Interesting Image

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^{68}Ga-PSMA-Avid Sinonasal Intestinal-Type Adenocarcinoma

^{68}Ga-PSMA-Tutulumu Gösteren Bağırsak Tipi Sinonazal Adenokarsinomu

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Abstract

A rare tumor, intestinal-type adenocarcinoma (ITAC), accounts for 8%-25% of all sinonasal malignancies. The tumor's histological resemblance to gastrointestinal tract adenocarcinoma is implied by its name. ITAC develops in the ethmoid sinus and upper nasal cavity. Herein, we present sinonasal ITAC with increased prostate-specific membrane antigen expression and ^{18}F-fluorodeoxyglucose uptake.

Keywords: ^{68}Ga-PSMA, sinonasal intestinal-type adenocarcinoma, ^{18}F-fluorodeoxyglucose

Öz

Nadir bir tümör olan bağırsak tipi adenokarsinomu (ITAC), tüm sinonazal malignitelerin %8 ila 25'ini oluşturur. Tümörün histolojik olarak gastrointestinal sistem adenokarsinomlarına benzerliği, adından da anlaşılmaktadır. ITAC, etmoid sinüste ve üst burun boşluğunda gelişir. Bu olgu sunumu ile artmış prostat spesifik membran antijeni ekspresyonu ve artmış ^{18}F-florodeoksiglikoz tutulumunu gösteren sinonazal ITAC kitlesini bildiriyoruz.

Anahtar kelimeler: ^{68}Ga-PSMA, sinonazal bağırsak tipi adenokarsinom, ^{18}F-florodeoksiglikoz

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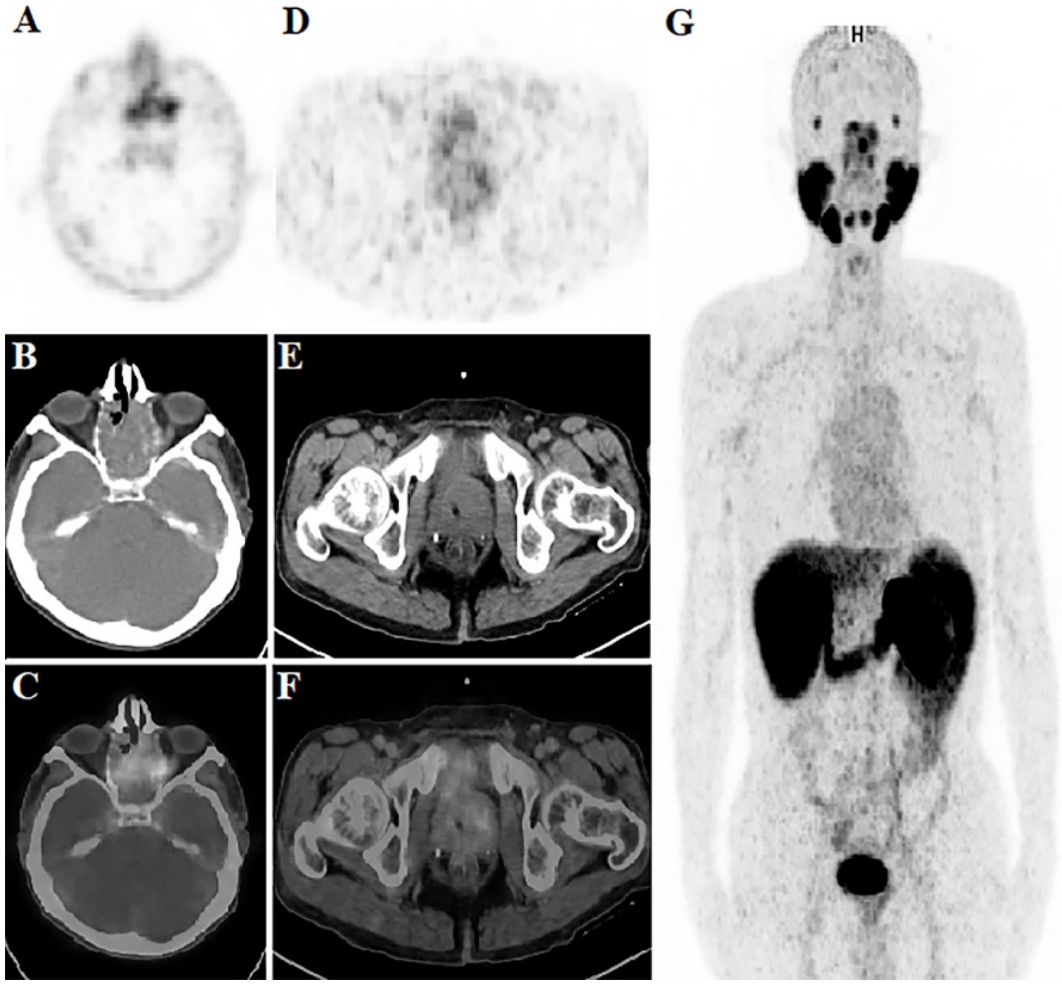

