^{18}F-FDG PET/CT Imaging of Primary Gastric Lymphoma

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Primary gastric lymphoma (PGL) accounts for less than 4% of gastric neoplasms. ^{18}F-FDG PET with simultaneously acquired CT (^{18}F-FDG PET/CT) allows for staging and differentiation from other gastric cancers. Rapid diagnosis and staging are important because chemotherapeutic response is generally favorable. We describe a case of an 83-y-old woman with stage II_1 PGL. ^{18}F-FDG PET/CT can be helpful to differentiate various gastric masses and is an important factor in the staging of PGL.

Key Words: gastrointestinal; oncology; GI; lymphoma; PET; PET/CT; gastric cancer; primary gastric lymphoma

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PET/CT with ^{18}F-FDG can be useful to differentiate PGL from other nonlymphomatous gastric cancers and provides more accurate staging information, as illustrated by this case report.

CASE REPORT

An 83-y-old woman presented with fatigue, weight loss, upper abdominal pain made worse by eating, and a palpable mid-epigastric mass. A CT scan noted wall thickening of the gastric pylorus and body, measuring up to 1.1 cm, and an enlarged 1.4-cm lymph node adjacent to the right gastroepiploic vessels. PET/CT obtained 70 min after the injection of 442.15 MBq (11.95 mCi) of ^{18}F-FDG demonstrated diffuse gastric wall hypermetabolism and avidity of the enlarged lymph node and an SUV_{max} of 25 and 15.3, respectively (Fig. 1). Upper endoscopy revealed a large ulcerated distal gastric body and antrum mass extending across the pylorus. Subsequent biopsy was consistent with diffuse large B cell lymphoma and the patient was diagnosed with stage II_1 gastrointestinal lymphoma. A CT scan 1 mo after chemotherapy showed improvement (Fig. 2).

DISCUSSION

The stomach is the most common site for extranodal lymphoma, accounting for up to 50% of gastrointestinal lymphomas (*1*). Primary gastric lymphoma (PGL) is most commonly either low-grade mucosa-associated lymphoid tissue lymphoma or diffuse large B cell lymphoma, which vary in terms of histology, epidemiology, morbidity, and treatment yet appear similar on imaging.

^{18}F-FDG PET/CT is valuable in both detecting and staging PGL. The sensitivity of ^{18}F-FDG PET/CT for detecting the diffuse large B cell lymphoma subtype of PGL is estimated

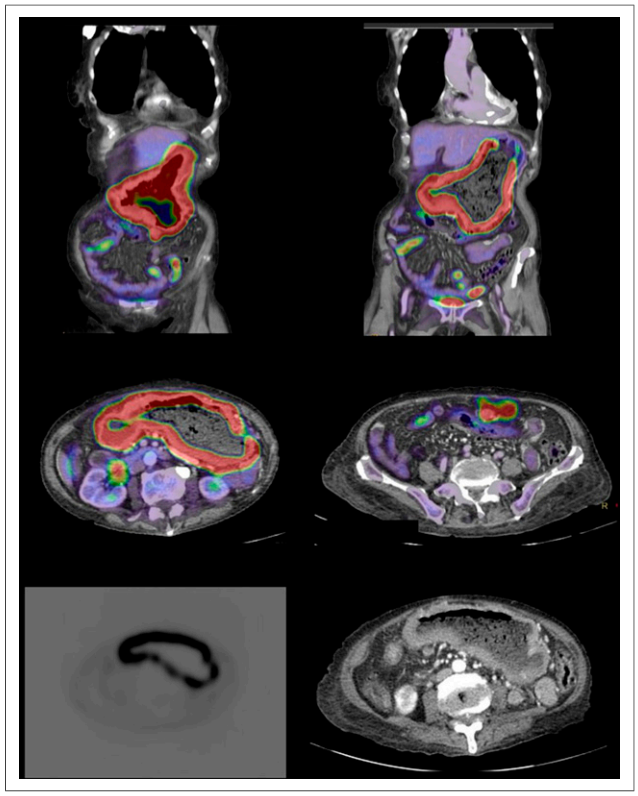

FIGURE 1. Marked diffuse gastric wall ^{18}F-FDG uptake with an enlarged and avid adjacent lymph node.

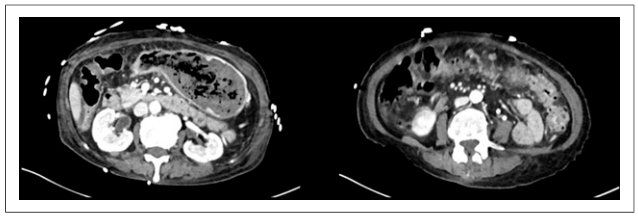

FIGURE 2. One-month follow-up CT shows significant improvement.

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to be 97%–100% (*2*). The high sensitivity is helpful because submucosal disease can be missed on endoscopy.

The Lugano staging system defines stage I as confined to the source organ, stage II as abdominal lymph node spread (local II_1, distant II_2) or adjacent organ involvement (IIE), and stage IV as disseminated extranodal disease or supradiaphragmatic nodal involvement; no stage III is used. Given improved detection of unsuspected distant disease, particularly extranodal involvement, with ^{18}F-FDG PET/CT over anatomic imaging alone, PET/CT has been shown to correctly upstage disease in 22% and downstage disease in 14% of cases (*3*). SUV_{max} has also been shown to correlate with aggressiveness, with higher uptake associated with advanced Lugano stage (*2*).

CT findings of focal wall thickening and secondary gastric outlet obstruction suggest gastric adenocarcinoma over PGL. ^{18}F-FDG PET/CT, however, can quantitatively differentiate wall thickening associated with PGL and nonlymphomatous cancers because there is generally a linear relationship between SUV_{max} and maximal gastric wall thickness in nonlymphomatous cancers, whereas PGL does not show a correlation between the 2 measurements (*4*). Our patient had maximal gastric wall thickness of 1.1 cm with an SUV_{max} of 25.0. Wu et al. emphasize this point, showing that ^{18}F-FDG metabolism was independent of wall thickness in PGL allowing for exceptionally avid gastric walls throughout a wide range of wall thickness, as is the case in our patient (*4*).

CONCLUSION

^{18}F-FDG PET/CT can be useful to differentiate PGL from other nonlymphomatous gastric cancers and provides more accurate staging information.

DISCLOSURE

No potential conflict of interest relevant to this article was reported.

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