

Simultaneous Rectal Schwannoma and Prostatic Adenocarcinoma Detected on FDG PET/CT

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Abstract: A case of an 84-year-old man with suspicious rectal cancer has been reported. The patient underwent FDG PET/CT for whole-body survey. Unexpectedly, FDG PET/CT demonstrated abnormally increased FDG uptake in rectum (SUV_{max}: 3.33) and prostate (SUV_{max}: 5.66) simultaneously. Ultimately, biopsies of rectal tumor and prostatic gland confirmed diagnoses of synchronous schwannoma in the rectum and adenocarcinoma in the prostate. To our best knowledge, this is the first case of rectal schwannoma with representative FDG PET/CT scan in the literature.

Key Words: rectal cancer, schwannoma, neurilemmoma, prostate cancer, synchronous cancer, FDG PET/CT

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REFERENCES

1. Daimaru Y, Kido H, Hashimoto H, Enjoji M. Benign schwannoma of the gastrointestinal tract: a clinicopathologic and immunohistochemical study. *Hum Pathol.* 1988;19:257–264.
2. Abraham SC. Distinguishing gastrointestinal stromal tumors from their mimics: an update. *Adv Anat Pathol.* 2007;14:178–188.
3. Miettinen M, Shekitka KM, Sobin LH. Schwannomas in the colon and rectum: a clinicopathologic and immunohistochemical study of 20 cases. *Am J Surg Pathol.* 2001;25:846–855.
4. Fotiadis CI, Kouerinis IA, Papandreou I, et al. Sigmoid schwannoma: a rare case. *World J Gastroenterol.* 2005;11:5079–5081.
5. Miettinen M, Sarlomo-Rikala M, Lasota J. Gastrointestinal stromal tumours. *Ann Chir Gynaecol.* 1998;87:278–281.
6. Miettinen M, Virolainen M, Maarit Sarlomo R. Gastrointestinal stromal tumors—value of CD34 antigen in their identification and separation from true leiomyomas and schwannomas. *Am J Surg Pathol.* 1995;19:207–216.
7. Sarlomo-Rikala M, Miettinen M. Gastric schwannoma—a clinicopathological analysis of six cases. *Histopathology.* 1995;27:355–360.
8. Wu YC, Hsieh TC, Kao CH, et al. Thallium-201 scintigraphy of myxofibrosarcoma. *Clin Nucl Med.* 2009;34:943–945.
9. Hamada K, Tomita Y, Qiu Y, et al. (18)F-FDG PET analysis of schwannoma: increase of SUVmax in the delayed scan is correlated with elevated VEGF/VPF expression in the tumors. *Skeletal Radiol.* 2009;38:261–266.
10. Halac M, Cnaral F, Sait S, et al. FDG PET/CT findings in recurrent malignant schwannoma. *Clin Nucl Med.* 2008;33:172–174.
11. Santaella Y, Borrego I, Lopez J, et al. [18-FDG-PET in a case of recurrent malignant schwannoma]. *Rev Esp Med Nucl.* 2005;24:127–130.
12. Nishio M, Tamaki T, Hara M, et al. Appendiceal schwannoma detected by FDG-PET/CT. *Clin Nucl Med.* 2010;35:379–380.
13. Wang CL, Neville AM, Wong TZ, et al. Colonic schwannoma visualized on FDG PET/CT. *Clin Nucl Med.* 2010;35:181–183.