Figure 1. A systematic biopsy was conducted on the prostate gland of a 64-year-old man who previously underwent right radical nephrectomy for renal cell cancer due to the presence of high PSA (9.67 ng/mL). Biopsy revealed an International Society of Urological Pathology grade 3 prostate cancer with a Gleason score of 3+4. ^{68}Ga-prostate-specific membrane antigen (^{68}Ga-PSMA) positron emission tomography/computerized tomography (PET/CT) scan was conducted to assess the extent of metastatic disease. ^{68}Ga-PSMA-avid sinonasal mass and heterogeneous ^{68}Ga-PSMA uptake in the prostate gland were observed on the ^{68}Ga-PSMA PET maximum intensity projection image (A). Axial ^{68}Ga-PSMA PET (B), computed tomography (C), and fused ^{68}Ga-PSMA PET/CT (D) images showing ^{68}Ga-PSMA–avid mass involving the left maxillary sinus, left half of the nasal cavity, and both posterior ethmoid sinuses (SUV_{max}, 12.33). Axial ^{68}Ga PSMA PET (E), CT (F), and fused ^{68}Ga-PSMA PET/CT (G) images showed heterogeneous slightly increased uptake of ^{68}Ga-PSMA in the large prostate glands (SUV_{max}, 7.33). The histomorphology of the biopsy from the sinonasal mass revealed stratified papillary structures consisting of atypical cells. It was observed that these cells were immunohistochemically stained with CK7, CK20, SATB-2, and Ki-67 (high), but not with PSA and NKX3.1, and these findings were evaluated as compatible with sinonasal intestinal-type adenocarcinoma (ITAC).

