This contribution presents clinical and technical aspects of combining positron emission tomography (PET) and computed tomography (CT) for patients with colorectal tumors and characterization of unclear liver foci. In which manner and for which patients combined PET/CT is superior to PET or CT alone is also discussed. PET/CT can fulfill most prerequisites for imaging in pre- and postoperative management of patients with colorectal tumors and best meets the desire for optimal imaging procedures. Some of the disadvantages encountered in frequently employed CT can be overcome by the combination of PET and CT while increasing both sensitivity in detecting lesions and specificity in their characterization. Questions regarding treatment response offer an opportunity for devising novel study concepts and initiating research on new PET tracers. Although few publications are available, we are of the opinion that the combination of functional and anatomical imaging provided by PET/CT can improve both preoperative management and aftercare. To this end, however, optimum cooperation between practitioners of nuclear medicine and radiology is imperative.