Skeletal Metastases of Unknown Primary: A Rare Presentation of Carcinoma Pancreas on Fludeoxyglucose Positron Emission Tomography–Computed Tomography

Abstract

Skeletal metastases of unknown primary represent skeletal metastases where primary tumors remain obscure. They usually arise from lung and prostate cancer. We present a case of a young male who presented with severe bone pains, weight loss, and generalized weakness. Fludeoxyglucose positron emission tomography–computed tomography reveals extensive skeletal metastases, a mass in the pancreas tail, and other metastatic lesions. He had no liver or lung metastases. This case presents a rare presentation of carcinoma pancreas.

Keywords: *Carcinoma unknown primary, pancreatic carcinoma, positron emission tomography/computed tomography, skeletal metastases of unknown primary, skeletal metastasis*

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A 23-year-old patient presented with diffuse bony pains, weight loss, and generalized weakness for 2 months. Blood investigations suggested hypercalcemia (serum calcium 12.4 mg/dl) and moderate renal failure (serum creatinine 1.88 mg/dl). Contrast-enhanced computed tomography chest was suggestive of multiple bony lesions in the ribs and vertebras. A provisional diagnosis of skeletal metastases of unknown primary (SMUP) was made. Fludeoxyglucose (FDG) positron emission tomography–computed tomography (PET/CT) revealed a mass in the tail of the pancreas with regional, nonregional lymph nodes (LNs), extensive skeletal metastases. However, no metastases were noted in the liver or lung [Figure 1]. Bone marrow examination was suggestive of metastatic infiltration from adenocarcinoma. He was started on palliative chemotherapy with antihypercalcemic drugs and narcotic analgesics. He succumbed after 3 months of diagnosis.

SMUP represents enigmatic entities without a primary site identified. Cancer of unknown primary accounts for 2% of all cancers. It is characterized by an aggressive clinical outcome and inadequate response to chemotherapy.[1] Lung cancer is the most frequently identified primary tumor (25%–67%), followed by prostate cancer, lymphoma, and kidney, gastrointestinal, and breast cancer.[2] Although almost all tumors can metastasize to the skeleton during their natural history, epithelial cancers are characterized by a particular propensity for this type of dissemination. SMUP from pancreatic cancer (PC) is seldomly reported.[3,4] PC usually metastasizes to regional LNs, liver, adjacent organs, and lungs.[5] Skeletal metastases are an uncommon but clinically imperative occurrence in PC. The most common sites of skeletal metastases are vertebrae, hips, and ribs. Both blastic and lytic lesions are noted, with a predominance of blastic lesions.[6]

FDG PET/CT is considered a good modality for metastatic workup. It has sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of 90%, 76%, 90%, 76%, and 86%, respectively. The pooled sensitivity and specificity to differentiate between PC and chronic pancreatitis are 90% and 84%, respectively.[7] PC is usually present at an advanced stage. Only about 15% of the patients present with a resectable disease can undergo "curative" surgery. Even then, local and systemic recurrence is not uncommon. Patients with metastatic and locally advanced PC receive palliative

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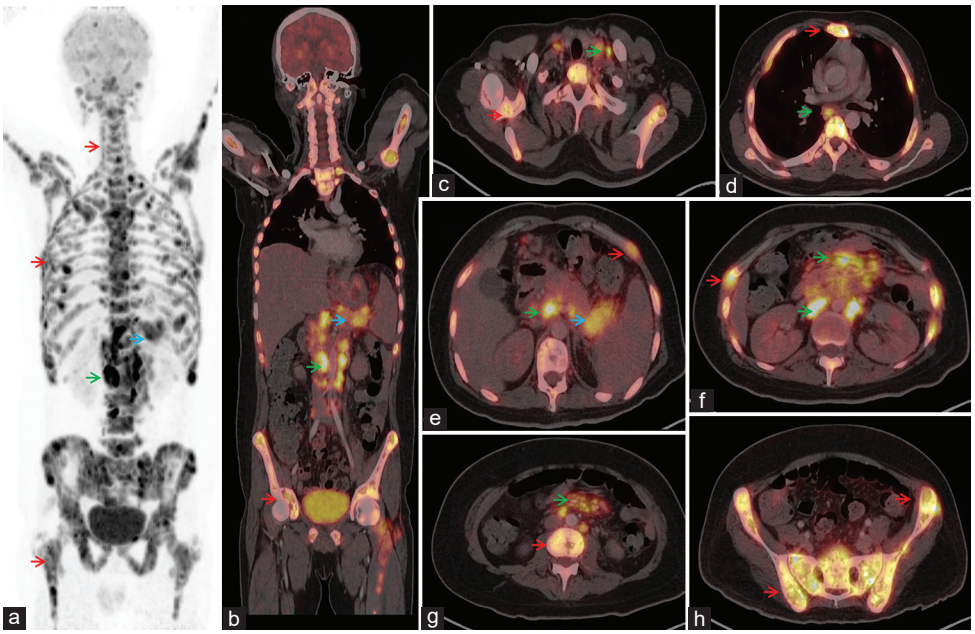

Figure 1: (a) Maximum intensity projection image shows extensive abnormal tracer uptake in the axial and visualized appendicular skeletal system (red arrows), abnormal tracer in the uptake in the left upper abdomen (blue arrow), and central abdominal region (green arrow). (b) Coronal fused image showing pancreatic lesion (blue arrow), multiple discrete and conglomerated retroperitoneal lymph nodes (green arrow), and skeletal lesions (red arrow). (c and d) Axial images show cervical and mediastinal lymph nodes (green arrow). (e and f) Fused axial image showing mass lesion in the tail of the pancreas (blue arrow) and abdominal-retroperitoneal lymph nodes (green arrow). (g) Fused axial image showing abdominal-retroperitoneal lymph nodes (green arrow). (c-h) Extensive lytic sclerotic skeletal lesions are noted in the visualized bones (red arrow)

treatment.[8] Median survival for locally advanced PC is just 6–10 months. However, in metastatic disease, this falls to 3–6 months. Overall, the 5-year survival is <4%.[9] This case report highlights the utility of FDG PET/CT in the patients of SMUP. FDG PET/CT was able to confirm the site of primary cancer. This case represents an extensive SMUP from PC in a young male with no metastases to the liver or lung.

Declaration of patient consent

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

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Conflicts of interest

There are no conflicts of interest.

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