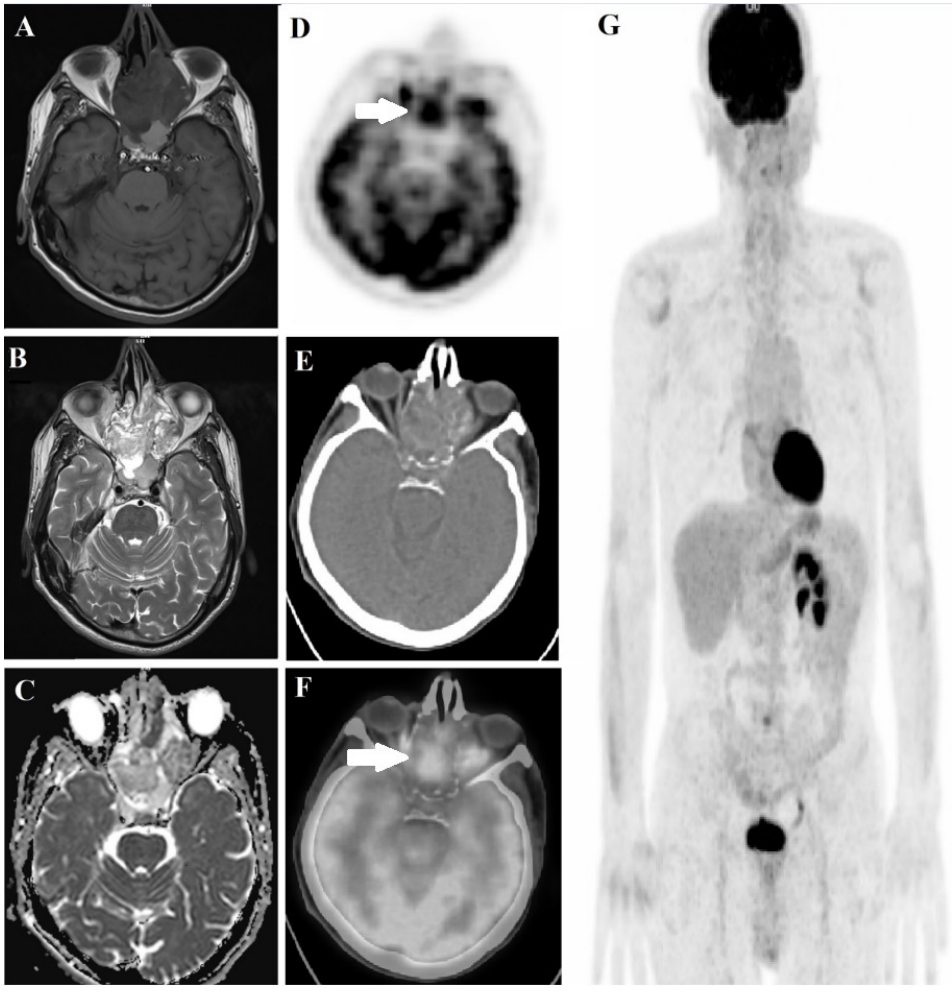

Figure 2. To rule out the risk of metastasis from other adenocarcinomas, ^{18}F- fluorodeoxyglucose (FDG) PET/CT was performed. Only the sinonasal mass was found to have ^{18}F- FDG avidity. Axial ^{18}F-FDG) PET (E), CT (F), and fused ^{18}F-FDG) PET/CT (G) images showing marked hypermetabolism (SUV_{max}, 12.18) in the primary tumor. There was no lymph node involvement in the cervical region, evidence of another primary adenocarcinoma, or distant metastasis. In addition, the right kidney was not observed after the operation. Magnetic resonance imaging shows lesions with low signal on T1-weighted images (A), high signal on T2-weighted images (B), and diffusion-weighted images (C). The upper nasal cavity and ethmoid sinus are the primary origin sites of ITACs (1-3). The most common symptoms include unilateral, nonspecific unilateral nasal blockage, epistaxis, and rhinorrhea (4). Colonic ITAC is the most common subtype, with papillary, mucinous, solid, and mixed types (5). It is difficult to distinguish between primary ITAC and nasal cavity metastases of adenocarcinomas due to the similarity of microscopic characteristics and immunohistochemistry (6,7). Therefore, diagnosing primary ITAC in the sinonasal region is only possible after excluding all other adenocarcinomas. This case hints at the value of ^{18}F-FDG PET/CT in the diagnosis of primary ITAC in the nasal cavity and demonstrates the ^{68}Ga-PSMA avidity of ITAC. In general, for non-prostatic solid tumors associated with neovascularity, endothelial PSMA expression has been shown (8). Therefore, PSMA expression in non-prostatic solid tumors on PET imaging requires readers to consider the histology, imaging, and clinical details of tumor neovascularization. Although demonstrating PSMA expression in non-prostatic diseases is disadvantageous, PSMA has paved the way for PET imaging to be applied as an additional theranostic tool for this malignancy (9).

Footnote

Informed Consent: Patient consent was obtained.

Authorship Contributions

Surgical and Medical Practices: H.Ö., H.Öz., M.F.G., O.Ö.E., Concept: H.Ö., H.Öz., M.F.G., O.Ö.E., Design: H.Ö., H.Öz., M.F.G., O.Ö.E., Data Collection or Processing: H.Ö., H.Öz., M.F.G., O.Ö.E., Analysis or Interpretation: H.Ö., H.Öz., M.F.G., O.Ö.E., Literature Search: H.Ö., H.Öz., M.F.G., O.Ö.E., Writing: H.Ö., H.Öz., M.F.G., O.Ö.E.,

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