

The potential pitfalls and image artifacts in integrated whole-body PET/MR imaging

Hye Jin Yoo¹, Sung Hwan Hong¹, Ja-Young Choi¹, Sung Eun Kang¹, and Hye Young Sun¹

¹Radiology, Seoul National University, Seoul, Seoul, Korea

Purpose

To describe some of the potential pitfalls and image artifacts in integrated whole-body PET/MR imaging how they can be avoided or appropriately interpreted.

Outline of Content

1. Introduction of integrated PET/MR imaging

- History of hybrid imaging
- Advantages of PET/MR
- MR based attenuation correction

2. Pitfalls in PET imaging

- Normal physiological distribution of FDG in the body
- Physiological variations in FDG distribution
- Non-malignant causes of FDG uptake that can be confused with a malignant neoplasm

3. Artifacts in MR imaging

4. Artifacts arising from MR based Attenuation Correction

- Truncation artifact
- Motion artifact
- Tissue misclassification
- Metal artifact

Summary

Knowledge of potential pitfalls and artifacts of whole-body PET/MR is essential before interpreting hybrid imaging to avoid misdiagnosis. With attention to detail and adequate training, these pitfalls and artifacts may be minimized allowing this promising hybrid imaging technique to realize its potential