Letter to the Editor

Discordant and aggressive tumor biology of solitary scalp metastasis amidst widespread skeletal metastases in differentiated thyroid carcinoma: Functional radionuclide and MR imaging features and clinical correlates

Sir,

The functional radionuclide imaging features and clinical correlates of metastatic lesions in a 66-year-old female diagnosed patient of differentiated thyroid carcinoma (DTC) with aggressively behaving scalp lesion (amongst extensive skeletal metastatic lesions) is illustrated in this communication. Four months following the second dose of radioiodine therapy [the post-treatment scan depicted in Figure 1], she presented to the clinic with complaints of progressively increasing solitary scalp swelling [Figure 2]. The whole body fluorodeoxyglucose positron emission tomography FDG-PET [Figure 3], in contrast to the radioiodine scan, demonstrated solitary focus of abnormal uptake corresponding to the scalp lesion with none of the other skeletal metastatic disease showed any FDG uptake. This was consistent with the fact, that the patient had only complaints with respect to the progressively increasing scalp metastasis with no

Figure 1: Post-treatment radioiodine scan undertaken just before discharging the patient from the ward following the second dose of I-131, demonstrating extensive skeletal metastases concentrating radioiodine avidly. Incidentally, noted is relatively low uptake in the scalp lesion
other obvious clinical complaints with respect to the other metastatic lesions, which matched with the FDG-PET imaging features. The present case highlights different imaging characteristics of different metastatic lesions and the clinical behavior in the same patient. She is presently under follow-up and had undergone treatment with 250 mCi I-131 one more time subsequently to treat the other iodine avid metastatic lesions.

The flip-flop between radioiodine scan and FDG-PET has been a recognized fact in the parlance of DTC and nuclear medicine imaging procedures are being utilized to explore the various aspects of thyroid cancer including tumor biology and heterogeneity of tumor characteristics. The interesting aspect of this case is the visual demonstration of both well-differentiated asymptomatic metastases and a focus of aggressive poorly differentiated tumor in the same patient. While, this process is most likely present to some extent in practice in a number of patients whose tumors eventually transform into poorly differentiated lesions, the peer reviewed literature at present, primarily describes studies that addresses FDG-PET positive versus 131I positive tumors and tend to describe patients as falling into either of these two imaging categories. There is relatively little information on patients who concurrently manifest both 131I and PET positive lesions. Thus, such presentations and clinical discourse would be more scientifically useful to develop this concept which would hopefully impact the management approach in this group of patients in the future. The finding illustrated would thus call more attention to the fact that clinicians should be aware that varying tumor biology amongst the metastatic lesions can be encountered in the same patient of DTC and neither imaging modality is completely accurate, and that concerning symptoms in an individual patient would warrant further evaluation. The aggressive nature of FDG positive lesions and the associated relatively poor survival with PET positive disease is well recognized in practice. Additionally, the case demonstrates an example of cutaneous metastases from DTC, a relatively uncommon site of disease spread in the setting of well-differentiated thyroid cancer, of which the scalp being the most commonly reported site of skin involvement.

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References