Case Report

Delayed Recurrence of Gall Bladder Cancer as Port-site Metastases with Occult Primary Detected on Fluorodeoxyglucose Positron Emission Tomography-Computed Tomography: A Tale of Two Cases

Abstract

Laparoscopic cholecystectomy is a fairly common procedure and is currently considered the gold standard for cholecystectomy. However, the laparoscopic procedure in the presence of gall bladder cancer (GBC) is associated with the risk of port-site metastasis (PSM). Furthermore, in few cases, GBC remains occult even on postoperative histopathology and presents with PSM remotely. Here, we describe two such cases of GBC with occult primary who presented with PSM and also defined the role of fluorine-18 fluorodeoxyglucose positron emission tomography-computed tomography in the management of such cases.

Keywords: *Flourine-18 fluorodeoxyglucose positron emission tomography-computed tomography, gall bladder cancer, occult primary, port-site metastases*

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Introduction

Cholecystectomy is the most common surgical procedure performed worldwide. Laparoscopic cholecystectomy, being minimally invasive and safe, has become the gold standard approach. Although rare, it is associated with complications of its own. One such rare complication arises in the presence of occult carcinoma, detected postoperatively in cases undergoing laparoscopic cholecystectomy for a benign condition. Such occult carcinomas are associated with the development of port-site metastasis (PSM) in as many as 29% of cases in some series.[1,2] However, in extremely rare cases, gall bladder cancer (GBC) remains occult even on postoperative histopathology and is detected only with the development of late PSM. The current series presents two such cases with PSM from GBC that remained occult on postoperative histopathology and highlights the role of metabolic imaging with fluorine-18 fluorodeoxyglucose (18-F FDG) in such cases.

Case Reports

Case 1

A 67-year-old female presented with irregular nodular swelling in the right upper quadrant and in the periumbilical region for 11 months. The swelling was associated with mild pain and periumbilical discoloration. She was a known case of type 2 diabetes mellitus for 5 years and hypertension for 10 years. History was unremarkable except for a history of laparoscopic cholecystectomy for cholelithiasis 5 years back. Postoperative histopathology revealed features consistent with chronic cholecystitis. Examination revealed nodular swelling in the periumbilical region extending to the right upper quadrant and blackish discoloration in the periumbilical region. Blood counts were unremarkable except for mild anemia. Biopsy was performed on the abdominal swelling and revealed features of adenocarcinoma. Immunohistochemistry (IHC) showed diffuse and strong positivity for CK7, suggesting a gastrointestinal or cholangiogenic origin. The patient was then referred for 18-F FDG positron emission tomography-computed tomography (PET/CT) to define the extent of the disease and to rule out the presence of other primary. Contrast-enhanced PET-CT was performed after administration of 5 mCi of 18-F FDG and it revealed hypermetabolic heterogeneously enhancing soft-tissue thickening involving the umbilical skin and subcutaneous tissues, extending and

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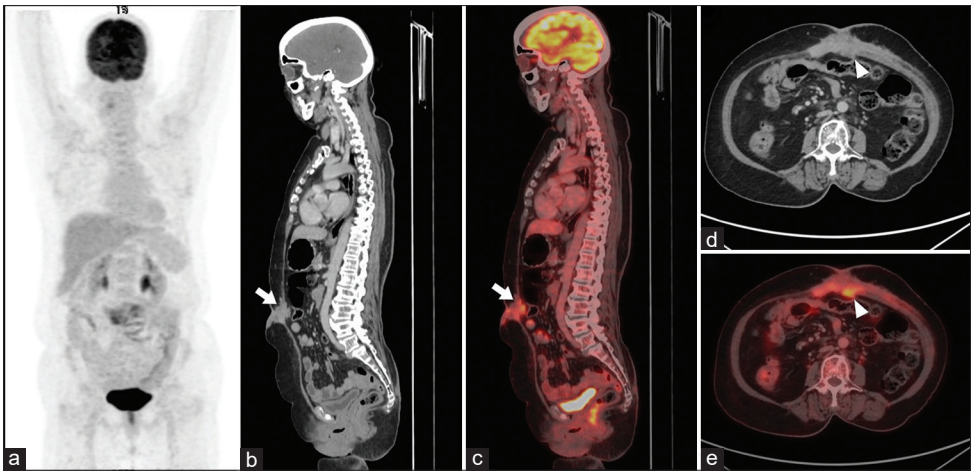

Figure 1: 18-F FDG PET-CECT images of a 67-year-old female performed 5 years after laparoscopic cholecystectomy for cholelithiasis. (a) Maximum intensity projection image showing focal hypermetabolism in the umbilical region and no other site of pathological tracer uptake in the whole body. (b and c) The sagittal section of CECT and fused 18-F FDG PET-CECT images, respectively, demonstrate heterogeneously enhancing hypermetabolic soft-tissue thickening involving the skin and subcutaneous tissues and extending posteriorly to involving rectus abdominus muscles (white arrows) with associated perilesional fat stranding. (d and e) Trans axial CECT and fused 18-F FDG PET-CT images, respectively, show the lesion in the axial section (white arrowheads). 18-F FDG PET-CECT: Flourine-18 fluorodeoxyglucose positron emission tomography-contrast enhanced computed tomography, CT: Computed tomography

