UNUSUAL PERITONEAL AND MUSCULAR METASTASES IN AN AGGRESSIVE AND EXTENSIVE CASE OF ANAPLASTIC THYROID CANCER ON 18F-FDG PET/CT

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Figure 1. Axial sections (A-D, F-H) and MIP image (E) of 18F-FDG PET/CT scan showing multiple muscular, lung, peritoneal and lymph nodes metastases in a case of anaplastic thyroid cancer.

Key words: thyroid cancer, anaplastic, PET/CT, muscle, metastases, peritoneal, 18F-FDG.

We present the case of a 44-year-old male referred to the Institute of Oncology “Prof.Dr.Ion

Chiricuta” Cluj-Napoca, a tertiary center, in December 2017, with the diagnostic of anaplastic thyroid cancer with central lymph nodes metastasis (pT4aN1aMx). The thyroid disease occurred 4 months before the first visit to GP in October 2017, with diffuse neck enlargement

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and swallow difficulties. No general symptoms and no other clinical signs were mentioned.

The patient was operated by total thyroidectomy and selective lymphadenectomy. The tumor profile was as follows: CEA-P, CK19, CD1a, CD30, CD4, CD21, CD20, CD45 and TTF1, PAX-8, thyroglobulin, all were negative; CD68, CD163, Vimentin were positive. After the total thyroidectomy and central lymph node lymphadenectomy, there were no clinical signs of persistent disease: the patient was negative for cervical tumour or lymph node involvement. The neck ultrasound performed revealed no residual thyroid tissue and no pathologic lymph nodes in the cervical area. The case was presented in the thyroid tumour board of the tertiary centre, three weeks after surgery. The patient had no thyroid hormone substitution and in this condition the specific serum analyses were as follows: anti-thyroglobulin antibodies (Anti-Tg): 38 IU/mL; thyroid stimulating hormone (TSH): >100 µIU/mL; thyroglobulin (Tg): 6.1 ng/mL; carcinoembryonic antigen (CEA): 3.1 ng/mL; calcitonin: <0.5 pg/mL

At that moment the patient was without documented distant metastases and with no symptoms. Initially, we considered to recommend loco-regional external beam radiotherapy (EBT) with 60Gy and due to the fact that anaplastic thyroid cancer is a very aggressive disease, a correct staging and a personalized therapy were mandatory; therefore, the patient was referred for 18F-FDG PET/CT scan for the assessment of the disease extension.

The result is presented in Figure 1 showing, in the axial sections of PET/CT scan, multiple metastases in the right parietal skin of the skull (A), muscular metastasis in the right gluteus (B) and bilateral lesions in the hip muscles (C,D); the MIP image of PET/CT is showing multiple metastatic foci of high FDG uptake (E); the axial sections show lung metastasis (F), respectively peritoneal metastases (G,H). The lesions were evaluated considering the metabolic activity expressed by standardized uptake value lean body mass (SUV lbm) Max.

Skull skin: lesion of 7mm in the right parietal region with SUV lbm Max 12.1.

Lung: in left inferior lobe medio-basal tumour of 62/52/50mm, with very intense FDG uptake, with SUV lbm Max 20, very high, suggesting a very aggressive tumour line.

Intraperitoneal: in relation with the gastric fornix and antrum, with the splenic hilum, the pancreatic tile, and the descending colon, there were multiple peritoneal nodular lesions, suggesting peritoneum metastases, with the maximum size of 30mm and with SUV lbm 14.47, very high.

Metastatic para-aortic infrarenal lymph node 10/9mm, SUV lbm max de 7.7, very high. *Muscles:* there were 27 intramuscular metastatic nodular lesions, mainly in the hips muscles, gluteal, deltoid and arms muscles, the largest of 13mm diameter, in the medium third of left hip; the highest FDG uptake was SUV lbm Max 26.4 and the lowest SUV lbm 6.

The PET/CT FDG underlined the very high aggressiveness of the disease due to the exceptional high FDG uptakes, according to SUV values. After the PET/CT result, the board decided to have biopsies and histologic confirmation.

The biopsies were performed from the skull skin and left hip considering the PET/CT cutaneous markers; the lung and peritoneal biopsies were performed under CT guidance. All biopsies confirmed the anaplastic thyroid origin with the same IHC profile.

The treatment decision was to recommend also systemic chemotherapy; we underline that there was no clinical trial available and at the moment of paper submission, there was no available follow-up. For the single case known in the literature, documented with multiple metastases including muscle metastases seen on F18-FDG PET/CT, there are no available data about the treatment (1).

The case presented is underlining the role of F18-FDG PET/CT in the evaluation of anaplastic thyroid cancer, becoming the essential method in the correct staging of the disease.

Conflict of interest

The authors declare that they have no conflict of interest.

References

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