



# The Poor Prognostic Stigma of Hepatic Superscan on <sup>18</sup>F-FDG PET Imaging

## <sup>18</sup>F-FDG PET Görüntülemeye Hepatik Superscan Görünümünün Kötü Prognoz Damgası

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### Abstract

Pancreatic exocrine carcinoma (PEC) is a lethal malignancy with high mortality rates because of its aggressive nature and frequent late-stage diagnosis. When histopathological diagnosis becomes unfeasible because of patient deterioration, clinicians must rely on clinical, biochemical, and radiological findings. This case report describes a 78-year-old woman with aggressive PEC visualized through <sup>18</sup>F-fluorodeoxyglucose (<sup>18</sup>F-FDG) positron emission tomography/computed tomography (PET/CT). The imaging revealed an intensely hypermetabolic head mass, hepatic superscan, and hypermetabolic abdominal lymphadenopathy. Despite strong clinical indicators suggesting stage IV PEC, rapid disease progression and patient demise precluded histopathological confirmation, emphasizing the poor prognosis associated with hepatic superscan in this context.

**Keywords:** Pancreatic carcinoma, hepatic superscan, fulminant metastasis, <sup>18</sup>F-FDG, PET/CT

### Öz

Pankreas ekzokrin karsinomu (PEK), agresif doğası ve sıklıkla geç evrede tanı alması nedeniyle yüksek ölüm oranlarına sahip ölümcül bir malignitedir. Hastanın kötüleşmesi nedeniyle histopatolojik tanı olanaksız hale geldiğinde, klinisyenler klinik, biyokimyasal ve radyolojik bulgulara güvenmelidir. Bu olgu bildiriminde, <sup>18</sup>F-fluorodeoxyglucose (<sup>18</sup>F-FDG) pozitron emisyon tomografisi/bilgisayarlı tomografi (PET/BT) ile görüntülenen agresif PEK'li 78 yaşında bir kadın hasta bildirilmektedir. Görüntülemeye, yoğun bir şekilde hipermetabolik pankreas başı kitlesi, hepatic superscan görünümü ve hipermetabolik abdominal lenfadenopati saptanmıştır. Evre IV PEK'yi düşündüren güçlü klinik göstergelere rağmen, hastalığın hızlı ilerlemesi ve hastanın ölümünün histopatolojik doğrulamayı mümkün kılmaması, bu bağlamda hepatic superscan görünümü ile ilişkili kötü prognozu vurgulamıştır.

