



# <sup>18</sup>F-FDG and <sup>68</sup>Ga-FAPI-04 PET/CT Findings of a Rare Epithelial-myoeptihelial Carcinoma Arising From Ex Pleomorphic Adenoma of Parotid

Parotidin Eski Pleomorfik Adenomundan Kaynaklanan Nadir Bir Epitelyal-miyoeptilyal Karsinomun <sup>18</sup>F-FDG ve <sup>68</sup>Ga-FAPI-04 PET/CT Bulguları

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## Abstract

Epithelial-myoeptihelial carcinoma (EMC) is a rare low-grade salivary gland neoplasm. Distant metastasis is rare, and <sup>18</sup>F-fluorodeoxyglucose positron emission tomography/computed tomography (<sup>18</sup>F-FDG PET/CT) has been used to determine the metastatic disease in EMC. <sup>68</sup>Ga-fibroblast activation protein inhibitors (FAPI) PET/CT is a promising imaging modality for diagnostic and theognostic purposes in various malignancies. Comparison studies with <sup>18</sup>F-FDG have investigated the role of <sup>68</sup>Ga-FAPI PET/CT. Herein, we present <sup>18</sup>F-FDG and <sup>68</sup>Ga-FAPI-04 PET/CT findings of a 51-year-old woman with metastatic EMC arising from ex-pleomorphic adenoma of the parotid.

**Keywords:** <sup>68</sup>Ga-FAPI, <sup>18</sup>F-FDG, PET/CT, epithelial myoeptihelial carcinoma

## Öz

Epitelyal-miyoeptilyal karsinom (EMK), nadir görülen düşük gradlı tükürük bezi neoplazmidir. Uzak metastazlar nadir görülmekte olup EMK'de metastatik hastalığı tespit etmek için <sup>18</sup>F-florodeoksiglukoz pozitron emisyon tomografisi/bilgisayarlı tomografi (<sup>18</sup>F-FDG PET/BT) kullanılmaktadır. <sup>68</sup>Ga-fibroblast aktivasyon proteini inhibitörleri (FAPI) PET/BT, çeşitli malignitelerde tanıda ve teranostik amaçla kullanılan umut verici bir görüntüleme yöntemidir. <sup>18</sup>F-FDG PET/BT ile karşılaştırmalı yapılan çalışmalar <sup>68</sup>Ga-FAPI PET/BT'nin rolünü araştırmaktadır. Bu olguda parotisin eks pleomorfik adenomundan kaynaklanan metastatik EMK tanılı 51 yaşında kadın hastanın <sup>18</sup>F-FDG ve <sup>68</sup>Ga-FAPI-04 PET/BT bulgularını sunuyoruz.