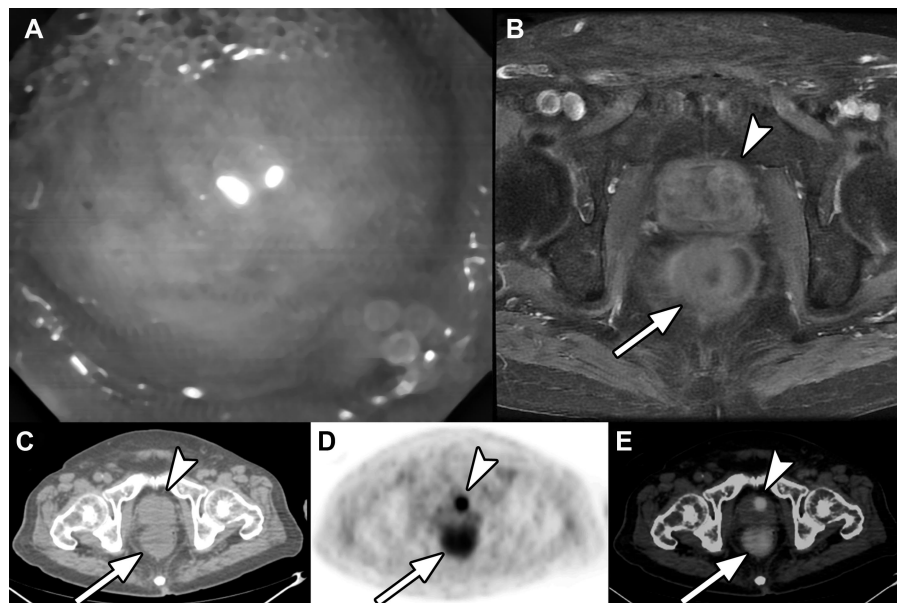


FIGURE 1. An 84-year-old man with a history of hypertension and arrhythmia presented reduction in diameter of stool and tenesmus for 6 months. Otherwise, he complained of bloody stool once. Digital rectal examination revealed a protruding mass approximately 5 cm from anal verge. Subsequently, he underwent routine laboratory studies, colonofiberscopy, MRI of pelvis, and FDG PET/CT for systemic survey of suspicious of rectal cancer. Routine laboratory studies, including complete blood count, serum chemistries, and tumor markers, were within normal limits except elevated serum PSA (61.359 ng/mL). Colonofiberscopy (A) revealed a round and elastic submucosal mass with smooth surface; biopsy of the rectal tumor was done in the same time. MRI of pelvis (B) showed a well enhancement of submucosal tumor measuring 5.4×4.3 cm in size in the rectum (arrows). Accidentally, an asymmetrically enlarged prostate gland with heterogeneous enhancement was noted in the same time (B; arrowheads). In addition, FDG PET/CT (C–E) demonstrated abnormally increased FDG uptake in rectum (SUV_{max} : 3.33; arrows) and prostate simultaneously (SUV_{max} : 5.66; arrowheads). Thus, he also underwent transrectal ultrasonography and prostate biopsy. Ultimately, biopsies of rectal tumor and prostatic gland confirmed diagnoses of synchronous schwannoma and adenocarcinoma.

Schwannoma, also referred to as neurilemmoma and Schwann cell tumor, is a benign tumor arising from the peripheral nerve sheath. Schwannomas of the gastrointestinal tract are rare and occur predominantly in older adults.¹ Both morphologically and genetically, gastrointestinal schwannomas are distinct from conventional schwannomas.² In addition, gastrointestinal schwannomas are most commonly in the stomach, whereas extremely rare in the rectum.^{3,4} Most rectal schwannoma grow slowly and are asymptomatic; sometime they may cause rectal bleeding, colonic obstruction, defecation disorders, and pain.^{3–5} Gastrointestinal schwannoma grossly and clinically resembles gastrointestinal stromal tumor (GIST). However, the distinction between schwannoma and GIST is important because the former is benign even when large and mitotically active; moreover, the treatment and prognosis can differ markedly.^{2,6,7} Conventional CT and MRI are effective in the delineation of tumor and its adjacent structure, but not in the differentiation.⁸ FDG PET/CT reflecting glucose metabolisms may aid in the differentiation and in the malignant forecast.^{9–11} Accurate distinction between schwannoma and GIST depends on immunophenotyping (S100, CD117, and CD34).²

Whole-body FDG PET/CT is widely applied for cancer staging, including head/neck cancer, lung cancer, breast cancer, breast cancer, colorectal cancer, lymphoma, and so on. Also, FDG PET/CT is used for differentiating malignancy from benign tumor. However, this case of schwannoma was misdiagnosed as a malignant tumor by FDG PET/CT because of the elevated maximum standardized uptake value (SUV_{max}).^{12,13} In other words, this case reminded clinician and nuclear medicine physician the possible benign etiology of a rectal tumor. Otherwise, synchronous prostatic adenocarcinoma was accidentally noted in this case. This case also alerts us to be alert to the possibility of synchronous cancers as well as distant metastases.