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FDG PET/CT Demonstration of Pancreatic Metastasis from Prostate Cancer

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Abstract

We report the hybrid FDG PET/CT appearance of a biopsy-proven pancreatic metastasis from prostate cancer in a man with castrate-resistant metastatic disease. The common sites of metastases from prostate cancer are bone and locoregional lymph nodes. Pancreas is an atypical location of metastasis from prostate cancer. PET/CT in this case helped with the targeted pathologic confirmation to differentiate primary pancreatic tumor from an unusual metastasis from prostate cancer which in turn impacted the clinical management.

Keywords

prostate; cancer; metastasis; pancreas; FDG; PET; CT

57-year-old male with biopsy proven adenocarcinoma of the prostate, Gleason score 5+5, who had initially undergone radical retropubic prostatectomy, followed by androgen deprivation therapy after PSA relapse and further treatment with docetaxel after development of castrate-resistant metastatic disease (serum PSA level 13.3 ng/mL, circulating tumor cells 299 per 7.5 mL blood).

Axial skeleton and locoregional lymph nodes are the most frequent sites of tumor spread from prostate cancer. However, there have been reports of distant metastatic spread to other organs including the lungs, liver, and adrenals (1). Pancreas is an unusual site of metastasis from prostate cancer. Although there have been few reported cases of pancreatic metastasis from prostate cancer, none have included imaging findings with FDG PET/CT (2–4). Metastases of prostate cancer accumulate FDG (5–8). This interesting image case demonstrates, to our knowledge, the first illustration of FDG PET/CT appearance of a pancreatic metastasis from prostate cancer, highlighting the utility of PET/CT for targeted

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tissue confirmation in order to differentiate primary pancreatic tumor from an unusual site of metastasis.

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References

1. Bubendorf L, Schopfer A, Wagner U, et al. Metastatic patterns of prostate cancer: an autopsy study of 1,589 patients. *Hum Pathol.* 2000; 31:578–583. [PubMed: 10836297]
2. Merkle EM, Boaz T, Kolokythas O, et al. Metastases to the pancreas. *Br J Radiol.* 1998; 71:1208–1214. [PubMed: 10434919]
3. Long MA, Husband JE. Features of unusual metastases from prostate cancer. *Br J Radiol.* 1999; 72:933–941. [PubMed: 10673942]
4. Jacob J, Chargari C, Bauduceau O, et al. Pancreatic metastasis from prostate cancer. *Case Report Med.* 2010; 2010:826273. [PubMed: 20508841]
5. Jadvar H. Molecular imaging of prostate cancer with 18F-fluorodeoxyglucose PET. *Nat Rev Urol.* 2009; 6:317–323. [PubMed: 19434102]
6. Hung GU, Hsiung CY, Huang ML, et al. Synchronous prostate cancer incidentally detected by FDG-PET/CT in staging a patient with newly diagnosed nasopharyngeal cancer. *Clin Nucl Med.* 2009; 34:962–963. [PubMed: 20139852]
7. Yu EY, Muzi M, Hackenbracht JA, et al. C11-acetate and F-18 FDG PET for men with prostate cancer bone metastases: relative findings and response to therapy. *Clin Nucl Med.* 2011; 36:192–198. [PubMed: 21285676]
8. Ozcan Kara, P.; Kara, T.; Kara Gedik, G., et al. *Rev Esp Med Nucl.* 2011. Epub ahead of publication

Figure 1. FDG PET/CT scan (Top Left: axial CT, Top Right: attenuation-corrected PET, Bottom Left: fused PET/CT image, Bottom Right: maximum intensity projection image) demonstrates marked hypermetabolism (SUVmax 13.6) in the head and body of pancreas as well as widespread osseous, nodal and extra-nodal metastases.

Figure 2. Microscopic view of pancreatic mass (obtained at ERCP, p405s positive for prostate cancer) showing cells with prominent nucleoli arranged in solid sheets without gland lumen formation.