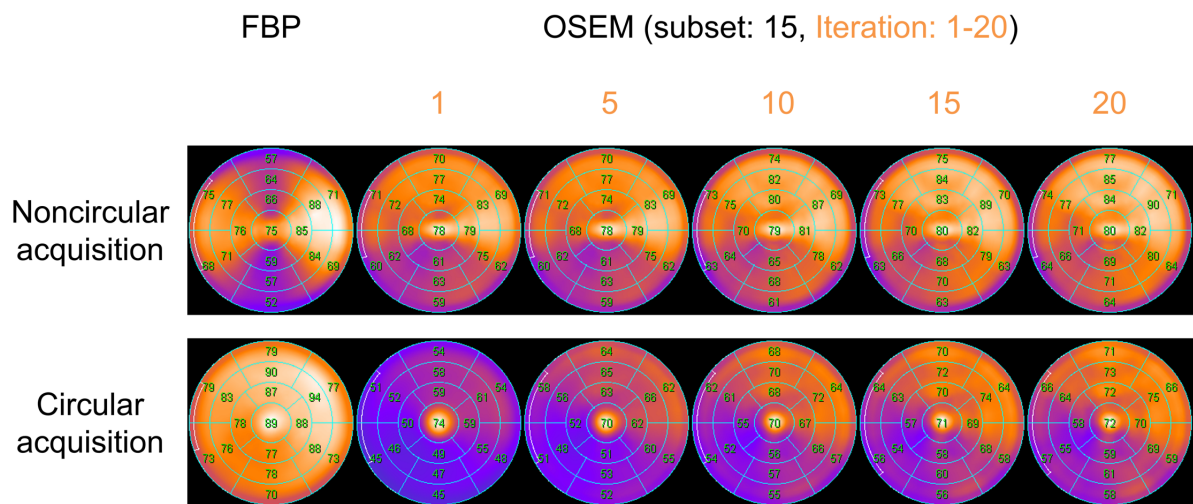


## Supplementary information

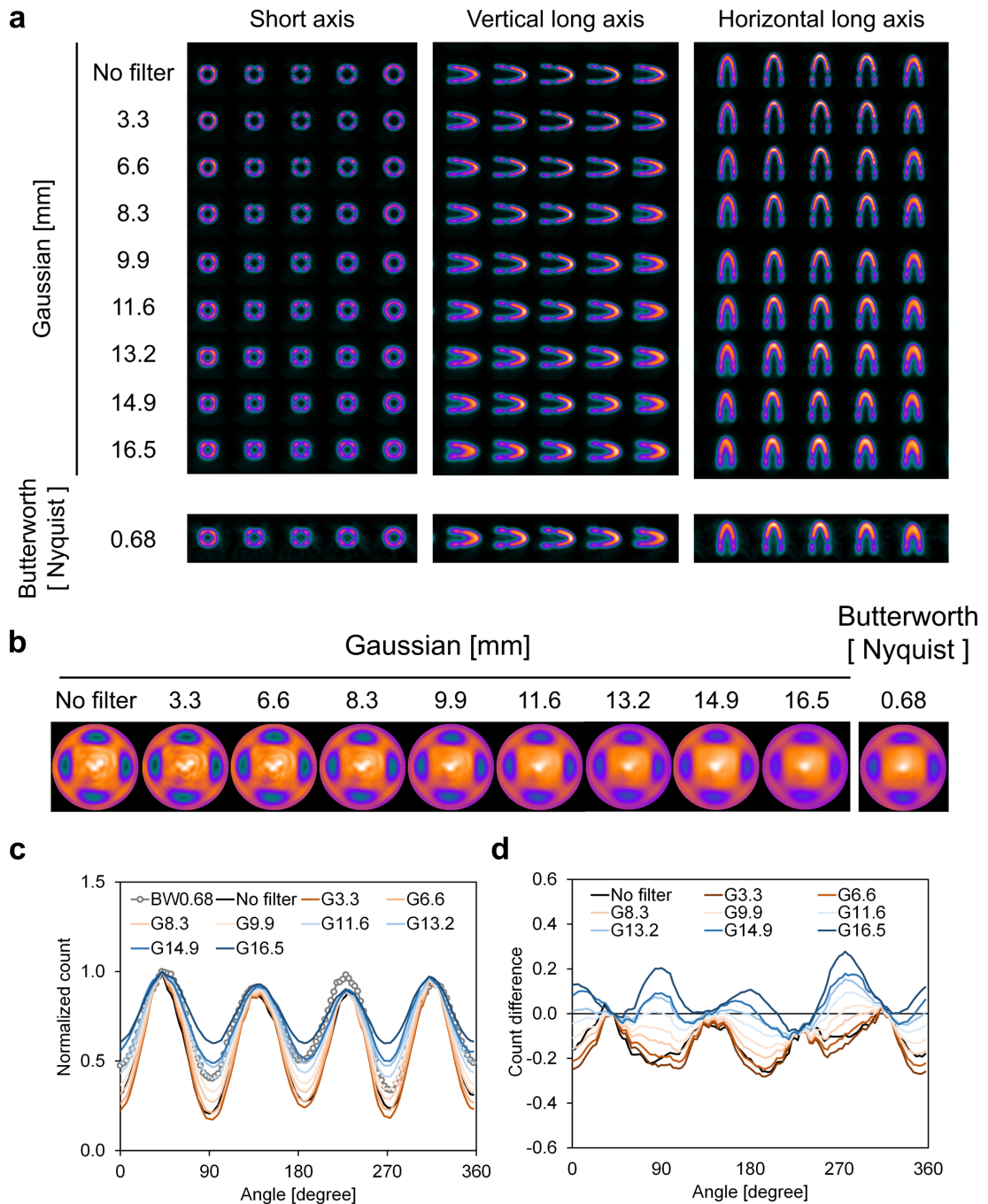
Impact of iterative reconstruction with resolution recovery in myocardial perfusion

