This reprint focuses on the most recent advances in PET/CT imaging within the field of oncology. These innovations include studies on novel or experimental tracers, such as $^{18}$F-FES for the imaging of advanced breast cancer and $^{68}$Ga-Ga-Nitroimidazole for visualizing hypoxic tumour components; research on new radiopharmaceuticals represents, in fact, one the most important study fields of PET research. Advanced image analysis, such as radiomics, is also featured in this reprint; this method has been applied to both traditional nuclear medicine clinical issues, such as thyroid nodules, as well as in the setting of new therapeutic approaches, such as CAR-T cell therapy. Finally, the theranostic implications of PET radiotracers and the diagnostic processes of rare tumours are explored in this reprint.
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