Interesting image

Appearance of intracranial meningioma in FDG and $^{68}$Ga-DOTATOC PET/CT

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A R T I C L E   I N F O

Article history:
Received 14 January 2012
Accepted 11 February 2012
Available online 7 November 2012

A 29-year-old male presented with an asymptomatic left frontal swelling identified by a hairdresser. Plain skull X-ray revealed radiolucent lesion in the left posterior frontal region of cranium. Cranial CT demonstrated expansive lytic lesion in the left frontal bone of calvarium.

Patient was referred to FDG PET/CT scan for metabolic characterization of this lesion and also demonstrate possible other lesions. On FDG-PET scan, the lesion did not accumulate FDG which is consistent with a diagnosis of benign lesion. Afterward, $^{68}$Ga-DOTATOC PET/CT scan was performed to examine somatostatin receptor expression of this lesion. $^{68}$Ga-PET/CT showed intense uptake of somatostatin receptor activity. MRI characteristics of the lesion confirmed the diagnosis of meningioma (Figs. 1 and 2).

Meningioma cells strongly express somatostatin receptor subtype 2 (SSTR 2) and demonstrated a high tracer uptake.$^1$ $^{68}$Ga-DOTATOC did not accumulate in the surrounding brain tissue because of the intact blood–brain barrier. Because DOTATOC PET/CT shows a high meningioma to background uptake ratio which provide identification of even small meningiomas.$^2$ FDG uptake of a meningioma was significantly correlated with the proliferative activity of the meningioma; however, the diagnostic performance of FDG PET for detecting high grade meningiomas was limited because of its high physiological uptake of FDG by normal brain gray matter.$^3$ Because biopsy has a high risk of hemorrhage, alternative methods like $^{68}$Ga-DOTATOC PET/CT gives valuable information in addition to

Fig. 1. FDG PET/CT images confirmed hypometabolic lytic expansive lesion in the left frontal region of calvarium (A). $^{68}$Ga-DOTATOC PET/CT showed intense radiotracer uptake in the left frontal region (B).

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conventional imaging methods for characterization of intracranial tumors.

References