**Anahtar kelimeler:** <sup>68</sup>Ga-FAPI, <sup>18</sup>F-FDG, PET/BT, epitelyal miyoeptilyal karsinom

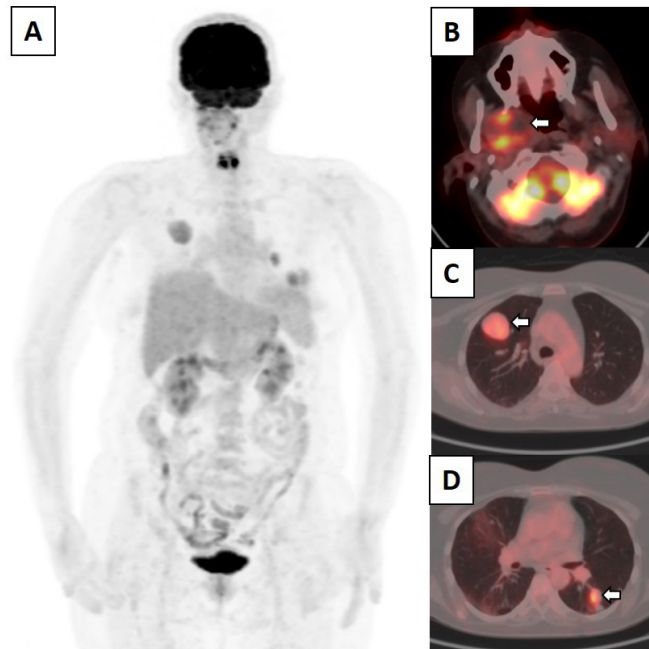
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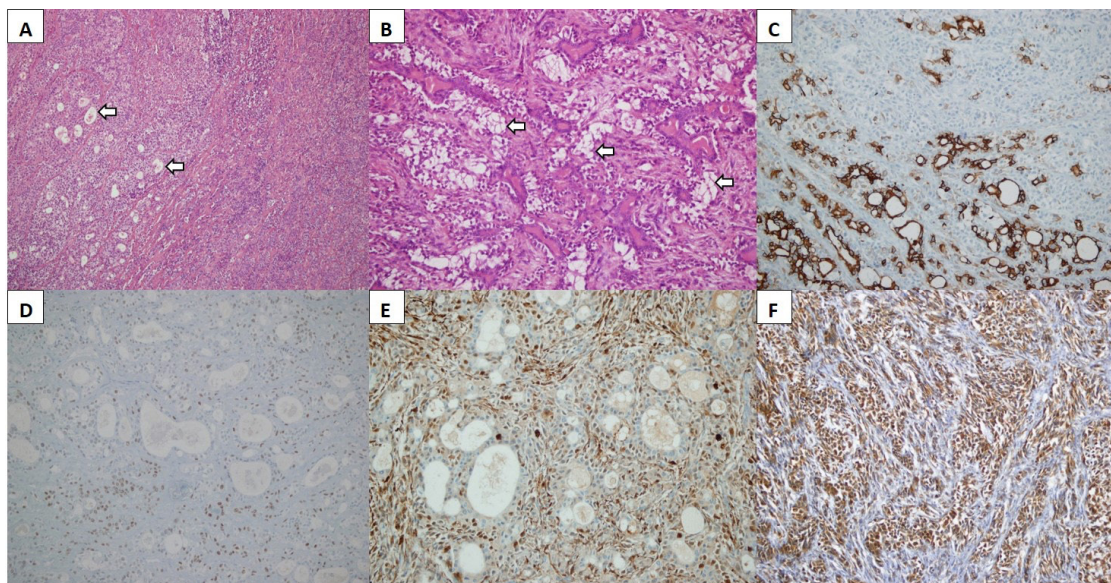
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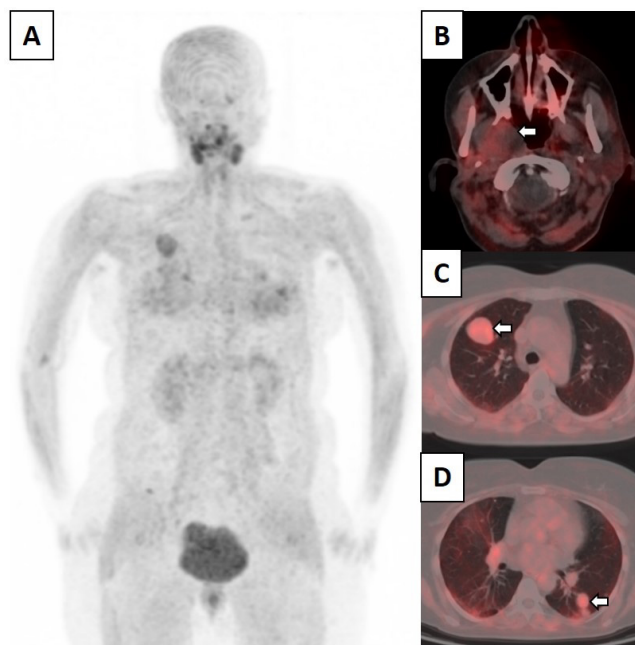
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**Figure 1.** A 51-year-old woman with a history of parotidectomy due to pleomorphic adenoma five years ago was referred for  $^{18}\text{F}$ -fluorodeoxyglucose positron emission tomography/computed tomography ( $^{18}\text{F}$ -FDG PET/CT) due to suspicious lung nodules. Maximum intensity projection (A: MIP) and transaxial fused  $^{18}\text{F}$ -FDG PET/CT images showing a hypermetabolic mass located in the right parapharyngeal region (B: arrow), in addition to multiple lung lesions with mild to moderate FDG uptake (C, D: arrows).



