

Isolated Mandibular Metastasis Detected on Staging ¹⁸F DG PET/CT Scan in a Case of Carcinoma Urinary Bladder

Abstract

Isolated mandibular metastasis is very rare from carcinoma urinary bladder with no locoregional lymph node involvement. Here, we present a case where staging fluorodeoxyglucose - positron emission tomography - computed tomography (FDG PET-CT) scan showed an FDG avid primary lesion in carcinoma urinary bladder with FDG avid erosion in the right mandibular condyle. However, since no pelvic lymph nodes were involved, the mandibular lesion was kept on follow-up and cystoprostatectomy was performed. Follow-up FDG PET-CT scan after 6 months revealed an osteolytic destructive lesion in the mandible with associated soft tissue component and the biopsy confirmed this as metastatic lesion.

Keywords: Carcinoma urinary bladder, FDG PET/CT scan, mandibular metastasis

A 54-year-old male patient presented with a history of hematuria for 6 months. Contrast enhanced computed tomography (CECT) scan showed a lesion in the anterior wall of the urinary bladder and subsequent Transurethral resection of bladder tumour (TURBT) and histopathological report of the lesion confirmed high-grade invasive urothelial carcinoma with muscle invasion. The patient was referred for staging whole-body PET-CT scan. MIP [Figure 1a] image showed FDG uptake in the urinary bladder and axial PET, CT, and fused PET-CT images [Figure 1h-j] confirmed an FDG avid lesion in the anterior wall of the urinary bladder corresponding to the known primary site. Another FDG uptake was noted in the right mandible and corresponding axial and coronal PET, CT, and fused PET-CT images [Figure 1b-g] revealed FDG avid erosion of condylar process of the right mandible. However, since no FDG avid locoregional lesion was seen, thus the chances of isolated metastasis to mandible were rare and the patient was planned for cystoprostatectomy. After 6 months, the patient presented with pain and swelling in the right side of the face. MIP image of the whole-body PET-CT scan for restaging revealed FDG avid lesion in the right side of the face and lumbar

vertebrae [Figure 2a] and corresponding axial and coronal [Figure 2b-g] PET, CT and fused PET-CT images were suggestive of a large FDG avid osteolytic destructive lesion with associated soft tissue component involving ramus, condyle and coronoid process of the right mandible. Another FDG avid lesion was also noted in L2 vertebra [Figure 2h-j]. Subsequent biopsy from the mandible lesion confirmed metastatic carcinoma.

This case is particularly interesting because it not only involves an uncommon secondary site but being the only site of metastasis without even locoregional lymph nodes involvement. Metastasis to the oral cavity rarely occurs and constitutes 1% of all oral cavity malignancies^[1] and has mostly been found in the jaws compared to the soft tissues.^[2] The majority of jaw metastasis appears to occur in the mandible with most jaw metastatic disease associated with additional distant metastases (both to bone and soft tissue).^[3] Metastasis to the jawbones mainly occurs in the posterior region of the mandible, the ramus and the condyle, which are rich in red bone marrow. In a recent review of 453 cases of metastasis to the jaw bone, the lung was the most common primary site in men and breast in women.^[4] The differential diagnosis for mandibular metastatic carcinoma includes temporomandibular joint disorders, ameloblastoma, primary intraosseous

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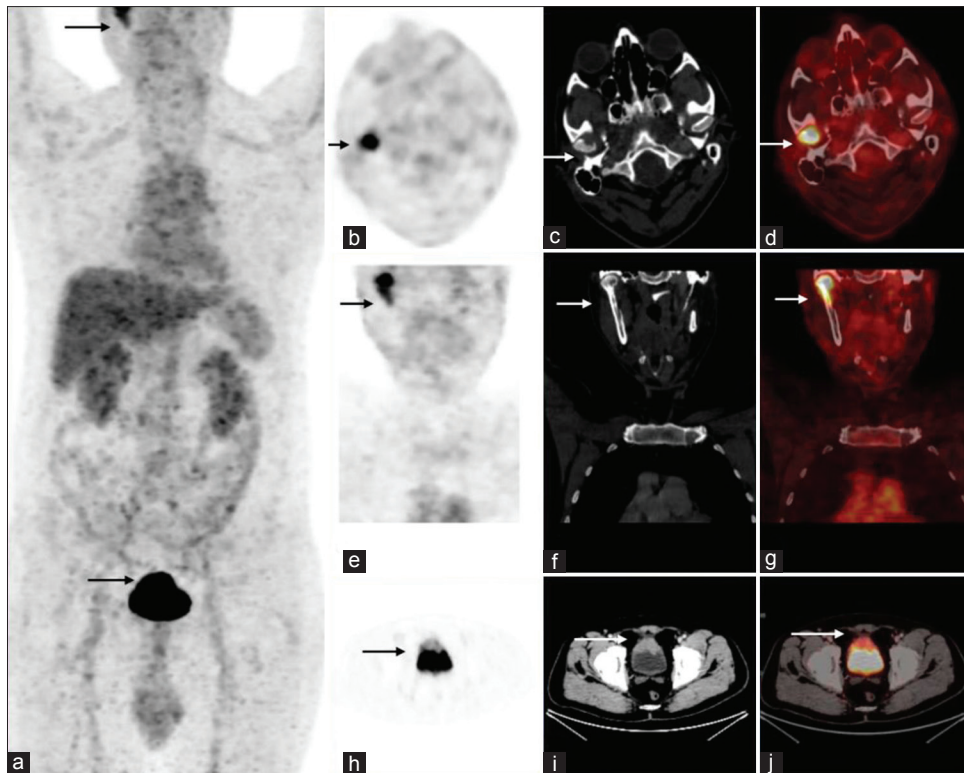