**Anahtar kelimeler:** Pankreas karsinomu, hepatic superscan, fulminan metastasis, <sup>18</sup>F-FDG, PET/BT

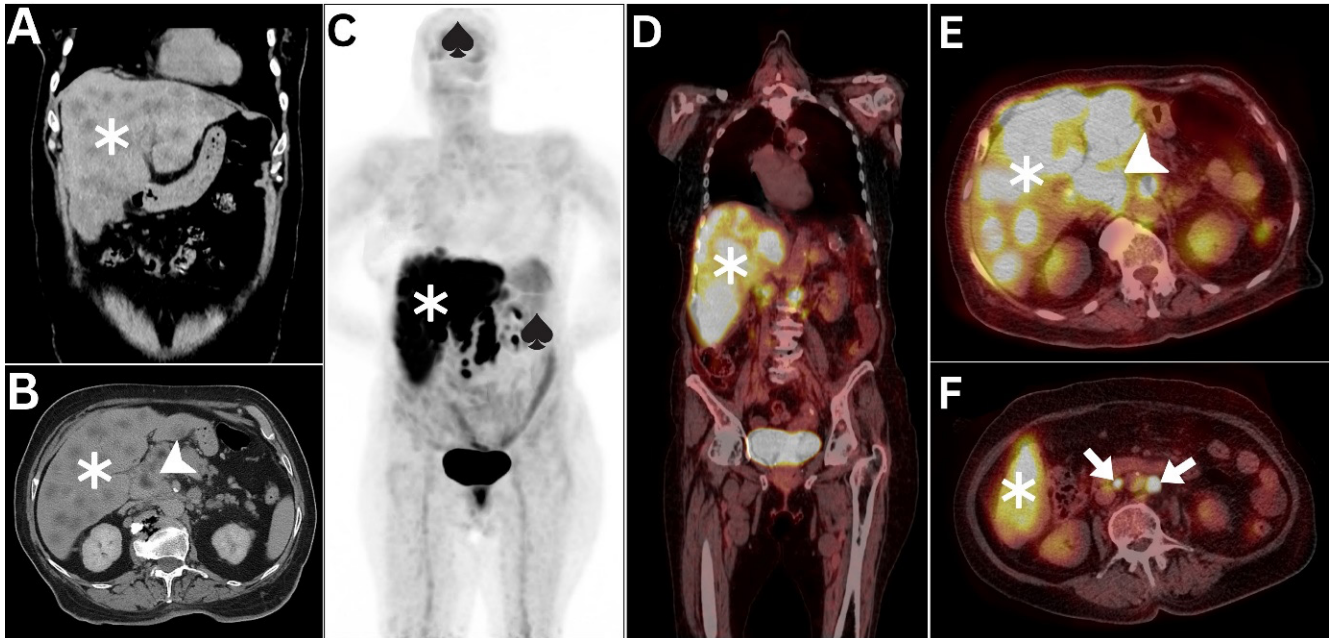
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**Figure 1.** A 78-year-old female non-smoker with long-standing hypertension and no history of familial malignancy presented with a 3-month history of diffuse abdominal pain radiating to the shoulder that was accompanied by generalized weakness, anorexia, and weight loss. Multiple emergency visits for fluid and electrolyte replacement due to dehydration were reported. Financial constraints initially prevented the patient from undergoing definitive clinical, biochemical, and radiological tests for provisional diagnosis. The decision to seek a comprehensive evaluation was delayed until the patient experienced unbearable pain, frequent unresolved episodes of nausea and vomiting, and weight loss of 12 kg. Physical examination revealed a tired, pale patient in pain, with yellowish skin discoloration and tender hepatomegaly. Comprehensive hematologic, hepatic, renal, and tumor marker profiles were obtained. Results were normal except for anemia (hemoglobin 7.1 g/dL), elevated total bilirubin (4.5 mg/dL), elevated hepatic transaminases (aspartate transaminase 111 IU/L, alanine transaminase 137 IU/L), and an elevated carbohydrate antigen 19-9 (CA 19-9) level of 1397 U/mL. Initial diagnostic workup (Figure 1) included abdominal computed tomography (CT), which revealed widespread liver hypodensities suggesting fulminant hepatic metastasis (A, B; asterisks), in addition to a large multicystic pancreatic head tumor (B; arrowhead). Subsequent  $^{18}\text{F}$ -fluorodeoxyglucose ( $^{18}\text{F}$ -FDG) positron emission tomography/computerized tomography (PET/CT) imaging demonstrated a hepatic superscan on maximum intensity projection (MIP) image, characterized by diffuse intensely hypermetabolic hepatomegaly (C; asterisks) and suppressed  $^{18}\text{F}$ -FDG activity in the brain and pelvicalyceal system (C; spades). Coronal and axial fused PET/CT images revealed evidence of widespread hepatic hypodensities (D-F; asterisk). Furthermore, axial fused PET/CT images depict an intensely hypermetabolic neoplastic process involving the pancreatic head tumor (E; arrowhead). In addition, few hypermetabolic metastatic abdominal lymph nodes were observed (F; arrows). Due to rapid clinical deterioration, worsening performance status, and admission to intensive care unit (ICU), a definitive histopathologic diagnosis could not be established. The patient succumbed to multiorgan failure 14 days after ICU admission. A clinical diagnosis of stage IV pancreatic exocrine cancer was provisionally made. Hepatic superscan is a rare molecular imaging entity observed in aggressive hematologic and solid malignancies (1,2). To our knowledge, its occurrence in pancreatic carcinoma has not been previously reported. The distinct pattern of hepatic superscan characterized by intensely hypermetabolic hepatomegaly and suppressed  $^{18}\text{F}$ -FDG activity in organs with normally intensified  $^{18}\text{F}$ -FDG metabolism can be observed on MIP images (1). Recent observations have highlighted the prognostic significance of hepatic superscan, associating it with poor prognosis and rapid onset of disease, often before management can be initiated. Such cases frequently receive delayed diagnosis because of neglect, delayed diagnosis, or misdiagnosis (2,3,4,5). Therefore, recognition of this unique neoplastic pattern should prompt immediate clinical and oncologic intervention to achieve the best possible outcome.

## Footnote

**Informed Consent:** The patient consent was obtained.

## Authorship Contributions

Surgical and Medical Practices: D.A., M.J., A.A., Concept: D.A., M.J., A.A., Design: D.A., M.J., A.A., Data Collection or Processing: D.A., M.J., A.A., Analysis or Interpretation: D.A., A.A., Literature Search: M.J., A.A., Writing: D.A., A.A.

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

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