

Interesting Image

Isolated aplasia of submandibular salivary gland and contralateral prominence of submandibular and sublingual salivary glands incidentally found on ^{68}Ga -prostate-specific membrane antigen positron emission tomography–computed tomography

ABSTRACT

Prostate-specific membrane antigen (PSMA)-targeted imaging is now an effective tool for the evaluation of prostate cancer patients. Although salivary glands take up ^{68}Ga -PSMA avidly, pathologies of these glands may be readily noticeable. Herein, we present a case of prostate cancer referred for ^{68}Ga -PSMA positron emission tomography–computed tomography in whom an isolated aplasia of the submandibular salivary gland was incidentally found.

Keywords: ^{68}Ga -prostate-specific membrane antigen positron emission tomography–computed tomography, isolated aplasia, submandibular salivary gland

INTRODUCTION

We present a case of prostate cancer referred for ^{68}Ga -prostate-specific membrane antigen (PSMA) positron emission tomography–computed tomography (PET-CT) in whom an isolated aplasia of the submandibular salivary gland was incidentally found.

CASE SUMMARY

A 68-year-old patient with prior adenocarcinoma of the prostate and then radical prostatectomy was referred for metastatic evaluation following a rise in the serum prostate-specific antigen level. After obtaining informed consent, the patient underwent a ^{68}Ga -PSMA PET-CT scan 60 min after intravenous administration of 208 MBq of ^{68}Ga -PSMA from the vertex to the upper thigh [Figure 1a], on which, in addition to residual or recurrent disease in the surgical bed of prostatectomy, the submandibular salivary gland was absent on the right side, and in contrast, the

contralateral one seemed prominent. The sublingual glands were also asymmetric [Figure 1b-d]. PSMA has become a

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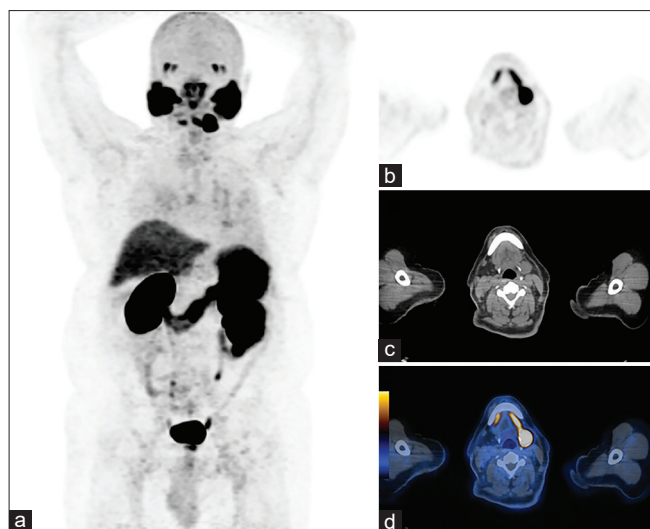


Figure 1: Anterior maximum intensity projection image (a) of ^{68}Ga -prostate-specific membrane antigen positron emission tomography-computed tomography shows absent submandibular salivary gland on the right side as well as prominence of the contralateral one. The absent gland is better depicted on ^{68}Ga -prostate-specific membrane antigen positron emission tomography (b), computed tomography (c), and fused positron emission tomography-computed tomography image (d)

favorable molecular target for imaging of the prostate cancer tissues, and to date, PSMA-based PET scanning has been successfully incorporated into the clinical practice. Despite its distinct advantages in the diagnosis and therapy of malignant prostate tissues, the use of such target for imaging has been challenged, to some extent, as a result of a diverse range of false-positive and incidental prostate-unrelated findings.^[1-3] Salivary glands normally demonstrate intense uptake on ^{68}Ga -PSMA PET-CT. Either decrease or absence of uptake, particularly when unilateral, may be a clinically significant finding and deserves attention. Congenital absence of salivary glands is rare and mostly multiple glands are involved. Unilateral “isolated” aplasia of submandibular salivary gland is an exceptionally rare finding. It may be associated with other anomalies such as hemifacial microsomia and mandibulofacial dysostosis.^[4-7] The biologic mechanism is not clearly known, but may result from defect in fibroblast growth factor signaling pathways that prevents development of salivary gland tissue during embryogenesis.^[8,9] On the other hand, the contralateral submandibular salivary gland, as in our patient, or sometimes ipsilateral or contralateral sublingual salivary glands may show more prominence, possibly as a compensatory hypertrophy against xerostomia.^[5,6] This issue, in turn, poses interpretive challenges because of pathology of the gland itself or obscuring adjacent (e.g., mandibular) PSMA-avid lesions.^[10]

CONCLUSION

^{68}Ga -PSMA PET-CT imaging as a promising modality for

the evaluation of patients with prostate cancer is being incorporated into clinical practice. Familiarity with pitfalls, limitations, and also varieties of incidental findings may be of importance for clinicians.

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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