Colovesical Fistula in a Patient With Recurrent Cervical Cancer Detected by FDG PET/CT

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Abstract: We report the case of a 57-year-old woman with the history of stage IB cervical cancer. She was found to have a metastatic squamous cell carcinoma in sigmoid colon. FDG PET/CT was then performed for whole-body cancer work-up. Intense FDG activity accumulated in the sigmoid tumor, with an unusually high SUVmax of 72.42, and was seen downwardly connected with the activity of urinary bladder on PET images. On the coregistered CT images, irregular wall thickening was noted for both sigmoid colon and urinary bladder with a hypodensity tract communicating with each other. It was concluded that recurrent cervical cancer involving urinary bladder and sigmoid colon resulted in colovesical fistula.

Received for publication February 9, 2010; revision accepted May 26, 2010.
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ISSN: 0363-9762/10/3510-0808

Key Words: colovesical fistula, sigmoid, cervical cancer, FDG, PET/CT

(*Clin Nucl Med* 2010;35: 808–810)

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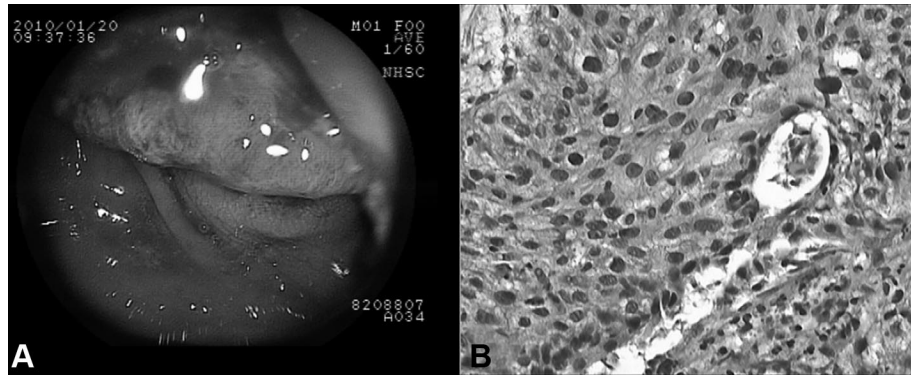

FIGURE 1. The presented case was a 57-year-old woman who had been treated for cervical cancer with radical hysterectomy, bilateral salpingo-oophorectomy, and pelvic lymph node dissection in June 2006, and finally staged as IB. The surgery was also complicated with urinary bladder perforation, which was repaired intraoperatively. Follow-up examinations had been uneventful until August 2009, when she was bothered by frequent dysuria and hematuria in the following 5 months. In addition, she had complaints of pneumaturia occasionally. She was initially treated for urinary tract infection until she was referred for colofibroscopy in January 2010, due to an episode of bloody stool. A semicircular ulcerative mass with easy touch bleeding was found in colon at 25 cm from anal verge, initially impressed as a sigmoid colon cancer (**A**). However, the histopathologic examination revealed a squamous cell carcinoma, hence it was considered as direct invasion of the recurrent cervical cancer (**B**).

