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Incidental Detection of Pseudomembranous Colitis Through ^{18}F-FDG PET/CT During the Restaging of Colorectal Cancer

Kolorektal Kanserin Yeniden Evrelenmesi Sırasında ^{18}F-FDG PET/BT ile Psödomembranöz Kolitin Tesadüfen Saptanması

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Abstract

A 59-year-old man, previously submitted to anterior resection due to rectal cancer, underwent a contrast-enhanced computed tomography (ce-CT) for restaging before eventual chemotherapy. Because ce-CT showed a moderate enlargement of the descending colonic lumen, in despite the lack of symptoms, positron emission tomography (PET)/CT ^{18}F-fluorodeoxyglucose (FDG) was carried out. ^{18}F-FDG PET/CT demonstrated highly increased tracer incorporation along the colon walls. Two days after the PET/CT examination, complaints of diarrhea and abdominal pain began. Clostridioides difficile stool test resulted positiv; thus, thus he started antibiotic therapy without benefit. Because follow-up ce-CT demonstrated a megacolon condition, he was submitted to hemicolectomy. Histology revealed a diffuse condition of pseudomembranous colitis (PMC). This case highlights the potential of ^{18}F-FDG PET/CT for detecting PMC morphological and functional features also in pre-symptomatic patients.

Keywords: Inflammatio, ^{18}F-FDG, positron emission tomograph, colitis

Öz

Daha önce rektum kanseri nedeniyle anterior rezeksiyon uygulanan 59 yaşında bir erkek hastaya nihai kemoterapiden önce yeniden evreleme için kontrastlı bilgisayar tomografi (k-BT) uygulandı. K-BT'de, hastanın semptomu olmamasına rağmen inen kolonik lümende orta derecede genişleme görüldüğünden, ^{18}F-florodeoksiglukoz (FDG) ile pozitron emisyon tomografi (PET)/BT çekildi. ^{18}F-FDG PET/BT'de kolon duvarları boyunca artmış aktivite tutulumu görüldü. PET/BT incelemesinden iki gün sonra hastanın ishal ve karın ağrısı şikayetleri başladı. Clostridioides difficile'ye yönelik gaita testi pozitif sonuçlandı, antibiyotik tedavisine başlandı ancak hasta fayda görmedi. Takip k-BT bir megakolon durumunu gösterdiğinden, hasta hemikolektomiye gönderildi. Histoloji, yaygın bir psödomembranöz kolit (PMC) ile uyumlu idi. Bu olgu, ^{18}F-FDG PET/BT'nin pre-semptomatik hastalarda da PMC'nin morfolojik ve fonksiyonel özelliklerini saptama potansiyelini vurgulamaktadır.

Anahtar kelimeler: Enflamasyon, ^{18}F-FDG, pozitron emisyon tomografi, kolit

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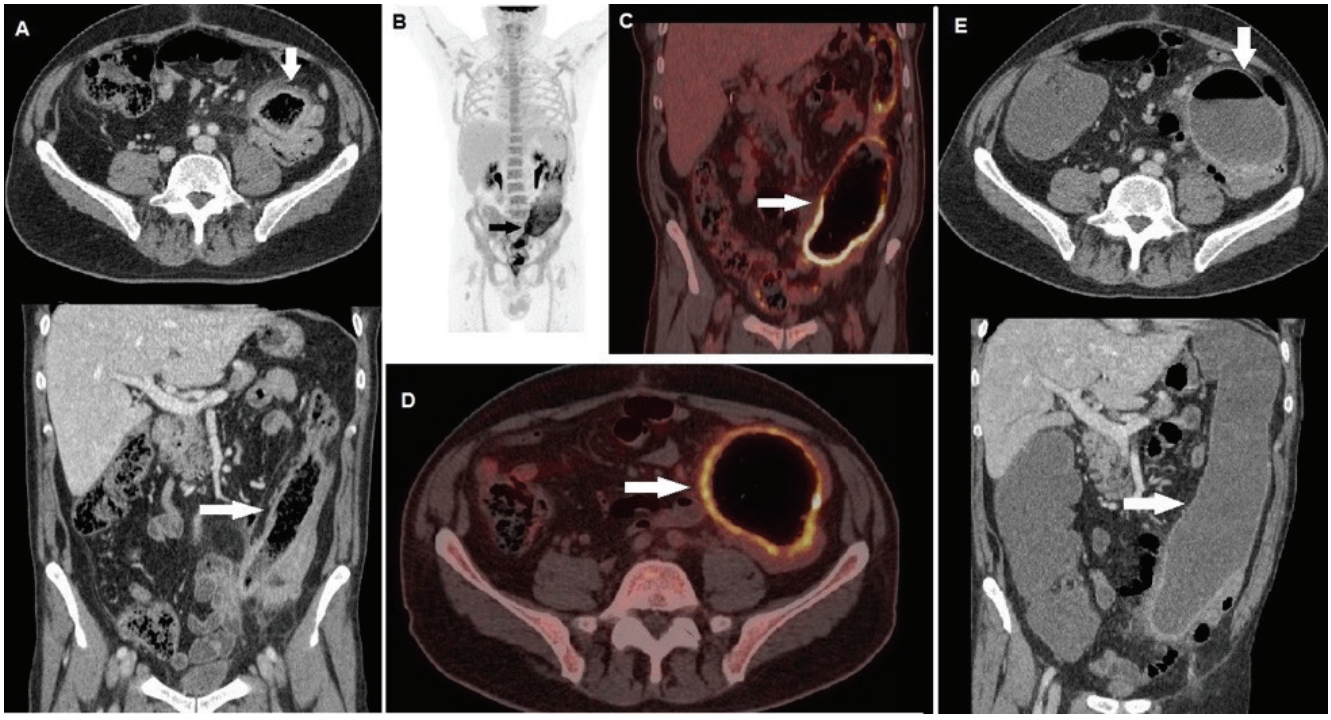

