Incidental Focal ^{68}Ga-FAPI-46 Uptake in a Urachal Remnant: A Potential Pitfall Mimicking a Malignant Peritoneal Lesion

Peter George Maliha, Mahbod Jafarvard, Johannes Czernin, Jeremie Calais, and Masatoshi Hotta

Ahmanson Translational Theranostics Division, Department of Molecular and Medical Pharmacology, David Geffen School of Medicine at UCLA, University of California Los Angeles, Los Angeles, California

A 75-y-old man who was scheduled for resection of a lipomatous lesion of the left upper back underwent preoperative PET/CT with ^{68}Ga-fibroblast activation protein inhibitor-46 (^{68}Ga-FAPI-46) as part of a prospective study (NCT04147494). The images revealed an incidental small focus of uptake (SUV_{max}, 4.1) in a 0.8 × 0.7 × 1.2 cm cystic structure in the inferior third of a urachus remnant (Fig. 1). There was no ^{68}Ga-FAPI-46 uptake in the remainder of the urachus remnant. A prior ^{18}F-FDG PET/CT study with intravenous CT contrast medium that had been performed 4 y 1 mo previously was retrospectively reviewed. It showed incomplete obliteration of the urachus with a cystic structure in its inferior third, consistent with a urachus remnant, all with no ^{18}F-FDG uptake. The urachal remnant and cystic structure on ^{68}Ga-FAPI-46 PET/CT were anatomically the same as seen on the reviewed ^{18}F-FDG PET/CT and on a subsequent follow-up CT scan obtained 1 y 3 mo later, suggesting a benign etiology. Differential diagnosis included a ^{68}Ga-FAPI-46–positive and ^{18}F-FDG–negative urachal cyst due to fibrosis and a urachal diverticulum, intermittently accumulating urine-excreted radiotracer.

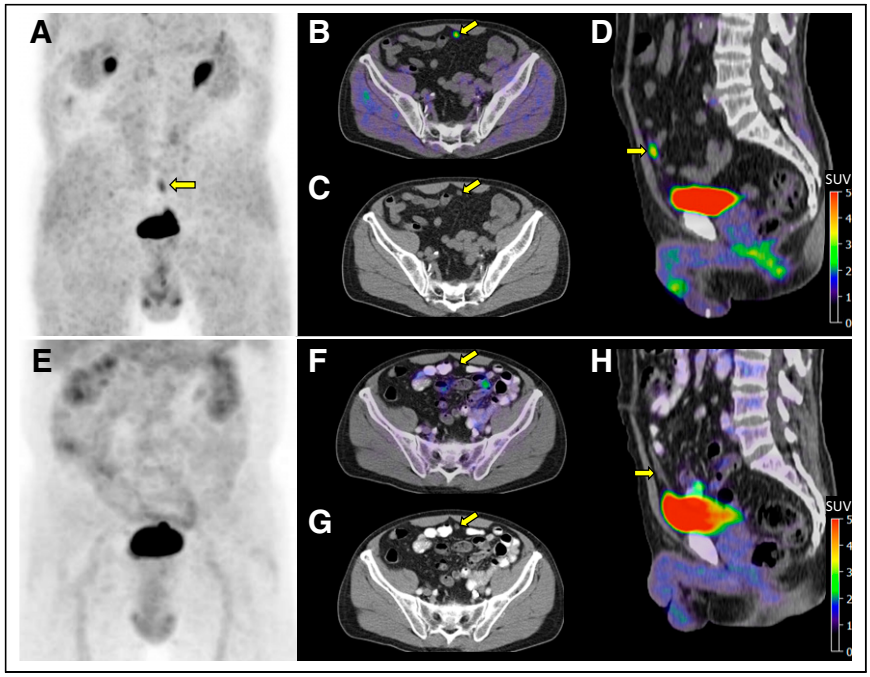

FIGURE 1. Maximum-intensity projections (A and E), fused PET/CT axial images (B and F), CT axial images (C and G), and fused sagittal PET/CT images (D and H) demonstrating mild ^{68}Ga-FAPI-46 uptake (SUV_{max}, 4.1; A–D) and no ^{18}F-FDG uptake (E–H) in a cystic structure of a urachal remnant (arrows).

The urachus is an embryologic structure connecting the umbilicus to the bladder. Normally, it obliterates to become the medial umbilical ligament. Very rarely, it does not obliterate, and remnant urachal anomalies persist to adulthood (*1*). Of these anomalies, a cystic structure can remain between the umbilicus and the bladder.

Several studies have suggested that ^{68}Ga-FAPI-46 PET/CT has a promising role in the detection of peritoneal metastases in various malignancies, notably because of low physiologic bowel uptake (*2–4*). The above-described ^{68}Ga-FAPI-46 PET signal in the urachal remnant should be a known potential false-positive pitfall in that region.

DISCLOSURE

No potential conflict of interest relevant to this article was reported.

REFERENCES

1. Wilson AL, Gandhi J, Seyam O, et al. Urachal anomalies: a review of pathological conditions, diagnosis, and management. *Transl Res Anat.* 2019;16:100041.
2. Veldhuijzen van Zanten SEM, Pieterman KJ, Wijnhoven BPL, et al. FAPI PET versus FDG PET, CT or MRI for staging pancreatic-, gastric- and cholangiocarcinoma: systematic review and head-to-head comparisons of diagnostic performances. *Diagnostics (Basel).* 2022;12:1958.
3. Guo W, Chen H. ^{68}Ga FAPI PET/CT imaging in peritoneal carcinomatosis. *Radiology.* 2020;297:521.
4. Meyer C, Dahlbom M, Lindner T, et al. Radiation dosimetry and biodistribution of ^{68}Ga-FAPI-46 PET imaging in cancer patients. *J Nucl Med.* 2020;61:1171–1177.

Received Oct. 14, 2022; revision accepted Dec. 20, 2022.
For correspondence or reprints, contact Peter George Maliha (peter.maliha@mail.mcgill.ca).
Guest Editor: Barry A. Siegel, Mallinckrodt Institute of Radiology.
Published online Jan. 12, 2023.

DOI: 10.2967/jnumed.122.265029