Figure 1: MIP (a) image of staging whole-body PET-CT scan, showing primary FDG avid lesions. Axial (h-j) PET, CT, and fused PET images showing FDG avid lesions involving anterior wall of urinary bladder. Apart from primary lesion, FDG avid erosion of condylar process of the right mandible was seen in axial and coronal (b-g) PET, CT, and fused images

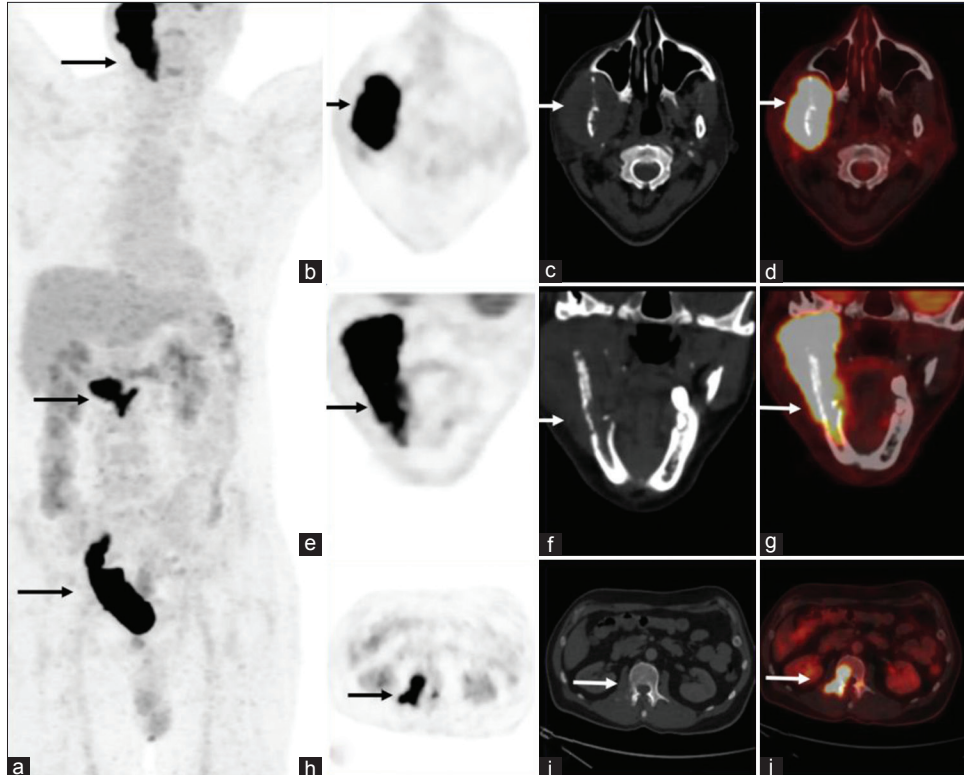


Figure 2: MIP (a) image of postoperative carcinoma urinary bladder patient showing FDG avid lesion in the right mandibular region, lumbar vertebrae, and ileal conduit. Axial and coronal (b-g) PET, CT, and fused PET-CT images showing FDG avid osteolytic destructive lesion involving ramus and condyle of the right mandible and FDG avid osteolytic lesion in L2 vertebra in axial (h-j) PET, CT, and fused PET-CT images

squamous carcinoma and osteosarcoma. The most common reported sites of metastasis for urinary bladder carcinoma are liver (47%), lung (45%), or bone (32%).^[5] Few case reports have been published previously describing mandibular metastasis from carcinoma urinary bladder^[6,7] and from other cancers including lung cancer,^[8,9] breast cancer,^[10] and pancreas,^[11] and a study has been published describing six patients with mandibular metastasis with primary in prostate in 2, lung in 2, breast in 1, and thyroid in 1.^[12] Oral metastasis means poor prognosis in patients and signs of advanced disease. Our case highlights the importance of FDG avid lesions seen on the whole-body PET-CT scan and there can be metastatic lesion in jaw without involvement of locoregional lymph nodes. Thus, mandibular lesions should be further evaluated for correct staging and management should be changed accordingly.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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