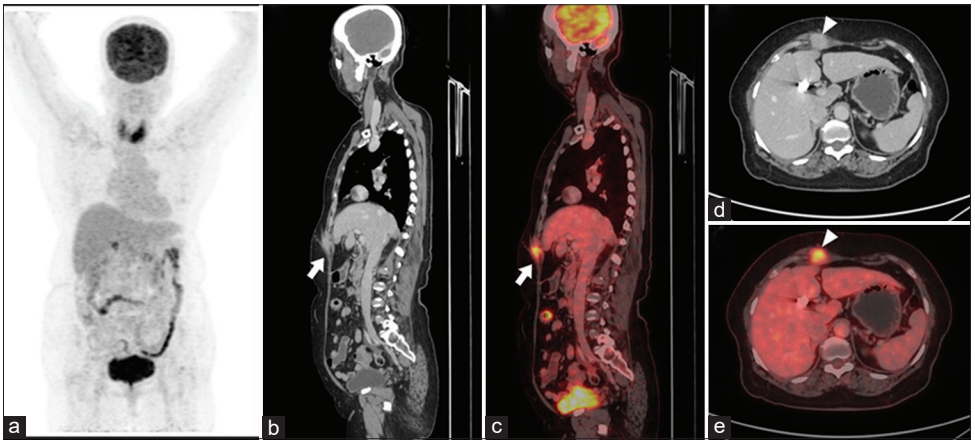

Figure 2: 18-F FDG PET-CECT images of a 72-year-old female performed 3 years after laparoscopic cholecystectomy for cholelithiasis. (a) Maximum intensity projection image showing diffuse increased metabolic activity in the thyroid and focal hypermetabolism in right hypochondrium and no other site of pathological tracer uptake in the whole body. (b and c) The sagittal section of CECT and fused 18-F FDG PET-CECT images, respectively, demonstrate heterogeneously enhancing hypermetabolic well-defined soft-tissue lesions in the anterior abdominal wall (white arrows). (d and e) Transaxial CECT and fused 18-F FDG PET-CT images, respectively, show the lesion in the axial section (white arrowheads). 18-F FDG PET-CECT: Flourine-18 fluorodeoxyglucose positron emission tomography-contrast enhanced computed tomography, CT: Computed tomography

superiorly to involve bilateral rectus abdominus muscle with likely invasion into adjacent omentum [Figure 1]. The serum levels of CA-19.9 were elevated >1000 U/ml. The patient was started on platinum-based chemotherapy. Clinical assessment post three cycles of chemotherapy showed a reduction in size as well as complete disappearance of periumbilical discoloration. Follow-up PET-CT, post 6 months of chemotherapy, revealed partial response to therapy.

Case 2

A 72-year-old female with known case of type 2 diabetes mellitus and hypertension, presented with an irregular nodule in the right hypochondrium for 6 months. The patient had a history of laparoscopic cholecystectomy for cholelithiasis 3 years back. Postoperative histopathology revealed xanthogranulomatous cholecystitis. A core needle biopsy was performed from the nodule and revealed a metastasis from adenocarcinoma. IHC revealed diffuse strong positivity for CK7 and CA19.9 and multifocal strong positivity for CK20, CDX2, CEA, HER2/Neu and negative for PDL1, GATA3, and SATB2 expression, depicting the gastro-pancreaticobiliary origin of the disease. Following this, 18-F FDG PET-contrast enhanced CT was performed for staging of the disease and identification of any other primary malignancy. PET-CT revealed hypermetabolic well-defined enhancing soft-tissue nodular lesion in the anterior wall of the right hypochondrium measuring 2.3 cm × 1.7 cm [Figure 2]. The patient then received gemcitabine and platinum-based chemotherapy along with trastuzumab. Follow-up PET-CT, post six cycles of chemotherapy, revealed partial treatment response.

Discussion

Occult GBC is seen on postoperative histopathology in up to 3% of cases undergoing cholecystectomy for benign diseases.[3] Laparoscopic handling of GBC is associated with the development of PSM, seen in up to 29% of cases.[1,2] Some authors also suggested port-site resection to decrease the development of PSM in incidental GBCs detected postlaparoscopic cholecystectomy.

However, very rarely, GBC remains unidentified even on postoperative histopathology and presents late with the development of metastatic disease, especially PSM, as seen in the cases described. Confirmation of the GB origin of such metastatic disease requires (1) histopathology supplemented with immunohistochemistry as well as tumor markers as seen in the present cases and (2) ruling out of other primaries neoplastic pathology in the hepatobiliary tract.[4-6]

Metabolic imaging with 18-F FDG PET-CT has established a dominant role in the evaluation and management of cases presenting with metastasis from occult GBC. It helps to (a) detect as well as support the diagnosis of PSM, (b) rule out other primary which could be responsible for metastatic disease, (c) define the extent of the disease, (d) determine the patient prognosis, (e) plan the management as well as determine the intent of management strategies to be offered, i.e., curative or palliative.[7]

Thus, to conclude, 18-F FDG PET-CT is an integral part of present-day oncology. One of the clinically challenging scenarios where 18-F FDG PET-CT plays a crucial role in the evaluation of late metastatic disease from histopathologically occult GBC. It helps in diagnosis, defining the disease extent as well as management and prognostication of such cases.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal her identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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