SPECT: phantom and clinical studies

Koichi Okuda, Kenichi Nakajima, Hiroto Yoneyama, Takayuki Shibutani,  
Masahisa Onoguchi, Shinro Matsuo, Mitsumasa Hashimoto, Seigo Kinuya

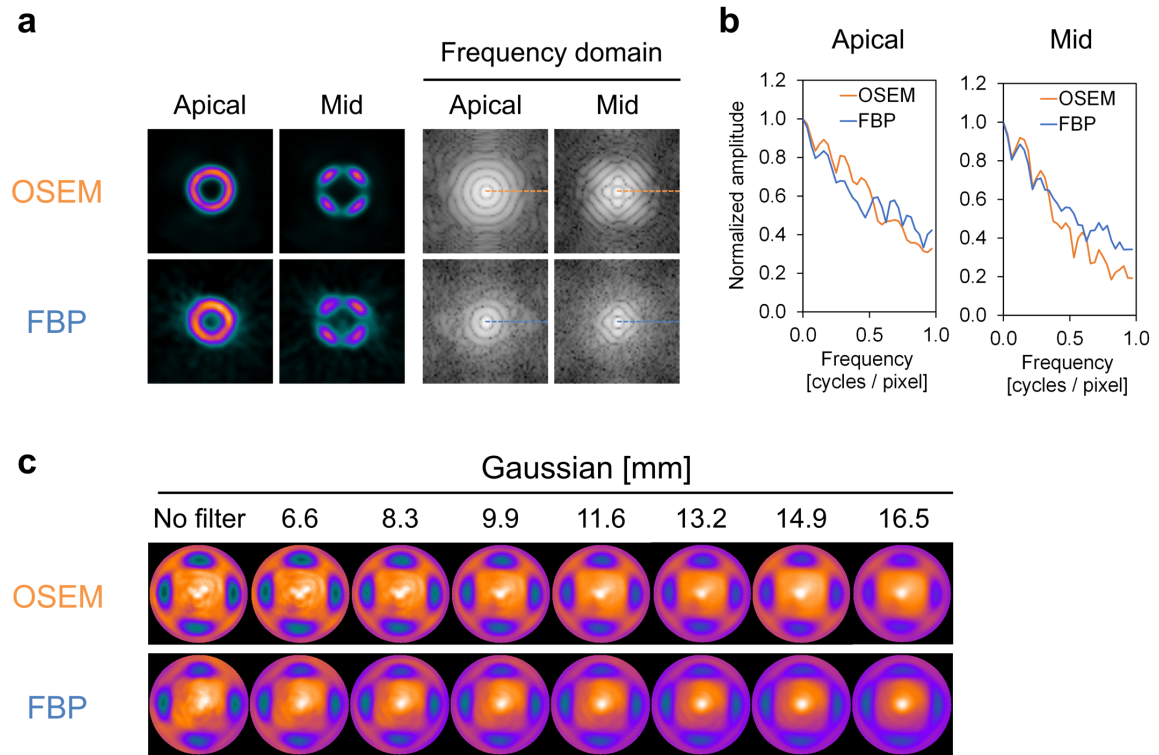


Supplementary Figure S1. The cone phantom images derived from noncircular acquisition and circular acquisition. Polar maps were generated with FBP and OSEM<sub>RR</sub> reconstructions and segmented into 17 regions.



Supplementary Figure S2. The compatibility assessment of Gaussian and Butterworth filters. (a) Short axis, vertical long axis, and horizontal long axis display of anthropomorphic torso phantom with defects. The OSEM<sub>RR</sub> with Gaussian filter and FBP with Butterworth filter were used, and the iterations and subsets were 10 and 15 in OSEM processing, respectively. The Gaussian filters with 3.3-, 6.6-, 8.3-, 9.9-, 11.6-,

13.2-, 14.9-, and 16.5-mm FWHMs were applied in the OSEM<sub>RR</sub> processing. Our clinical filtering condition was 0.68 Nyquist frequency of Butterworth filter. **(b)** Polar map display of anthropomorphic torso phantom with defects. **(c)** Normalized count distributions of the short axis images derived from FBP with Butterworth filter of 0.68 Nyquist frequency and OSEM<sub>RR</sub> with Gaussian filters of 3.3-, 