Interesting image

Gastrointestinal stromal tumour with unusual sites of metastasis: Accurate staging with $^{18}$F-FDG PET/CT

Tumor del estroma gastrointestinal con metástasis en localización poco habitual: una estadificación correcta con $^{18}$F-FDG PET/TC

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A 57-year-old male presented with pain in the abdomen for which he underwent contrast-enhanced computed tomography (CECT), which revealed a large heterogeneously enhancing abdominal mass with multiple peritoneal, hepatic, adrenal and pulmonary metastases (images not shown). Subsequent biopsy from the liver lesion revealed presence of spindle cells with immunohistochemistry positive for CD 117 and diagnosis of metastatic gastrointestinal stromal tumour (GIST) was made. $^{18}$F

![Fig. 1. $^{18}$F-FDG PET/CT images revealing margined abdomino-pelvic soft tissue density mass displacing the bowel loops and infiltration of the mesentry with heterogeneously increased tracer uptake (A and F; arrow). Additionally, there was evidence of metabolically active metastatic disease involving bilateral lungs (B), multiple skeletal muscles (C), multiple subcutaneous nodules (C), liver (D; arrow head), right adrenal (D), mesenteric nodules (E) and bone marrow sites (G).](image-url)
fluorodeoxyglucose ($^{18}$F-FDG) PET/CT was performed for staging the disease and as a baseline study prior to treatment. PET/CT images revealed fairly margined abdomino-pelvic soft tissue density mass displacing the bowel loops and infiltration of the mesentry with heterogeneously increased tracer uptake. Additionally, there was evidence of metabolically active metastatic disease involving right adrenal, multiple skeletal muscles, multiple bone marrow sites, bilateral lungs and liver (Fig. 1). Multiple FDG avid mesenteric and peritoneal nodules were also noted. GISTs are the most common mesenchymal neoplasm of the gastro-intestinal tract and are characterised by uncontrolled proliferation of interstitial cells of Cajal (ICC). Stomach is the most common site (70%) for GISTs followed by the small intestine (20%). Anorectal, colonic, and esophageal GISTs are uncommon, whereas extraintestinal GISTs are extremely rare. $^{18}$F-FDG PET/CT has a higher sensitivity and accuracy for detecting marrow infiltration and/or metastases in comparison to CECT. In the present case, there was no significant cortical destruction or skeletal changes discernible on CT images involving the metabolically active marrow lesions. Distant metastases of GIST are reported in up to 50% of cases at presentation. Hematogenous spread and direct peritoneal seeding are the 2 main routes of metastasis, rendering the liver and peritoneum the most common locations. Distant metastasis to other sites, especially the bones and the lung, is relatively rare. $^{18}$F-FDG PET/CT appears to be of potential value in initial disease evaluation including prediction of malignant potential in recently diagnosed GIST and in selection of optimal dose of imatinib for therapy. Though there are isolated reports citing the example of skeletal muscle metastases and adrenal metastases in the patients of GIST detected by conventional imaging, to our best of knowledge no such reports have been documented with $^{18}$F-FDG PET/CT. Metastatic lesions in skeleton and lymph node have been documented on $^{18}$F-FDG PET/CT. Furthermore the skeletal muscle and bone metastases in the present case were identified by the $^{18}$F-FDG PET/CT demonstrating its potential advantage over CECT in the determination of initial staging and disease extent in the patients of GIST. This case was a unique case of GIST showing unusual site of metastasis identified on $^{18}$F-FDG PET/CT and further emphasising the role of $^{18}$F-FDG PET/CT in the initial evaluation of the patient with GIST.

References