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Case Report

Metachronous presentation of small-cell rectal carcinoma on an 18F-FDG PET/CT follow-up for follicular lymphoma

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ABSTRACT

We present a case of a 60-year-old woman with history of follicular lymphoma in remission presenting for an 18F-fluorodeoxyglucose positron emission tomography/computed tomography for suspected recurrence. Imaging showed widespread hypermetabolic lymphadenopathy consistent with lymphoma recurrence. A 3-month 18F-fluorodeoxyglucose positron emission tomography/computed tomography follow-up after chemotherapy showed resolution of hypermetabolic lymphadenopathy but multiple new hepatic lesions and a new subtle rectal lesion. Biopsies of both hepatic and rectal lesions revealed new diagnosis of metachronous high-grade small-cell carcinoma.

Introduction

Small-cell carcinoma of the rectum is a rare, aggressive neoplasm derived from neuroendocrine cells within the gastrointestinal (GI) tract [1,2]. Very few case reports of small-cell rectal carcinoma have been published, and available therapies are generally not very effective, with the disease generally carrying a poor prognosis [1]. We describe an unusual case of metachronous small-cell rectal carcinoma presenting on an 18F-fluorodeoxyglucose positron emission tomography/computed tomography (18F-FDG PET/CT) follow-up for follicular lymphoma.

Case report

A 60-year-old woman with a 5-year history of follicular lymphoma in remission was referred for 18F-FDG PET/CT imaging for a suspected relapse [3–5]. The 18F-FDG PET/CT (Fig. 1) showed diffuse, hypermetabolic lymphadenopathy in the neck, chest, abdomen, and pelvis consistent with lymphomatous recurrence. There was also a small hypermetabolic focus of activity within the liver, which was not described on the original PET-CT report, but was noted retrospectively on follow-up. The patient underwent chemotherapy and returned for a 3-month imaging

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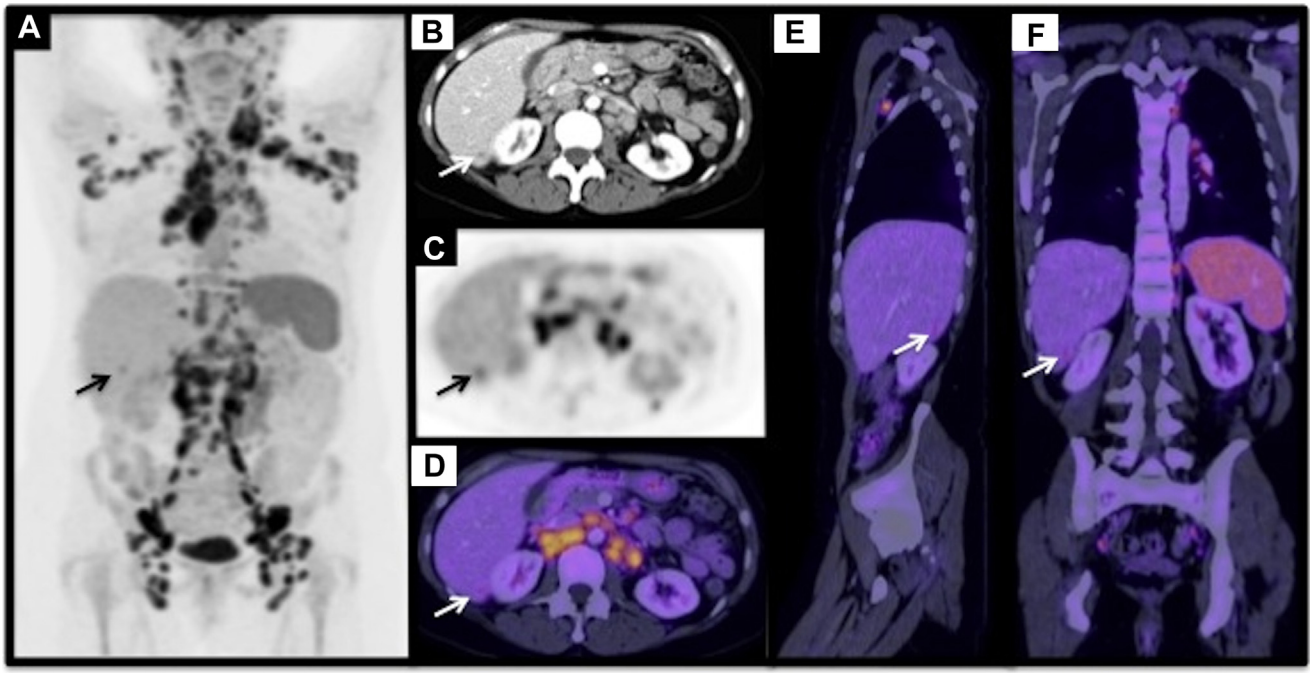

