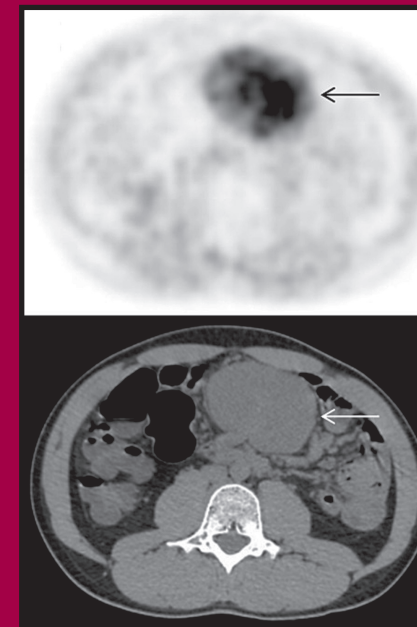


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- **The Monocle Sign on 18F-FDG-PET Indicates Contralateral Peripheral Facial Nerve Palsy**

Two Cases of Synchronous Hodgkin Lymphoma and Papillary Thyroid Carcinoma in ^{18}F -FDG PET/CT

Ru Wang, MD,* Haidong Cai, MD,* Changcun Liu, PhD,† Zhongwei LV, PhD,* and Chao Ma, PhD*

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Abstract: The concurrence of Hodgkin lymphoma and papillary thyroid carcinoma is a rare clinical event. Two women presented with a painless mass in the neck that was suspected malignancy by ultrasonography. Both cases shown in the ^{18}F -FDG PET/CT images demonstrated multiple foci of increased FDG uptake in the neck, mimicking thyroid carcinoma with contralateral cervical lymph node metastases. Unexpectedly, the postoperative pathologies confirmed the thyroid lesion of papillary carcinoma and contralateral cervical lymph nodes of classical Hodgkin lymphoma.

Key Words: Hodgkin lymphoma, thyroid carcinoma, PET/CT, ^{18}F -FDG
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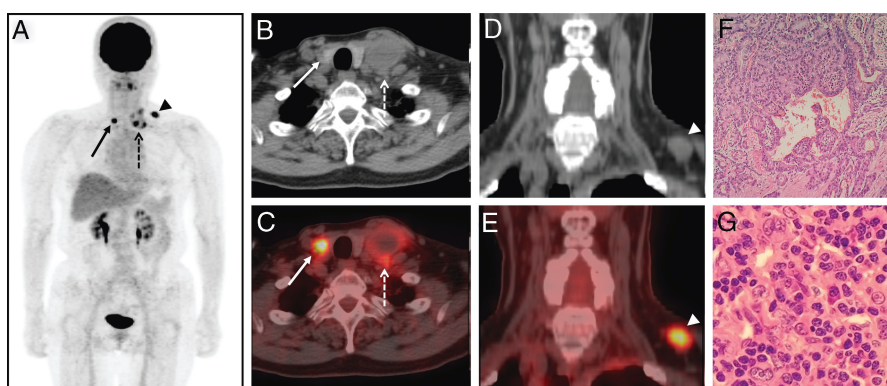


FIGURE 1. A 68-year-old woman complained of a left supraclavicular painless mass for 1 month. The ultrasonography showed a nodule in the right lobe of the thyroid and a solid mass in the left supraclavicular accompanying with abnormal peripheral lymph nodes (images not shown). Fine-needle aspiration biopsy revealed that the thyroid nodule was carcinoma, and the supraclavicular solid mass was malignant of unknown origin. ^{18}F -FDG PET/CT was performed for the location of the possible primary tumor for the supraclavicular solid mass. The MIP image (A) showed multiple foci of increased FDG uptake in the lower neck (solid arrow, dotted arrow, and arrowhead). The corresponding axial images (B, CT; C, fusion) showed a nodule approximately 0.70 cm in diameter with SUV_{max} of 12.70 (solid arrow) in the right thyroid lobe and the fused enlarged lymph nodes in the left deep cervical with heterogeneous activity (SUV_{max} 7.00; dotted arrow). The coronal CT (D) and fusion (E) images revealed the left supraclavicular enlarged lymph node with homogenous hypermetabolism (SUV_{max} 9.70; arrowhead). According to radiological findings, thyroid carcinoma with multiple cervical lymph node metastases was suspected. However, the subsequent postoperative pathological results indicated that the thyroid lesion was papillary thyroid carcinoma (F, hematoxylin-eosin [HE], $\times 200$), and the left supraclavicular enlarged lymph nodes were classical Hodgkin lymphoma (G, HE, $\times 400$).

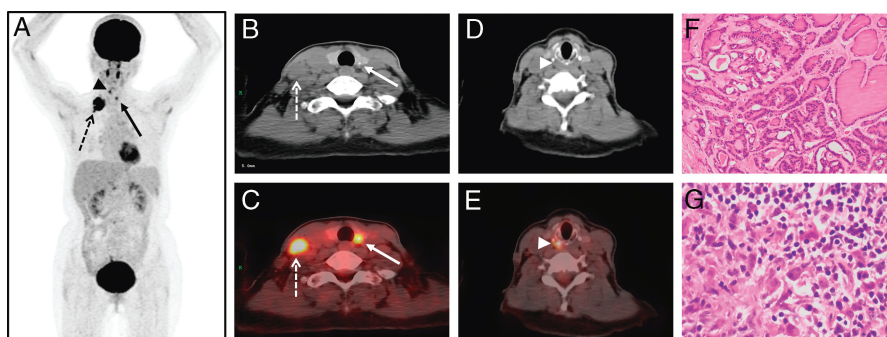


FIGURE 2. A 51-year-old woman presented with a right supraclavicular painless mass for 1 week. The ultrasonography revealed the right supraclavicular enlarged lymph nodes, which were suggestive of malignancy (images not shown). The patient refused the puncture cytology examination. ^{18}F -FDG PET/CT was then performed for clarification of the malignant supraclavicular lymph nodes. Three foci of increased activity in the neck were noted from the MIP image (A). The axial images (B, CT; C, fusion) revealed a nodule approximately 0.80 cm in diameter with SUV_{max} of 5.18 (solid arrow) in the left thyroid lobe and the right supraclavicular enlarged lymph nodes with SUV_{max} of 16.48 (dotted arrow) mimicking thyroid carcinoma with cervical lymph node metastases. In addition, a nonspecific focal activity in the posterior pharyngeal wall region (arrowhead) was supposed to be physiological uptake of muscle on the axial CT (D) and fusion (E) images. The postoperative pathology revealed the diagnosis of synchronous papillary thyroid carcinoma (F, HE, $\times 200$) and classical Hodgkin lymphoma (G, HE, $\times 400$). The synchronous double primary malignancies, especially the synchronous Hodgkin lymphoma and papillary thyroid carcinoma, are rare and usually detected incidentally.^{1–4} Both thyroid carcinoma with lymph node metastasis lesions and lymphoma lesions generally exhibit multiple uptakes of FDG, which increases the difficulty of diagnosis for lesions confined to the neck as shown in these 2 cases.^{5,6} However, the possibility of unifocal small-sized (<1 cm) papillary thyroid carcinoma with only contralateral cervical lymph node metastases is extremely unlikely.^{7,8} Therefore, when a patient with increased FDG uptake in a small thyroid nodule and in contralateral cervical enlarged lymph nodes, even without abnormal findings in other locations, the possibility of the rare synchronous lymphoma and papillary thyroid carcinoma should be considered.