



Detection of Rare Gallbladder Microperforation by ¹⁸F-FDG PET/CT in a Patient with Maxillary Sinus Cancer

Maksiller Sinüs Kanserli Hastada Nadir Görülen Safra Kesesi Mikroperforasyonunun ¹⁸F-FDG PET/CT ile Saptanması

✉ Zehranur Tosunoğlu¹, ✉ Selim Doğan², ✉ Ceyda Turan Bektaş³, ✉ Tevfik Fikret Çermik¹, ✉ Esra Arslan¹

¹University of Health Sciences Türkiye, İstanbul Training and Research Hospital, Clinic of Nuclear Medicine, İstanbul, Türkiye

²University of Health Sciences Türkiye, İstanbul Training and Research Hospital, Clinic of Surgery, İstanbul, Türkiye

³University of Health Sciences Türkiye, İstanbul Training and Research Hospital, Clinic of Radiology, İstanbul, Türkiye

Abstract

Gallbladder perforation is one of the most serious complications of cholecystitis and is rarely seen in 2-11% of cases. Pericholecystic abscesses secondary to gallbladder perforation are rare. Rapid diagnosis is important because of high morbidity and mortality rates. A subcapsular abscess secondary to gallbladder microperforation is presented on ¹⁸F-fluorodeoxyglucose positron emission tomography/computed tomography performed for restaging in a patient with maxillary sinus cancer.

Keywords: Gallbladder micro-perforation, abscess, ¹⁸F-FDG PET/CT

Öz

Safra kesesi perforasyonu kolesistitin en ciddi komplikasyonlarından biridir ve %2-11 oranında nadir görülür. Safra kesesi perforasyonuna sekonder gelişen perikolesistik abse nadir görülen bir durumdur. Yüksek morbidite ve mortalite nedeniyle hızlı tanı önemlidir. Maksiller sinüs kanserli olguda yeniden evreleme amacıyla çekilen ¹⁸F-fluorodeoksiglukoz pozitron emisyon tomografisi/bilgisayarlı tomografide safra kesesi mikroperforasyonuna bağlı gelişen subkapsüler abse sunulmaktadır.

Anahtar kelimeler: Safra kesesi mikroperforasyonu, abse, ¹⁸F-FDG PET/CT

Address for Correspondence: Zehranur Tosunoğlu MD, University of Health Sciences Türkiye, İstanbul Training and Research Hospital, Clinic of Nuclear Medicine, İstanbul, Türkiye

Phone: +90 507 866 77 85 **E-mail:** zehranurtosunoglu@gmail.com ORCID ID: orcid.org/0000-0002-8509-1583

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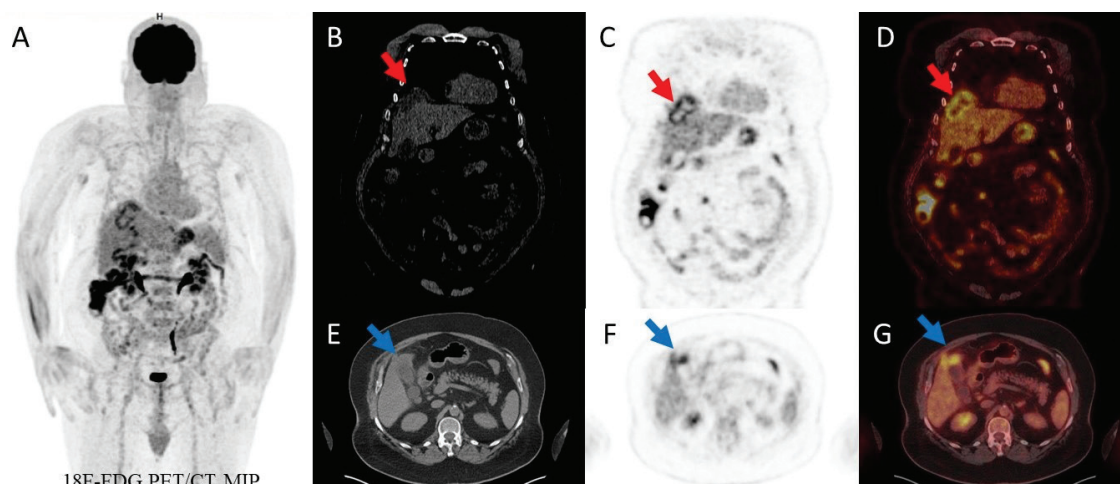


Figure 1. ^{18}F -fluorodeoxyglucose (^{18}F -FDG) positron emission tomography/computed tomography (PET/CT) imaging was performed to restage maxillary sinus cancer in a 67-year-old man with a known history of diabetes mellitus, hypertension, and stroke (A). In coronal CT sections, there was a hypodense area outside the liver parenchyma at the junction of liver segments 4-8 (B). PET and fusion images (C, D) showed linear ^{18}F -FDG uptake [maximum standardized uptake value (SUV_{max}): 6.30] (red arrow). Thickening of the fundus was observed in transaxial CT sections (E). ^{18}F -FDG uptake was observed in PET and fusion images (F, G) (blue arrow). There were several lymph nodes with increased ^{18}F -FDG uptake in the precaval and aortocaval lymphatic regions (SUV_{max} : 5.40). It was evaluated as a subcapsular abscess secondary to gallbladder microperforation. The clinical findings were indistinct. There was no significant abdominal pain due to diabetic neuropathy. In laboratory tests, neutrophils (7,640/ μL), C-reactive protein (CRP) (114 mg/L), alkaline phosphatase (ALP) (134 U/L), gamma-glutamyltransferase (GGT) (87 U/L), and direct bilirubin (0.4 mg/dL) were high. Other liver function tests were within the normal range (aspartate aminotransferase, alanine aminotransferase). He was admitted to the surgical service with a preliminary diagnosis of gallbladder microperforation secondary to cholecystitis.

