LETTER TO THE EDITOR
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Lesion Location in Clinical Significance of Incidental Colorectal FDG Uptake

To the Editor:

We agree with Roh et al.[1] that cancerous and pre-cancerous lesions may be harboured by the finding of incidental F-18-fluorodeoxyglucose (FDG) uptake on positron emission tomography (PET) scan. This study-and our own data[2]-advocates for urgent investigation of such findings, especially considering the treatment implications for patients undergoing therapy for other established malignancies (which was the principal indication for PET).

With regard to measurement of maximum standardised uptake values (SUVmax)-favoured to a greater extent in the accompanying editorial commentary[3]-we found in our study (and in our clinical work in general) that it was not adequately useful in assessing malignancy likelihood. We, too, found the degree of overlap in the range of values was often confounding. While utilising imaging clues to predict malignancy potential is very useful, SUVmax seemed not to be as helpful as we initially hoped.

In our experience, focal FDG uptake is much more concerning for significant pathology than segmental or diffuse FDG uptake, regardless of the SUVmax value. We also found that anatomical location (with lesions classified as simply as being in the "proximal" or "distal" colon) had a higher predictive value for malignancy. It is also important to note that other studies of this phenomenon have found that as many as 17%[4] to 32%[5] of foci of abnormal colonic FDG uptake represented aetiologies other than malignancy.

Indeed, recent publications suggest that some of this uptake may be related to bacterial labelling in the colonic lumen.[6] More work is required to elucidate the pathophysiology and possible causes of FDG uptake in the colon. Regardless, based on study of Roh et al.[1] and our own,[2] consideration should always be given to investigating focally increased colonic FDG uptake to exclude neoplasia. Additional clues in establishing the clinical significance are also potentially very helpful.

Conflicts of Interest

The authors have no financial conflicts of interest.

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Response:

To the Editor:

The exact interpretation of clinical meaning of benign colon uptake in ^{18}F-fluorodeoxyglucose positron emission tomography (FDG-PET) is not easy because the result can be influenced by diverse causes from even physiologic lesion to malignant lesion. In considering the clues to determine the clinical meaning of benign colon FDG uptake, we fully agree with Lee et al.'s opinion that maximum standardized uptake values (SUVmax) only was not adequately useful in assessing malignancy and focal FDG uptake was much more concerning for significant pathology than segmental or diffuse FDG uptake, regardless of the SUVmax value.

Although many studies have showed that mean maximal SUVmax was higher in malignant lesion than benign lesion or normal tissue,[1-5] increased mean SUVmax was usually observed in patients with cancer as well as other patients with polyps or even normal patients, with broad overlap between groups. Some studies ridiculously reported that there were no significant difference in SUVmax among the malignant, premalignant and normal lesion.[6-10] Therefore, SUVmax alone seemed to be not adequately useful in assessing malignancy as Lee et al.'s opinion.

The role of anatomical location or size in determining meaning of colonic FDG uptake is controversial. Lee et al.[11] reported that the positive predictive value for malignant or premalignant pathology was higher in the proximal colon than in the distal colon. However, Peng et al.[1] reported that FDG uptake in the right colon showed a higher false positive rate, than in the distal colon and rectum (66.2% vs. 36.7%, p=0.004) and FDG uptake in the right colon was a negative predictive factor for finding cancer or polyps. Further studies with large number of patients are necessary to clarify the conflicting results of these two studies.

The size of the FDG uptake lesion was another considering factor. Peng et al.[1] reported the size between cancer group and polyps group was significantly different (4.3 cm vs. 1.4 cm, p=0.009) and tumor size was not related to the SUVmax value. However, there was no significant correlation between the size of lesions and pathology in our study.[12]

The uptake pattern, focal versus diffuse or segmental, is the most considering factor in determining the nature of the lesion with FDG uptake. We recently showed that positive predictive value of benign focal colon FDG uptake was higher than them of diffuse one.[12] This result is in line with that of Lee et al.

Taken together, the patients showing benign colonic FDG uptake should be further evaluated by colonoscopy, especially in the cases with focal uptake pattern. The value of SUVmax should be cautiously considered because of broad overlap in different lesions. The role of location and size of the lesion should necessitate further evaluation in large cohort.

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The authors have no financial conflicts of interest.

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