



Pneumonia with Intense ⁶⁸Ga-FAPI Uptake Mimicking Metastasis on ⁶⁸Ga-FAPI PET/CT in a Patient with Rectal Cancer

Rektum Kanseri Tanılı Olguda Pnömonide ⁶⁸Ga-FAPI PET/BT'de Metastazı Taklit Eden Yoğun ⁶⁸Ga-FAPI Tutulumu

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Abstract

A 70-year-old man with newly diagnosed rectum adenocarcinoma was referred to ¹⁸F-fluorodeoxyglucose positron emission tomography/computed tomography (¹⁸F-FDG PET/CT) for staging, and ⁶⁸Ga-fibroblast activation protein inhibitor (FAPI)-04 PET/CT for ongoing trial. Both ¹⁸F-FDG PET/CT and ⁶⁸Ga-FAPI-04 PET/CT showed intense uptake in the primary rectal tumor, and also in nodular areas in the right lung. Due to intense ⁶⁸Ga-FAPI-04 and ¹⁸F-FDG uptake, the lung lesions were considered as metastases. However the lesions were reduced in size on CT after 20 days antibiotherapy and diagnosed as pneumonia.

Keywords: ⁶⁸Ga-FAPI, PET/CT, CT, pneumonia

Öz

Yeni rektum kanseri tanılı 70 yaşında erkek hasta evreleme amacıyla ¹⁸F-florodeoksiglukoz pozitron emisyon tomografisi/bilgisayarlı tomografiye (¹⁸F-FDG PET/BT) ve devam eden çalışma için ⁶⁸Ga-fibroblast aktivasyon proteini inhibitörü (FAPI)-04 PET/BT'ye gönderildi. Hem ¹⁸F-FDG PET/BT hem de ⁶⁸Ga-FAPI-04 PET/BT'de primer rektal tümörde ve sağ akciğerde yer alan nodüler alanlarda yoğun radyofarmasötik tutulumu izlendi. Bu yüzden akciğer lezyonları metastaz olarak değerlendirildi. Antibiyoterapiden 20 gün sonra lezyonlar BT'de rezolüsyona uğradı ve tanı pnömoni olarak doğrulandı.

Anahtar kelimeler: ⁶⁸Ga-FAPI, PET/BT, BT, pnömoni

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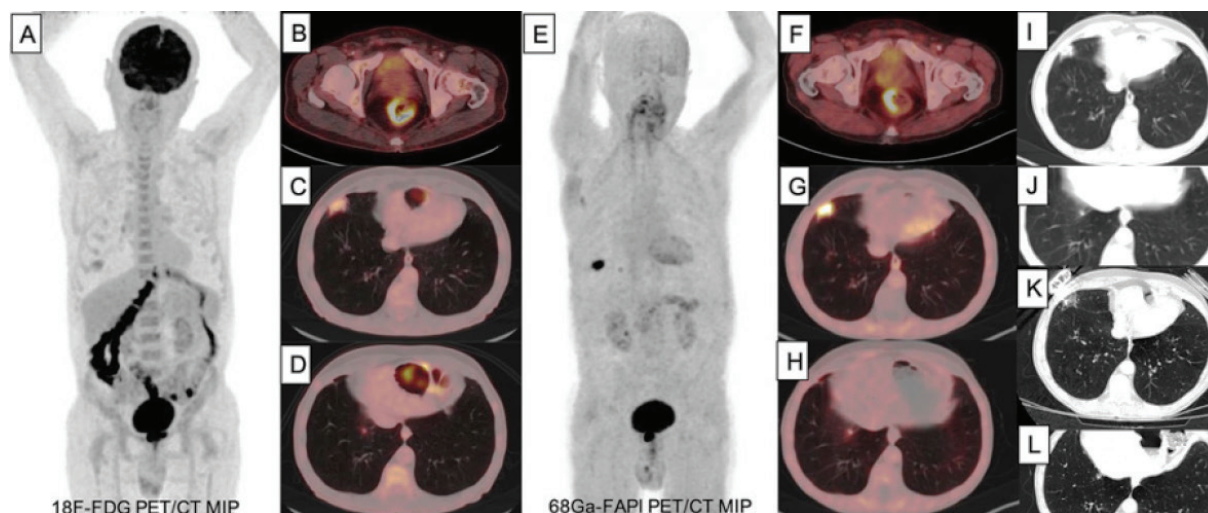


Figure 1. A 70-year-old man presented with changes in defecation habits and hematochezia. Colonoscopy showed tumor in the rectum and biopsy was confirmed as adenocarcinoma. Patient was referred to ¹⁸F-fluorodeoxyglucose positron emission tomography/computed tomography (¹⁸F-FDG PET/CT) for staging. After 6 hours of fasting 222 MBq ¹⁸F-FDG was injected intravenously. PET/CT was performed after 1 hour of distribution time. The primary tumor in the rectum with intense ¹⁸F-FDG uptake [maximum standardized uptake value (SUV_{max}): 17.9] along with diffuse colonic uptake (SUV_{max}: 28.9) was observed on PET/CT (**A, B**). In addition, there was increased ¹⁸F-FDG uptake at consolidation area and subsantimetric nodular lesion in the anterior segment of the right upper lung (SUV_{max}: 4.5) (**C, D**). ⁶⁸Ga-fibroblast activation protein inhibitor (FAPI)-04 PET/CT was performed after 155.4 MBq ⁶⁸Ga-FAPI-04 injection after 1 hour in the same week with ¹⁸F-FDG PET/CT, for an ongoing clinical trial. ⁶⁸Ga-FAPI-04 PET/CT showed intense uptake at the rectal tumor (SUV_{max}: 14.8) without inflammatory colonic uptake and at lung lesions (SUV_{max}: 12.2) (**E, F, G, H, I, J**). Lung lesions with both increased ¹⁸F-FDG and ⁶⁸Ga-FAPI-04 uptake were suspected for lung metastases of rectum cancer. After antibiotherapy for 20 days, it was seen that the lesions were resolved and reduced in size on thorax CT and diagnosed as pneumonia (**K, L**). ⁶⁸Ga-FAPI PET/CT has been the subject of increasing research in recent years with its success in tumor imaging (1). Fibroblast activation protein is over-expressed on cancer-associated fibroblasts and also in tissue remodeling sites associated with fibrosis, cirrhosis, atherosclerosis, cardiac injury, and pneumonia (2,3,4,5,6). Although ⁶⁸Ga-FAPI PET/CT is reported to be superior to ¹⁸F-FDG PET/CT for detecting metastasis and primary tumor due to high tumor/background ratio and absence of inflammatory colonic ¹⁸F-FDG uptake as in our case, the reasons for false positives should be also kept in mind (7,8).

Ethics

Informed Consent: Written informed consent was obtained from the participant.

Peer-review: Externally and internally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: Ö.E.F., E.B., N.Ş.S., T.F.Ç., N.E., Concept: Ö.E.F., E.B., N.Ş.S., T.F.Ç., N.E., Design: Ö.E.F., E.B., N.Ş.S., T.F.Ç., N.E., Data Collection or Processing: Ö.E.F., E.B., N.Ş.S., T.F.Ç., N.E., Analysis or Interpretation: Ö.E.F., E.B., N.Ş.S., T.F.Ç., N.E., Literature Search: Ö.E.F., E.B., N.Ş.S., T.F.Ç., N.E., Writing: Ö.E.F., E.B., N.Ş.S., T.F.Ç., N.E.

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