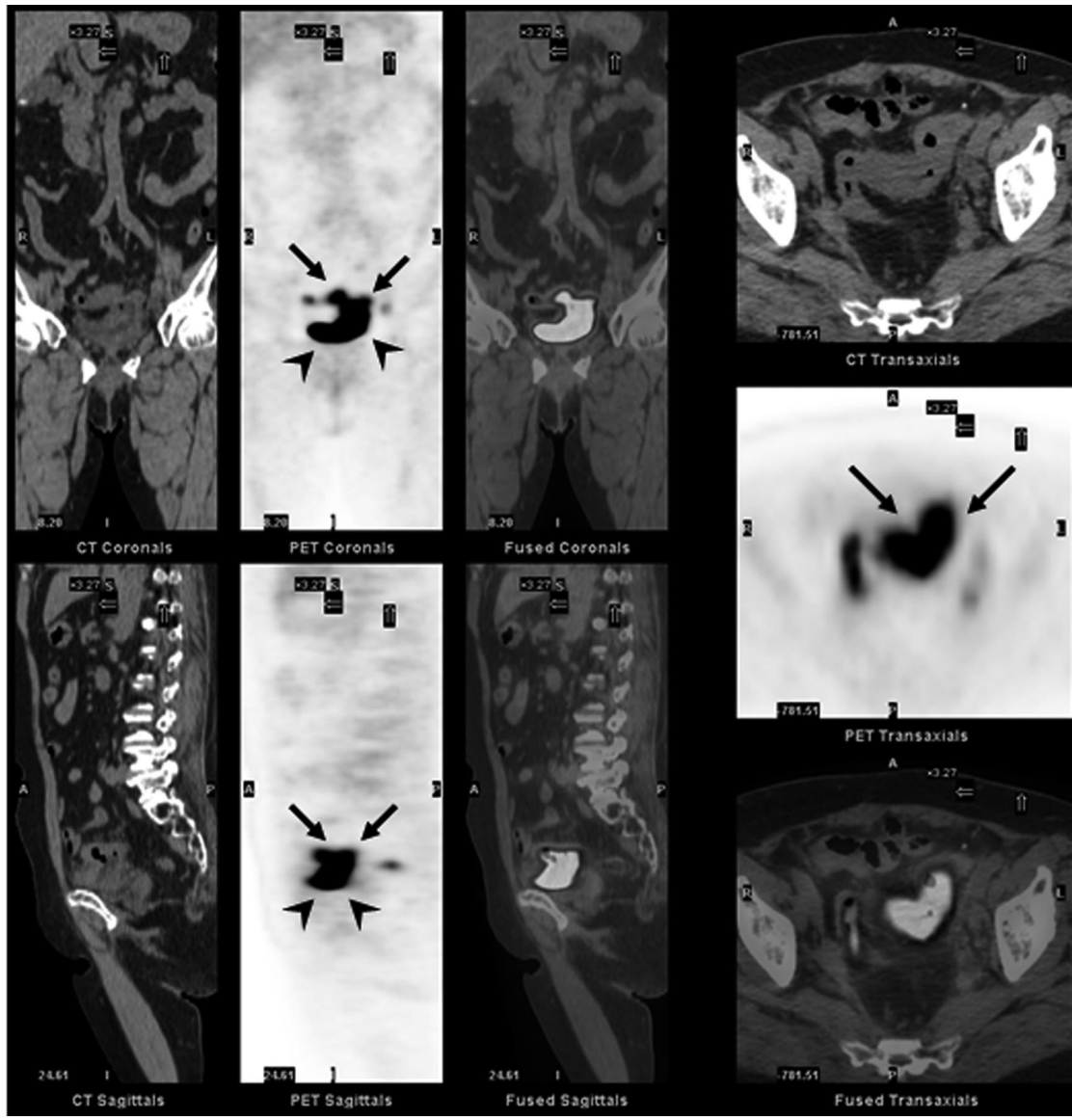

FIGURE 2. Under the impression of recurrent cervical cancer, FDG PET/CT was performed for whole-body cancer work-up.[1] The transaxial, coronal, and sagittal views of CT, PET, and fused PET/CT images revealed intense accumulation of FDG activity in the sigmoid colon (arrows), which was seen downwardly connected with the activity in the urinary bladder on PET images (arrow heads). The measured 1-hour SUVmax in sigmoid colon was unusually high as 72.42, which was very close to that measured in the urinary bladder (SUVmax: 87.74) and was considered to be contaminated by urine FDG activity via a fistula.[2] In addition, there was irregular wall thickening for sigmoid colon and urinary bladder, with a hypodensity tract communicating both organs on the coregistered CT images, compatible with tumor invasion involving both sigmoid colon and urinary bladder with a fistula formation (best seen on coronal views). The following cystoscopy revealed mass lesions involving superior walls of bladder. Combining the typical symptoms and the findings of PET/CT, it was concluded that recurrent cervical cancer involving both urinary bladder and sigmoid colon resulted in colovesical fistula (CVF). CVF is an abnormal connection between the bladder and large intestine, usually sigmoid colon. The most common underlying etiology was diverticular disease, followed by colon cancer, Crohn's disease, bladder cancer, radiotherapy, and trauma.[3–5] The orders of presented symptoms were pneumaturia, urinary tract infection, dysuria, fecaluria, and hematuria. CT was the modality of choice to establish the diagnosis of CVF, and colofibroscopy was followed to rule out malignancy as a cause of CVF. Barium enema and cystography were also suggested to be useful, whereas, cystoscopy and intravenous pyelogram were nondiagnostic.[6] The experience of FDG PET/CT, an integrated metabolic and anatomic imaging modality, on CVF has not been reported before. As presented in our case, the physiologic urine excretion of FDG, as well as other renal excreting agents, like Tc-99m MDP and Tc-99m DTPA, makes it a very good contrast agent of urinary tracts to visualize CVF.[7–9] FDG PET/CT is promising in detecting CVF.