intensity in the stomach wall than in the heart on both stress (A) and rest (B) raw data of myocardial perfusion imaging (MPI) using ^{99m}Tc -sestamibi SPECT. H, heart; S, stomach

reflux of sestamibi. This observed activity could have resulted in false-positive or false-negative artifacts — and inaccurate diagnosis — of the inferior wall of the left ventricle after MPI processing. On further exploration, the current researchers found that the patient had a history of 10-year Omeprazole capsule consumption. The authors present this infrequent case of intense stomach uptake to stress the related clinical and diagnostic implications with the aim to stimulate acute awareness of possible, unexpected infringements on image quality that could potentially interfere with accurate interpretation of the data.

Case report

A 54-year-old woman with an atypical chest pain was referred to the nuclear medicine department for assessment of possible coronary artery disease. The patient filled out a questionnaire that included demographics and risk factors for CAD. She had not had previous coronary artery bypass surgery (CABG) or percutaneous coronary intervention (PCI). The patient underwent a 2-day dipyridamole technetium ^{99m}Tc -sestamibi SPECT protocol. All cardiovascular medications were stopped for at least 2 days and the