6.6-, 8.3-, 9.9-, 11.6-, 13.2-, 14.9-, and 16.5-mm FWHMs. **(d)** Count distributions for OSEM<sub>RR</sub> with Gaussian filter subtracted from those for FBP with Butterworth filter. Mean count differences for OSEM<sub>RR</sub> with no filtering; Gaussian filters with 3.3- (G3.3); 6.6- (G6.6); 8.3- (G8.3); 9.9- (G9.9); 11.6- (G11.6); 13.2- (G13.2); 14.9- (G14.9); and 16.5-mm (G16.5) FWHMs were  $-0.12 \pm 0.074$ ,  $-0.15 \pm 0.082$ ,  $-0.13 \pm 0.072$ ,  $-0.093 \pm 0.060$ ,  $-0.063 \pm 0.052$ ,  $-0.026 \pm 0.051$ ,  $0.0060 \pm 0.057$ ,  $0.026 \pm 0.069$ , and  $0.072 \pm 0.084$ , respectively.



Supplementary Figure S3. Comparison of OSEM<sub>RR</sub> and FBP methods with Gaussian filter in the anthropomorphic torso phantom study. **(a)** Apical and mid short axis images and frequency domain images. Gaussian filter was not used in both FBP and OSEM<sub>RR</sub>. The iterations and subsets were 10 and 15 in OSEM processing, respectively. **(b)** Fast Fourier transform plots of the OSEM<sub>RR</sub> and FBP images in the apical and mid slices. **(c)** Polar map displays of OSEM<sub>RR</sub> and FBP with or without Gaussian filter of 6.6-, 8.3-, 9.9-, 11.6-, 13.2-, 14.9-, and 16.5-mm FWHMs. Gaussian filter was used as post-reconstruction filtering in both reconstructions.