

Fluorodeoxyglucose PET/CT and Tc99m-Sestamibi scan, dual tracer imaging in evaluation of osteonecrosis of jaw

Sir,

We read with great interest the case 'Osteonecrosis of jaw associated with bisphosphonate use' reported by Rastogi *et al.*, in May-June 2012 issue.^[1] We congratulate the authors for demonstrating the importance of keeping this diagnosis in mind while evaluating jaw pain.

As the authors point out, Osteonecrosis of jaw (ONJ) is a much more common event in those patients receiving

bisphosphonates for the treatment and prevention of cancer-related skeletal events (mainly intravenously), rather than in those patients receiving bisphosphonates (mainly orally) for nonmalignancy indications.^[1] We would like to draw the readers' attention to a nuclear medicine approach that can be useful to evaluate jaw pain and differentiate ONJ from neoplastic conditions affecting the jaw in patients known to have cancer. Histology is in some cases mandatory to differentiate ONJ from neoplastic osteolysis, but a biopsy can further contribute to bone damage. Hence the noninvasive imaging approach is worth describing.

Nuclear medicine functional imaging obtained by a tracer that shows oncotropic properties, such as Tc99m-sestamibi, in comparison to a nontumor-specific tracer such as fluorodeoxyglucose (FDG), can support the differential diagnosis, thus avoiding invasive procedures in diagnosis of ONJ.^[2,3]

FDG is an exquisitely sensitive agent for tumor imaging with high negative predictive value; however, it is also known to be nonspecific and can sometimes show uptake in nonmalignant, infective/inflammatory pathology.^[4] While Tc99m-sestamibi is considered to be a tumor-specific agent. The dual tracer approach is based on the criteria that malignant pathology causing jaw pain will be FDG as well as Tc99m-sestamibi avid. Alternatively, nonmalignant causes like ONJ, will be FDG avid but will be cold on Tc99m-sestamibi scan.

This criteria has been primarily studied in differentiating ONJ from myeloma involving mandible.^[2,5] Dual tracer imaging is an interesting approach to diagnose/exclude diagnosis of ONJ avoiding the risks of a surgical biopsy.

**Prathamesh Joshi, Mukta Kulkarni¹,
Hrishikesh Joshi²**

Department of Nuclear Medicine and PET-CT, Jaslok Hospital and Research Centre, Mumbai, ¹Department of Nuclear Medicine and Molecular Imaging, Tata Memorial Hospital, Mumbai, ²Department of Pediatric and Preventive Dentistry, P.M.N.M. Dental College and Hospital, Bagalkot, India

Corresponding Author: Dr. Prathamesh Joshi,
Department of Nuclear Medicine and PET-CT, Jaslok Hospital and Research Centre, Worli, Mumbai-400 026, India.
E-mail: drprathamj@gmail.com

REFERENCES

1. Rastogi A, Rattan V, Bhadada SK. Osteonecrosis of jaw associated with bisphosphonate use. *Indian J Endocrinol Metab* 2012;16:450-2.
2. Catalano L, Del Vecchio S, Petruzzello F, Fonti R, Salvatore B, Martorelli C, *et al.* Sestamibi and FDG-PET scans to support diagnosis of jaw osteonecrosis. *Ann Hematol* 2007;86:415-23.

3. Morag Y, Morag-Hezroni M, Jamadar DA, Ward B, Jacobson J, Zwetchkenbaum S, *et al.* Bisphosphonate-related osteonecrosis of the jaw: A pictorial review. *Radio Graphics* 2009;29:1971-84.
4. Kostakoglu L, Agress H, Goldsmith SJ. Clinical role of FDG PET in evalutaion of cancer patients. *Radio Graphics* 2003;23:315-40.
5. Rangarajan V, Purandare N, Sharma A. Evidence Based Management of Cancers in India. Vol. 8. India: Tata Memorial Hospital; 2009. p. 34-5.

Access this article online	
Quick Response Code:	Website: www.ijem.in
	DOI: 10.4103/2230-8210.103051