The truncation artefact in patients with a high body mass index on myocardial perfusion SPECT

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DESCRIPTION

Recognition of the truncation artefact is important for the control of image quality on myocardial perfusion images in single-photon emission CT (SPECT). Truncation artefact is usually seen in obese patients who may deviate from a γ -ray detector field. The deviation of the body in the limited detector field sometimes causes the truncation of the left ventricle and low image quality.¹ We encountered the truncation artefact in patients with a high body mass index (34.2) which raises the possibility of an unusual detector arc in the non-circular detector orbit. [Figure 1A](#) depicts a

presence of the truncation of the detector field in the 29th projection without the truncation of the left ventricle. [Figure 1B](#) does not show the truncation of the detector field in the same 29th projection after the optimisation of the patient's body location. This type of 'field truncation' causes the low image quality in the corresponding reconstructed short-axis slices ([figure 2A](#)); with the field truncation. [Figure 2B](#) without the field truncation shows normal perfusion image. The presence of truncation artefact can be recognised by following two methods. First is the presence of ununiformity of the raw projection field ([figure 1A](#)), second is

Figure 1 (A) Truncation (+) in the raw data, (B) truncation (–) in the raw data, (C) abnormal body contours with abnormal shape of the left ventricle and (D) elliptical body contours with normal shape of the left ventricle.

Figure 2 (A) Blurred short-axis images of the left ventricle and (B) normal short-axis images of the left ventricle.

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Learning points

- ▶ The deviation of the body in the limited detector field sometimes causes the truncation of the left ventricle and low image quality.
- ▶ Truncation artefact may occur in the truncation of the left ventricle and in the field truncation of the detector.
- ▶ The presence of truncation artefact can be recognised by following two methods. First is the presence of ununiformity of the raw projection field, second is the non-elliptical body contours in the reconstructed axial image.

the non-elliptical body contours in the reconstructed axial image (figure 1C; yellow line). Figure 1D shows normal elliptical body contours. When the doctors read the SPECT images, the recognition of raw projection datasets and reconstructed axial image is useful for avoiding artefacts.

Competing interests None.

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