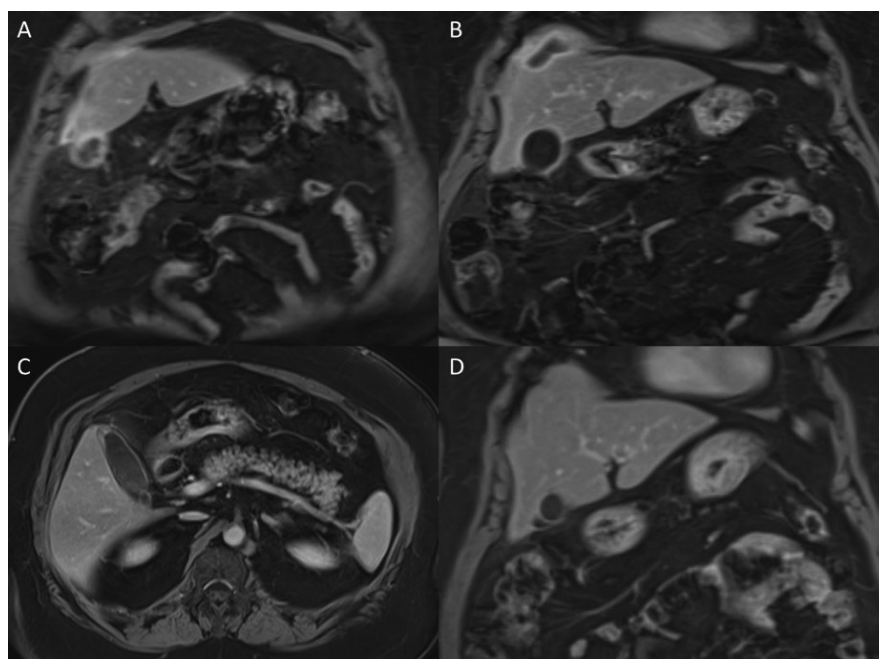


Figure 2. One day later, an extension of the collection, which is continuous with the gallbladder, to the perihepatic region and abscess formation/loculated collection at the subdiaphragmatic level were observed in post-contrast coronal VIBE images in cholangiopancreatic magnetic resonance imaging (MRI). (A, B). Antibiotic and intravenous fluid therapy were initiated. Two weeks later, neutrophil levels (4,200/ μL), CRP (4.79 mg/L), direct bilirubin (0.18 mg/dL), ALP (78 U/L), and GGT (57 U/L) decreased. Two months later, a cholangiopancreatic MRI was performed for the control. In the post-contrast axial VIBE image, focal wall thickening and increased contrast were observed at the fundus of the sac (C). In the coronal sections, it was observed that the existing collection in the previous examination was lost in the vicinity of the gallbladder and subdiaphragmatic area (D).

Gallbladder perforation is a serious complication of acute cholecystitis (1). It may develop a few weeks after the onset of acute cholecystitis symptoms (2). There are 3 types according to the Niemer classification: Type 1, chronic perforation with cholecystoenteric fistula; type 2, subacute perforation with pericholecystic abscess; and type 3, acute free perforation into the peritoneal cavity (3,4). The fundus is the most common perforation site (5). Old age, male gender, diabetes, vascular disease, steroid therapy, malignancy, and cholelithiasis are predisposing factors (6). ¹⁸F-FDG uptake is a known finding in inflammatory and infectious lesions (7). Abscesses are a benign cause of increased ¹⁸F-FDG uptake in the liver. In one review, SUV values of 7.7±2.2 for abscesses were reported (8). In cholecystitis, a ring-like distribution of abnormal ¹⁸F-FDG has been observed in the gallbladder (9). It is important to keep in mind the physiological distribution of ¹⁸F-FDG, potential benign pitfalls, and the pattern of disease spread to interpret ¹⁸F-FDG PET/CT studies correctly. We would like to present a subcapsular abscess secondary to gallbladder microperforation that was detected using ¹⁸F-FDG PET/CT.

Ethics

Informed Consent: The patient consent was obtained.

Authorship Contributions

Surgical and Medical Practices: Z.T., S.D., C.T.B., T.F.Ç., E.A., Concept: Z.T., S.D., C.T.B., E.A., T.F.Ç., Design: Z.T., C.T.B., S.D., T.F.Ç., E.A., Data Collection or Processing: Z.T., S.D., C.T.B., T.F.Ç., E.A., Analysis or Interpretation: S.D., C.T.B., T.F.Ç., E.A., Z.T., Literature Search: Z.T., S.D., C.T.B., T.F.Ç., E.A., Writing: Z.T., T.F.Ç., E.A., S.D., C.T.B.

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

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