Fig. 1 – A 60-year-old woman with follicular lymphoma. Three-dimensional maximum intensity projection (3D-MIP) image (A) of baseline 18F-FDG PET/CT demonstrates diffuse, hypermetabolic lymphadenopathy in the neck, chest, abdomen, and pelvis consistent with recurrent lymphoma. Diffuse uptake within the spleen and bone marrow is also noted, likely related to lymphomatous involvement considering biopsy-proven bone marrow involvement. In addition, a very subtle focus of uptake is noted in the liver (arrow), as also better illustrated on representative axial CT (B), axial attenuated corrected PET (C), and axial (D), sagittal (E), and coronal fused PET/CT images (F).

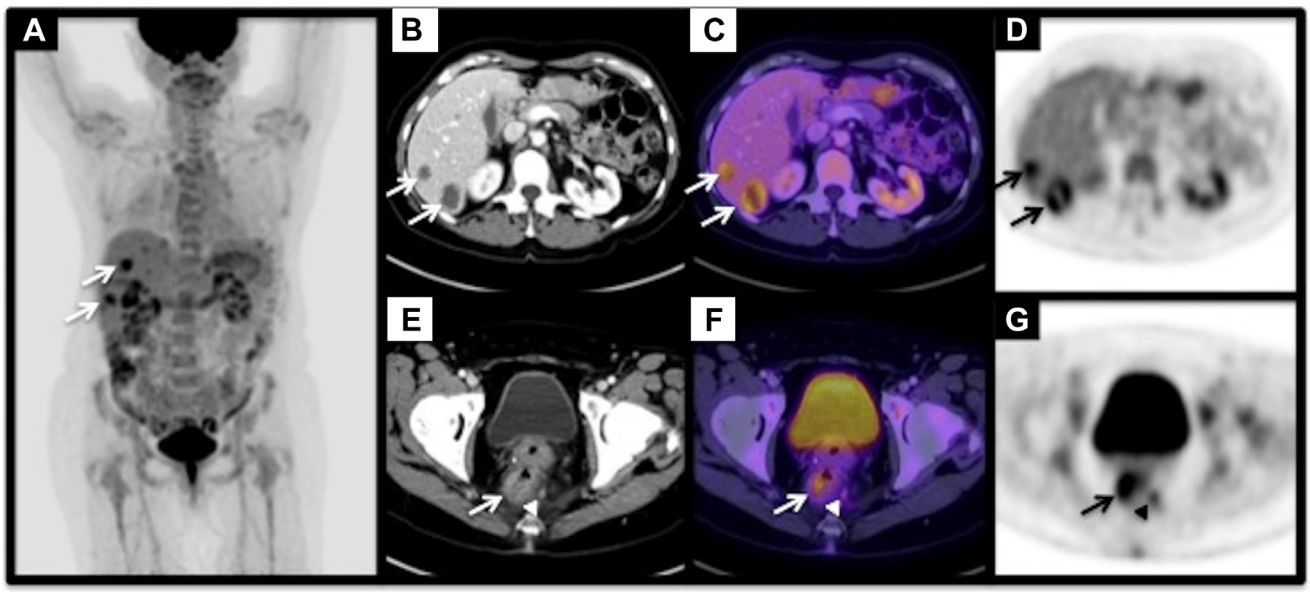

Fig. 2 – A 60-year-old woman with follicular lymphoma. 3D-MIP image from a 3-month 18F-FDG PET/CT follow-up after chemotherapy (A) demonstrates marked improvement of diffuse hypermetabolic lymphadenopathy. However, PET/CT 3D-MIP (A) and representative axial CT (B), PET-CT fused (C) and attenuation-corrected PET images (D) of the upper abdomen show interval increase in size and metabolic activity of the subtle liver lesion noted retrospectively on the baseline scan and interval development of multiple new hypermetabolic intrahepatic lesions (arrows). In addition, axial CT (E), PET-CT fused (F), and attenuation-corrected PET images (G) of the pelvis demonstrate a new, subtle area of rectal wall thickening (arrow) and a mildly prominent perirectal lymph node (arrowhead).

