

Colonic Adenoma Detected by Positron Emission Tomography (PET): A Case Report

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(Received May 25, 1998; Accepted May 30, 1998)

A 61-year-old asymptomatic woman underwent whole-body positron emission tomography (PET) with ¹⁸F-fluorodeoxyglucose and was found to have a lesion in the ascending colon. Further colonic examination was not performed due to her medical condition. One year later, the lesion was demonstrated again by PET. After the second PET study, she underwent colonoscopy, which revealed a pedunculated polyp in the ascending colon. A polypectomy was performed. Histopathological study showed a 1.8-cm adenoma with mild to moderate atypia. The findings in our case suggest that increased glucose metabolism can be depicted by PET in colonic adenoma as well as in primary colonic carcinoma. Although the differentiation between colonic adenoma and carcinoma can not be determined by PET, adenomas are considered to have potential for malignant transformation and thus need to be resected. Therefore, it is noteworthy that PET can be used in the detection of adenomas.

(Key words: colonic adenoma, glucose metabolism, positron emission tomography (PET), ¹⁸F-fluorodeoxyglucose (FDG), colonic neoplasm)

INTRODUCTION

Positron emission tomography (PET) using ¹⁸F-fluorodeoxyglucose (FDG) has been used successfully in the diagnosis of various cancers. Given its high sensitivity for detecting hypermetabolic sites and its ability to survey the entire body noninvasively, FDG PET can be used in cancer screening, and we have been doing so since September 1994 (1). Many cancer cases are detected in potentially curative stages, and we had a patient who was found to have a colonic adenoma that was subsequently resected successfully by colonoscopic polypectomy. Here, we present the case and discuss the utility of FDG PET for the detection of colonic adenomas.

CASE REPORT

A 61-year-old asymptomatic woman underwent whole-body PET screening for cancer. Before the PET study, the woman fasted for over 4 hours. Sixty minutes after the administration of 260 MBq of FDG, emission scanning was performed with a

whole-body PET scanner (ECAT EXACT47, Siemens/CTI, Knoxville, TN, USA). On the PET images, high FDG uptake was found in the ascending colon, and a colonic tumor was suspected. The patient was referred to her local hospital for further examination. However, because the patient was found to have cerebrovascular disease and ischemic heart disease, colonic examination was not performed. One year later, the patient underwent a second PET study in our institution. High FDG uptake was again noted in the ascending colon (Fig. 1). Because her health status showed improvement at that time, she underwent colonoscopy after the second PET study. The colonoscopy revealed a pedunculated polyp in the ascending colon, and polypectomy was performed (Fig. 2). Histopathological study showed a 1.8-cm adenoma with mild to moderate atypia (Fig. 3).

DISCUSSION

To our knowledge, our report is the first to describe a colonic adenoma depicted by

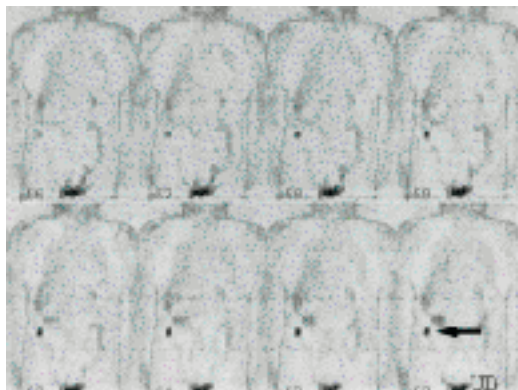


Fig. 1 On 8 consecutive coronal tomographic PET images, high FDG uptake is observed in the abdomen, suggesting a lesion in the ascending colon (arrow).

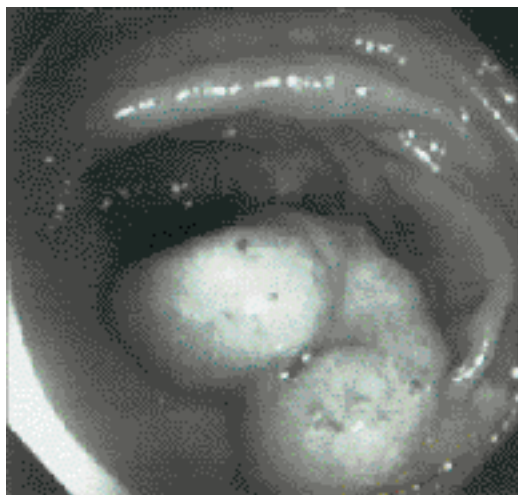


Fig. 2 Demonstration of an ascending colonic polyp by colonoscopy. The polyp was pedunculated, and endoscopic polypectomy was performed. The polyp was 18×15×7 mm.

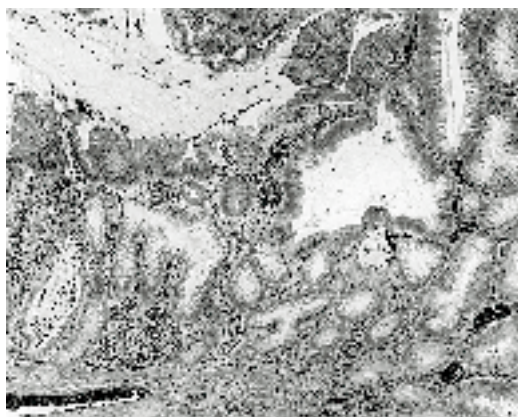


Fig. 3 Histology reveals an adenoma with mild to moderate atypia. (H & E, ×25).

PET studies performed 1 year apart. Intense FDG uptake was observed both times. Eventually, the adenoma was treated successfully by endoscopic polypectomy. The findings in our case demonstrate that PET can detect colonic adenoma in a treatable stage.

Colonic adenoma is clinically important as a premalignant lesion. Its detection and resection have contributed to the reduction in the death rate from colorectal cancer (2). Because double-contrast barium enema and colonoscopy are the gold standards for the diagnosis of colonic adenoma, the use of PET will be limited. The advantage of PET imaging is that it can survey the entire body noninvasively, including the colon and rectum, without bowel preparation. Therefore, PET can be applied to high-risk patients. Further studies are necessary to determine the appropriate role of PET in the diagnosis of colonic adenoma.

The findings in our case suggest that increased glucose metabolism can be intensely depicted by PET in colonic adenoma as well as in primary colonic carcinoma (3). Hypermetabolism is not specific to cancers. We have observed high FDG uptake in benign diseases such as chronic thyroiditis (4), sarcoidosis (5), rheumatoid arthritis (6), and maxillary sinusitis (7). The differentiation between colonic adenoma and carcinoma can not be determined by PET. However, adenomas are considered to have potential for malignant transformation and thus should be resected. Most adenomas are treatable by colonoscopic polypectomy. Therefore, it is important to show that adenomas can be detected by PET.

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