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# Letters to the Editor

## Use of an oral effervescent agent in the diagnostic of gastric carcinoma with 18F-FDG PET/CT

*Key words: Gastric carcinoma. PET/CT. Virtual gastroscopy.*

*Dear Editor,*

A 76-year-old man with a history of lung cancer IV E (T4N0M0) and pulmonary lobectomy (left lung upper lobe) performed 4 years ago was treated with four chemotherapy cycles of cisplatine-vinorelbine (CDDP-VNR) and radiotherapy. Thenceforth in complete remission.

PET/CT study was required for suspected space-occupying lesion (SOL) in liver region after the last control with CT, where recurrence at lung and six hepatic hypodense SOL, suspicious of metastasis, were reported. When the patient arrived to our department he was being treated with antihypertensive, dyslipidemic, NSAIDs and proton pump inhibitors, presenting evidence of mucocutaneous jaundice, generalized weakness, dyspepsia, weight loss and microcytic anemia (MCV 75.1 fl and MCHC 30.9 g/dL).

PET/CT study with fluorine-18-fluorodeoxyglucose (18F-FDG) (Philips Gemini TF16) showed a suprahilar left mass (diagnosed as recurrence in the last CT scan) with high glucose uptake, standard uptake value ($SUV_{max}$) of 13.6, an elevated gastric glucose metabolism ($SUV_{max}$ 8.6) in a collapsed stomach and a hypermetabolic reservoir in sigma ($SUV_{max}$ 12.9) without demonstrating alterations in liver tracer binding. We decided to make a late acquisition of abdomino-pelvic region to accurate the limits of gastric lesion (Fig. 1) at 180 minutes postinjection using fruit salt to distend the stomach (1-3), showing an excrescent mass uptake in its lesser curvature, increasing $SUV_{max}$ values by 18 % over the initial, suggesting malignancy and increasing the suspected diagnosis to gastric carcinoma (GC). Through image processing, virtual gastroscopy was performed (9) which showed a second aspect polypoid tumor of 5 mm (Fig. 2) in the pyloric antrum, undetected in the multiplanar images.

The sigma deposit also rose by 42 % in $SUV_{max}$ which was also oriented to malignancy.

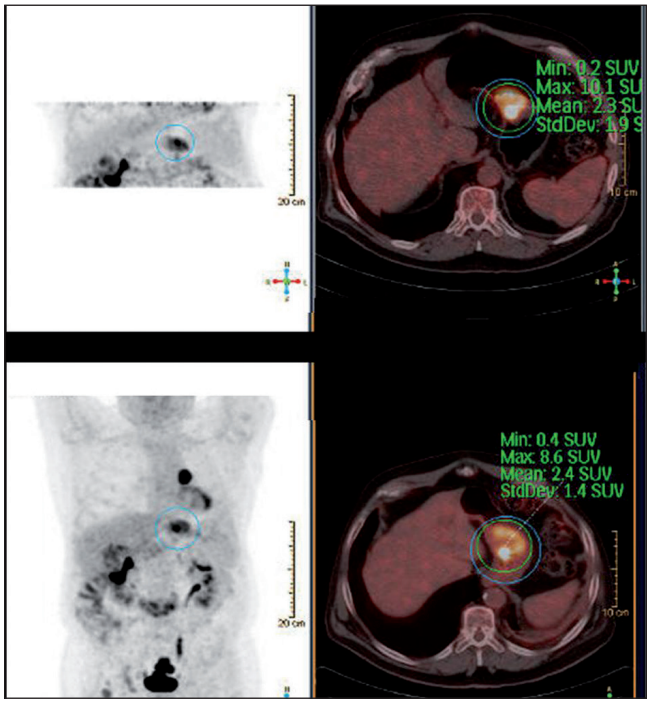


Fig. 1. MIP image and axial fusion planes 18F-FDG PET/CT. Late abdominal region acquisition (above) 180 minutes after administration of 6 mCi 18F-FDG and whole body PET/CT performed one hour after injection (below). Comparative of $SUV_{max}$ measurement of gastric uptake in the lesser curvature.

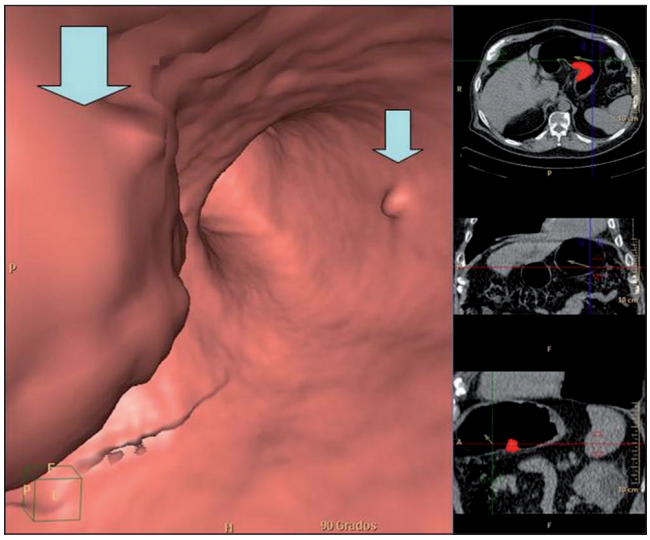

Fig. 2. Virtual gastroscopy: Spatially referenced (on the right). Excrescent mass in gastric lesser curvature and image of polypoid lesion in the pyloric antrum of the stomach (arrows).

Both gastric lesions were biopsied by endoscopic guidance, demonstrating the histopathological examination of the polypoid lesion a tubular adenoma with high-grade dysplasia without invasion of the epithelium. The mass of the lesser curvature was diagnosed as initial intestinal type adenocarcinoma. It was not identified the presence of *Helicobacter pylori* (HP) in the samples. Biopsy of colon (sigma) by colonoscopy proved to be a moderately differentiated adenocarcinoma infiltrating and ulcerated.

## Discussion

The concomitance of three synchronous primary tumors in the lung, stomach and colon is a rare find and it also difficult the therapeutic management of the patient.

The uptake of 18F-FDG at gastric carcinoma is not unique, having to make a differential diagnosis with benign entities such as gastritis (with or without *HP*), or malignant entities such as ring cell carcinoma, diffuse B-cell lymphoma, MALT lymphoma, mediastinal B-cell lymphoma, gastrointestinal stromal tumors or gastric metastases (4-8).

The oral administration of an effervescent agent allows more accurate assessment of the gastric wall by reducing false positives of gastric collapse and better delineation of the extent of lesions. Furthermore, the possibility of virtual gastroscopy by software (9,10) gives a value-added to this technique.

Raúl Sánchez-Jurado, José Ferrer-Rebolleda,
M.ª del Puig Cózar-Santiago, José Enrique Aguilar-Barrios,
Manuel Devis-Saiz and Rut Sanz-Llorens

*ERESA-Nuclear Medicine Department. Consorcio Hospital General Universitario de Valencia. Valencia, Spain*

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