Incidental ^{18}F-Fluorocholine Uptake in an Esophageal Diverticulum

^{18}F-FCH in an Esophageal Diverticulum

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Abstract: ^{18}F-fluorocholine has recently emerged as a very sensitive agent for seeking parathyroid adenomas. We represent a case with esophageal diverticulum incidentally detected on ^{18}F-fuorocholine PET/CT, which should be kept in mind as a reason of false positivity in primary hyperparathyroidism.

Key Words: choline, CT, positron emission tomography, primary hyperparathyroidism, radionuclide imaging

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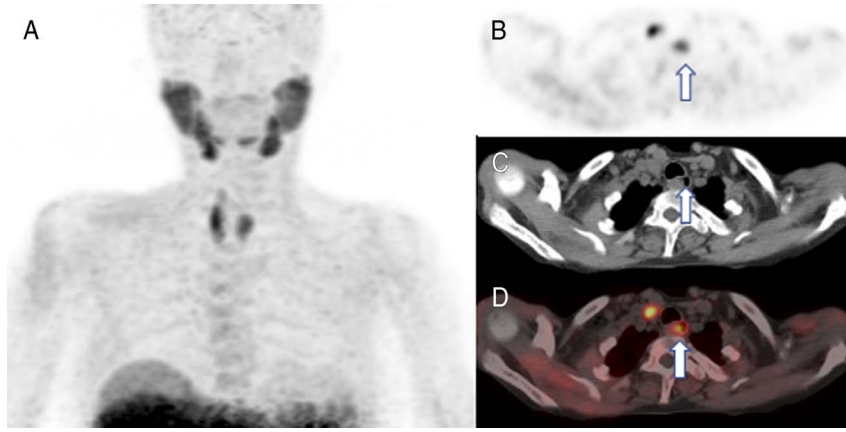


FIGURE 1. ^{18}F-fluorocholine PET/CT maximum intensity projection (**A**) and axial PET (**B**), CT (**C**), and fused (**D**) images of a 70-year-old woman who had undergone subtotal thyroidectomy with benign pathology were investigated for hypercalcemia. Blood examinations revealed serum levels of parathyroid hormone: 221.3 ng/L, Ca: 118 mg/dL, P: 3.6 mg/dL, and 25-hydroxyvitamin D_3: 19.62 µg/L. Bone mineral densitometry showed osteopenia (lumbar *T* score: –1.5 and femur *T* score: –2.1). On neck ultrasonography, residual thyroid tissue consisted of multiple nodules. An echopenic lesion with 2-cm largest diameter located at the left lateral neighborhood of esophagus was also detected. On ^{18}F-fluorocholine PET/CT maximum intensity projection images (**A**), there were two sites of pathological uptake: one in the hyperfunctioning parathyroid gland on the right side and the other on the left paraesophageal region. Focal pathological uptake belonging to parathyroid adenoma was located on the right side. For the activity retention on the left side, other possible causes of ^{18}F-fluorocholine uptake in differential diagnosis such as multiglandular disease, residual thyroid tissue, or a lymph node were eliminated by identification of the esophageal diverticulum on corresponding CT images (**B**–**D**; white arrows). Esophageal diverticula are rare with an overall incidence of less than 1%, usually found in the elderly, with a male predominance.[1,2] Although ^{18}F-fluorocholine PET/CT has been reported as an accurate tool in preoperative localization in hyperparathyroidism, it is still a relatively new agent for parathyroid imaging, and pitfalls have not been widely defined yet. Previously reported reasons of false positivity in ^{18}F-fluorocholine imaging are benign or malignant thyroid disease, thymoma, other malignancies, or reactive lymph nodes.[3–8] The presented case with a focal intense ^{18}F-fluorocholine uptake in an esophageal diverticulum may contribute to the literature as another rare reason of false positivity to be kept in mind in parathyroid imaging with ^{18}F-fluorocholine PET.

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