microscopic disease. Studies are needed to sort out these unknowns and to help determine which patients with clinically apparent oligometastases would benefit from locally directed therapy. Developing terminology that better describes a patient's clinical situation will be worthwhile in improving our understanding of metastatic cancer.

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"COMBINED ^{18}F-FDG-PET/CT IMAGING IN RADIOTHERAPY TARGET DELINEATION FOR HEAD-AND-NECK CANCER": IN REGARD TO GUIDO *ET AL.* (*INT J RADIAT ONCOL BIOL PHYS* 2009;73:759–763)

To the Editor: With interest, we read the article by Guido *et al*. (1) comparing ^{18}F-fluorodeoxyglucose (FDG)–positron emission tomography (PET)–based tumor delineation with computed tomography (CT)–based delineation in 38 head-and-neck cancer (HNC) patients. The article raises a number of issues that we would like to discuss.

The authors used FDG-PET/CT not only for target volume delineation but also for staging (1). They noted that FDG-PET/CT findings changed nodal stage in 6 of 38 cases, and they provided additional information on nodal status in another 9 cases without changing the stage. However, they do not mention what PET criteria were used to assess nodal disease. They strongly suggest that FDG-PET is superior in HNC staging compared with conventional methods, but this is a matter of debate as two key articles illustrate (2, 3). The first article, by a multidisciplinary expert panel, concludes that FDG-PET would likely improve nodal staging, although the quality of evidence was judged as moderate (2). The second article, a meta-analysis of the diagnostic performance of FDG-PET in HNC (32 studies, 1,236 patients), found no evidence to support routine use of FDG-PET in nodal status evaluation when compared with conventional diagnostic methods (3).

Guido *et al*. (1) state that FDG-PET leads to a more precise tumor delineation, but this has not been proven by either their own data or the studies to which they refer. These studies only show that FDG-PET results in different but not necessarily better target volumes. In fact, the most important reference, to the article by Daisne *et al*. (4), is missing. They are the only group who have analyzed tumor delineation performance on coregistered CT, magnetic resonance imaging, and FDG-PET in HNC by comparison to histopathologic specimens, and they found that all imaging modalities overestimated tumor extent.

Guido *et al*. (1) have not addressed the importance of segmentation methods and, when comparing their results with other studies, ignore that different methods have been used. In a study of 78 patients with HNC comparing five segmentation methods, we showed that shape and volume of the PET-based gross tumor volume were strongly dependent on the method used (5). Guido *et al*. use a fixed threshold of 50% of the maximum tumor signal. When trying to apply any fixed threshold on the laryngectomy specimens of Daisne and colleagues (6), thresholds ranging from 36% to 73% were necessary to fit to the histopathologically determined tumor volume!

We agree that FDG-PET has enormous potential in radiation oncology. We insist, however, that relevant published knowledge is incorporated and discussed in current studies.

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IN RESPONSE TO DR. SCHINAGL *ET AL.*

To the Editor: We thank Dr. Schinagl and coworkers for their letter and interest in our article published recently in the Journal (1). In our study staging was based on physical examination, contrast-enhanced computed tomography (CT), and magnetic resonance imaging (MRI); ^{18}F-fluorodeoxyglucose (FDG)–positron emission tomography (PET)/CT was not substituted but was added to these imaging techniques. Therefore our study design was in accordance with the recommendations for the use of FDG-PET suggested by Fletcher *et al*. (2). FDG-PET/CT images were helpful to discriminate equivocal lesions, and we strongly believe that the implementation of combined PET/CT imaging can reduce equivocal image interpretations and improve interobserver agreement. We neither suggested nor concluded that FDG-PET/CT is superior to conventional methods in head-and-neck cancer staging, but we believe that this technique represents a useful tool for better tumor target delineation. Notably, Daisne *et al*. (3), although their study was based on only 9 patients, concluded that FDG-PET was the most accurate modality for delineation of gross tumor volume.

We recognize the importance of segmentation methods, and we agree that all segmentation tools have inherent limitations; however, in accordance with Paulino and Koshy (4), we doubt that anyone still knows what the optimum method is for delineation of tumors by use of FDG-PET/CT. Nevertheless, it is our belief that gross tumor volume delineation should be the result not only of different imaging techniques but, most importantly, of a multidisciplinary approach, based on the close collaboration between nuclear medicine physicians, radiologists, otolaryngologists, and finally, radiation oncologists with expertise in head-and-neck cancers.

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