**Figure 2.** Microscopic examination demonstrated that the tumor was composed of a bilayered arrangement of inner ductal cells (A: arrows) and outer myoepithelial cells (B: arrows). The inner luminal cells were immunoreactive for cytokeratin 7 (C) and EMA, whereas the outer myoepithelial layer exhibited p63 (D), S100 expression (E), and calponin (F). Histomorphological and immunohistochemical findings confirmed the diagnosis of epithelial-myoeplithelial carcinoma (EMC). In the literature, few cases reports have demonstrated distant metastasis in EMC, and therapy management remains unclear based on the limited efficacy results of recommended therapies (1,2). Because the tumors had mild to moderate FDG avidity and therapy options were limited,  $^{68}\text{Ga}$ -fibroblast activation protein inhibitors-04 ( $^{68}\text{Ga}$ -FAPI-04) PET/CT was planned to improve diagnostic accuracy and assess eligibility for radionuclide therapy.



**Figure 3.**  $^{68}\text{Ga}$ -FAPI-04 PET/CT (A: MIP) showed no significant uptake in the parapharyngeal mass (B: transaxial fusion, arrow), and only mild uptake was demonstrated in the lung lesions (C, D:, arrows). The patient was referred to chemotherapy regime (capecitabine + cisplatin). EMC is a very rare low-grade neoplasm of the salivary gland in which distant metastasis has been reported in only 4.5% of all cases (3). The histological diagnosis of EMC could be challenging because other benign salivary gland tumors present similar features (4). EMC mostly shows high FDG avidity based on the case reports, and it should be considered for differential diagnosis, especially in patients with a history of salivary gland surgery (5). Distant metastasis of EMC has been demonstrated in only a few case reports, and therapy options are uncertain due to the limited results in the literature (1,2). Recently,  $^{68}\text{Ga}$ -FAPI PET/CT has opened up new opportunities, including the theognostic approach using cancer-associated fibroblasts (6). Dendl et al. (7) emphasized the value of  $^{68}\text{Ga}$ -FAPI PET/CT in different rare malignancies, including epithelial carcinomas. Although intense FAPI expression has been demonstrated in salivary gland malignancies, especially for adenoid cystic carcinoma (8), FAPI expression has not been demonstrated in EMC. We herein present the findings of  $^{18}\text{F}$ -FDG and  $^{68}\text{Ga}$ -FAPI-04 PET/CT in this rare metastatic EMC case.  $^{18}\text{F}$ -FDG PET/CT seems feasible for determining the spread of disease; however,  $^{68}\text{Ga}$ -FAPI-04 PET/CT does not seem to have theranostic potential in EMC.

## Ethics

**Informed Consent:** Patient consent was obtained.

## Authorship Contributions

Surgical and Medical Practices: C.C., D.H.Ş., D.V.B., S.K.,  
 Concept: C.C., D.H.Ş., Design: C.C., D.H.Ş., D.V.B., Data  
 Collection or Processing: C.C., D.H.Ş., D.V.B., S.K., Analysis  
 or Interpretation: C.C., D.H.Ş., Literature Search: C.C.,  
 D.V.B., Writing: C.C., D.H.Ş., D.V.B., S.K.

**Conflict of Interest:** No conflicts of interest were declared by the authors.

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