



Technological value of SPECT/CT fusion imaging for the diagnosis of lower gastrointestinal bleeding

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ABSTRACT. The aim of this study was to assess the clinical value of diagnosing and locating lower gastrointestinal (GI) bleeding using single photon emission computed tomography (SPECT)/computed tomography (CT) fusion imaging with ^{99m}Tc labeled red blood cells (^{99m}Tc -RBC). Fifty-six patients with suspected lower GI bleeding received a preoperative intravenous injection of ^{99m}Tc -RBC and each underwent planar, SPECT/CT imaging of the lower abdominal region. The location and path of lower GI bleeding were diagnosed by contrastive analysis of planar and SPECT/CT fusion imaging. Among the 56 patients selected, there were abnormalities in concentrated radionuclide activity with planar imaging in 50 patients and in SPECT/CT fusion imaging in 52 patients. Moreover, bleeding points that were coincident with the surgical results were evident with planar imaging in 31 patients and with SPECT/CT fusion imaging in 48 patients. The diagnostic sensitivity of planar imaging and SPECT/CT fusion imaging were 89.3% (50/56) and 92.9% (52/56), respectively, and the difference

was not statistically significant ($\chi^2 = 0.11$, $P > 0.05$). The corresponding positional accuracy values were 73.8% (31/42) and 92.3% (48/52), and the difference was statistically significant ($\chi^2 = 4.63$, $P < 0.05$). ^{99m}Tc -RBC SPECT/CT fusion imaging is an effective, simple, and accurate method that can be used for diagnosing and locating lower GI bleeding.

Key words: Lower gastrointestinal bleeding; ^{99m}Tc -RBC; Tomography; Emission-computed; Single-photon