Figure 1. In November 2020, a 59-year-old male was submitted to anterior resection due to rectal cancer, resulting in pT2 pN0 poorly differentiated adenocarcinoma at histological examination. In March 2021, he underwent contrast-enhanced computed tomography (ce-CT) for restaging and eventual therapeutic decision. Few days before the examination, he had completed one week course of oral amoxycillin due to oropharyngeal infection: ce-CT, at the venous phase (A), revealed abnormal enlargement of the descending colonic lumen (maximum diameter: 35 mm), coupled with parietal thickening and lymph adenopathies in the perivisceral fat, as well evident in the axial (top row, arrow) and coronal (lower row, arrow) images. The patient was completely asymptomatic. In the suspicion of tumoral peritoneal metastatization, five days later he was submitted to positron emission tomography (PET)/CT with ^{18}F-fluorodeoxyglucose (FDG): whole body PET/CT (B) showed highly increased tracer incorporation (maximum standardized uptake value/maximum standard uptake value: 19.4) along the colonic walls (arrow), furthermore a diffuse, mild ^{18}F-FDG uptake was evident in the blood marrow as for an inflammatory condition. Coronal (C) and axial (D) corresponding fused images well demonstrated tracer incorporation within the thickened walls of the descending colon, with a further enlargement of the lumen (arrow, maximum diameter 77 mm). The patient was promptly referred to the surgical department (SD) of our hospital for further clinical investigations. One day after admission to SD, he began experiencing abdominal pain and diarrhea: blood test was normal, except for an increased white blood cell' count (85% neutrophils), and stool test for Clostridioides difficile toxin resulted positive. He started antibiotic therapy with vancomycin at a high dose, without clinical benefits. Further ce-CT (E) demonstrated a worsening of colon enlargement (maximum diameter: 89 mm) and of the parietal thickening, as evident in the axial (top row, arrow) and coronal slices (lower row, arrow). The patient was submitted to left hemicolectomy. Post-surgical specimen showed typical features of pseudomembranous colitis (PMC). Nuclear medicine has a well-established role in the diagnosis of inflammation and infection through several technical approaches (1,2,3). Since activated lymphocytes and granulocytes overexpress glucose transporters and up-regulate hexokinase activity, PET/CT with ^{18}F-FDG has been successfully applied to also the diagnosis and monitoring of infectious and inflammatory processes: PET/CT offers the advantage of being a whole body and single-day procedure, characterized by excellent spatial resolution (4,5). Although preclinical studies have suggested that the grade of ^{18}F-FDG PET/CT in PMC may correlate with disease severity in animal models (6), there are few clinical reports on this topic (5,6,7,8]. The case we describe shows that ^{18}F-FDG PET/CT scan can be applied to detect PMC typical features, consisting of increased glucose metabolism corresponding to diffuse bowel wall thickening and dilatation, also at a very early and still pre-symptomatic phase, therefore guiding clinicians to the more appropriate diagnostic and therapeutic approaches.

Ethics

Informed Consent: Patient consent was obtained before PET/CT examination.

Peer-review: Externally peer-reviewed.

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