Toxoplasmic Lymphadenitis Mimicking a Metastatic Thyroid Carcinoma at ^{18}F -FDG-PET/CT

Giorgio Treglia · Massimo Bongiovanni · Luca Ceriani · Gaetano Paone · Luca Giovannella

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A 28-year-old woman underwent total thyroidectomy for a papillary thyroid carcinoma in the right thyroid lobe (pTx, pN1b). Subsequently a ^{131}I -ablation (4.4 GBq) was performed. Four years later the patient presented increased thyroglobulin (Tg) serum levels (8.4 $\mu\text{g/l}$) during thyroxine treatment. Furthermore, enlarged hypoechoic and round-shaped bilateral cervical lymph nodes were detected at cervical ultrasonography (US).

Based on laboratory and US findings suspicious for lymph nodal recurrence of thyroid carcinoma, the patient underwent an ^{18}F -fluorodeoxyglucose positron emission tomography/computed tomography (^{18}F -FDG-PET/CT) to check for distant metastases [1, 2] (Fig. 1).

The patient underwent a US-guided fine-needle aspiration cytology on an ^{18}F -FDG-avid cervical lymph-node. The

smears were hypercellulated and consisted of numerous small- to medium-sized lymphocytes, macrophages, dendritic cells and tingible body macrophages. The cytological diagnosis was consistent with that of reactive lymphadenitis. Serological test revealed elevated IgM and IgG anti-*Toxoplasma* antibodies with a very low IgG-avidity, indicating an acute toxoplasmosis.

Serum Tg was then measured by using heterophilic antibody blocking tubes, as previously reported [3], and serum value dropped to $<0.2 \mu\text{g/l}$.

It is well known that antibody interference may falsely increase serum Tg; in particular, increased anti-*Toxoplasma* antibodies likely interfered to the Tg measurement in our case [4]. Additionally, activated granulocytes and macrophages may display significantly increased glucose consumption, giving false-positive results at ^{18}F -FDG-PET/CT in oncological patients [5].

Few reports have described toxoplasmic infection mimicking malignancy at ^{18}F -FDG-PET/CT; these findings were found mainly in immunodepressive patients or with history of lymphoma [6–8]. Conversely, we described here a case of toxoplasmosis inducing false-positive Tg measurement, neck US and ^{18}F -FDG-PET/CT findings in a patient with papillary thyroid carcinoma.

G. Treglia (✉) · L. Ceriani · G. Paone · L. Giovannella
Department of Nuclear Medicine and PET/CT Centre, Oncology
Institute of Southern Switzerland, via Ospedale
12 zip code: 6500 Bellinzona, Switzerland
e-mail: giorgiomednuc@libero.it

M. Bongiovanni
Institute of Pathology, Locarno, Switzerland

Fig. 1 Whole-body maximum intensity projection (MIP) ^{18}F -FDG-PET image (a), coronal ^{18}F -FDG-PET/CT image (b), axial CT (c) and ^{18}F -FDG-PET/CT (d) images of the neck region revealed increased radiopharmaceutical uptake corresponding to several bilateral lymph nodes in the cervical and axillary regions (peak standardized uptake value, 5)

Conflicts of Interest The authors declare no conflict of interest.

Disclosure None.

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