follow-up. The 18F-FDG PET/CT (Fig. 2) showed significant interval improvement in diffuse hypermetabolic lymphadenopathy consistent with metabolic response to treatment. However, there was interval worsening of hepatic disease and development of other new hepatic lesions, as well as interval development of a small, focal area of rectal wall thickening with an associated hypermetabolic perirectal lymph node, raising suspicion for a separate disease process. Biopsy of the intrahepatic lesions revealed metastatic small-cell carcinoma. Subsequent colonoscopy and biopsy of the thickened portion of the rectum was also consistent with primary rectal small-cell carcinoma.

Discussion

Although the development of a metachronous tumor is not an uncommon occurrence, the development of small-cell rectal carcinoma is extremely rare. Previous studies have found that the GI tract is the most common site for extrapulmonary small-cell carcinoma, representing approximately 20% of diagnosed cases [6]. Neuroendocrine tumors of the GI tract often present with metastatic disease and thus generally carry a poor prognosis [7]. Prior case reports have shown that the disease is invariably fatal, and therapy is complex due to the rarity and limited reports describing effective treatment of these tumors [1]. In addition, many of these tumors have been found to have components of squamous cell carcinoma and adenocarcinoma, which further complicate treatment [2].

A few case reports have described increased incidence of small-cell carcinoma of the anus in patients with known HIV infections, suggesting an association between disease development and immunosuppression [8–10]. In this HIV-negative patient, immunosuppression related to chemotherapy initiation for lymphoma may have contributed to the rapid progression of the primary rectal small-cell cancer and associated hepatic metastases. Further studies are needed to better understand rectal small-cell cancer tumor biology and to make strides toward optimal diagnosis and treatment.

REFERENCES

[1] Spiliopoulou P, Panwar U, Davidson N. Rectal small-cell carcinoma: a case report and review of the literature. Case Rep Oncol 2011;4(3):475–80.
[2] Brenner B, Shah MA, Gonen M, Klimstra DS, Shia J, Kelsen DP. Small-cell carcinoma of the gastrointestinal tract: a retrospective study of 64 cases. Br J Cancer 2004;90(9):1720–6.
[3] Buchpiguel CA. Current status of PET/CT in the diagnosis and follow up of lymphomas. Rev Bras Hematol Hemoter 2011;33(2):140–7.
[4] Kwee TC, Kwee RM, Nievelstein RA. Imaging in staging of malignant lymphoma: a systematic review. Blood 2008;111(2):504–16.
[5] Novelli S, Briones J, Flotats A, Sierra J. PET/CT assessment of follicular lymphoma and high grade B cell lymphoma - good correlation with clinical and histological features at diagnosis. Adv Clin Exp Med 2015;24(2):325–30.
[6] Haider K, Shahid RK, Finch D, Sami A, Ahmad I, Yadav S, et al. Extrapulmonary small-cell cancer: a Canadian province's experience. Cancer 2006;107(9):2262–9.
[7] Bernick PE, Klimstra DS, Shia J, Minsky B, Saltz L, Shi W, et al. Neuroendocrine carcinomas of the colon and rectum. Dis Colon Rectum 2004;47(2):163–9.
[8] Alcindor T, Tosikyan A, Vuong T, Marcus V. Small-cell anal carcinoma and AIDS: case report and review of the literature. Int J Colorectal Dis 2008;23(1):135–6.
[9] Marcus DM, Edgar MA, Hawk NN, Sullivan PS, Stapleford LJ. Small-cell carcinoma of the anus in the setting of prior squamous dysplasia and carcinoma in situ. J Gastrointest Oncol 2013;4(2):E1–4.
[10] Nakahara H, Moriya Y, Shinkai T, Hirota T. Small-cell carcinoma of the anus in a human HIV carrier: report of a case. Surg Today 1993;23(1):85–8.