CASE REPORT

A CLINICAL DIAGNOSIS CHALLENGE; TUBERCULOUS LYMPHADENOPATHY IN NECK / MEDIASTINUM, LOOKING LIKE METASTATIC DISEASE ON ^{18}F FDGPET/CT SCAN IN A PATIENT WITH CARCINOMA OF CERVIX

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ABSTRACT

We report the case of a 65-year-old lady who had biopsy provensquamous cell carcinoma of uterine cervix. Staging CT scan and PET/CT scan revealed lymph nodes in mediastinum and level III V bilateral neck. FNA failed two times to determine the nature of lymphadenopathy. Excisional biopsy and histopathology of the neck node was consistent with chronic granulomatous inflammation suggestive of tuberculosis. So it was then staged as non-metastatic disease. The patient was started on ATT and completed radical treatment for cervical cancer. The objective of this case report is to emphasize that nodal TB should be considered a noteworthy differential diagnosis in patients with a known malignancy especially when pattern of nodal involvement is not usual and excisional biopsy serves a vital role in proper staging of cancer.

Keywords: ^{18}F-FDG PET/CT scan, Carcinoma Cervix, Tuberculosis, Lymphadenopathy.

Learning points for clinicians: PET/CT is a valuable investigation tool for staging of cancers. However, PET/CT has its own false positive and false negative rates, especially in case of inflammatory lesions such as tuberculosis. As inflammatory nodes can be highly FDG avid which may mimic as cancerous nodes henceleading to errors in cancer staging. It becomes essential to confirm the nature of nodes with biopsy and histopathology when nodal spread is not according to patterns of spread of the primary disease. Our case highlights that tuberculous lymphadenopathy can be highly ^{18}F-FDG avid, therefore pathological confirmation is of prime importance

Introduction

^{18}F-FDG PET/CT scanis an important molecular imaging modality in cancer staging1. ^{18}F-FDG uptake is reflective of the glycolytic activity of cells, which is increased in context of malignancy and ongoing inflammatory process.[2] ^{18}F-FDG is not a tumor-specific agent and false positive results may lead to incorrect staging in a cancer patient hence leading to an inaccurate management plan.[3] Therefore, nodal tissue diagnosis should be considered to supplement the findings of PET/CT.

Case

A 65-year-old lady was referred by gynecological oncologist to radiation oncology clinic with a biopsy proven squamous cell carcinoma of uterine cervix. Already her examination under anesthesia had been done and it was staged as FIGO IIB. Rest of the systemic examination did not reveal any clinically significant lymphadenopathy. A CT scan of chest,

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abdomen and pelvis raised the suspicion of stage IV disease on account of mediastinal and neck lymphadenopathy. In order to further evaluate the probability of a stage IV disease ^{18}F-FDG PET/CT scan was done, which showed hyper-metabolic nodes in mediastinum measuring 4x4 cm with SUV max of 8.9, and bilateral neck nodes at level III - Vhaving SUV max of 6.6 and measuring 2 x 2 cm. However, neck nodes were barely palpable on clinical re-assessment (Fig.1).

As the FDG avid nodes were not following anatomical pattern of spread pertinent to cervical cancer, i.e. there was no para-aortic nodal enlargement and some of the PET avid mediastinal nodeswere calcified which raised the suspicion of a second pathology. She had profuse vaginal bleeding from cervical lesion, so we gave 1000 cGy dose of radiation therapy to pelvis with intent of controlling vaginal bleeding and at the same time FNA of the neck lymph node was done. However even USG guided FNA failed to determine the nature of neck nodes. The case was discussed with ENT surgeon and it was decided to get an excisional biopsy of posterior cervical chain node. Histopathology revealed a chronic granulomatous inflammation suggestive of nodal tuberculosis (Fig.2).

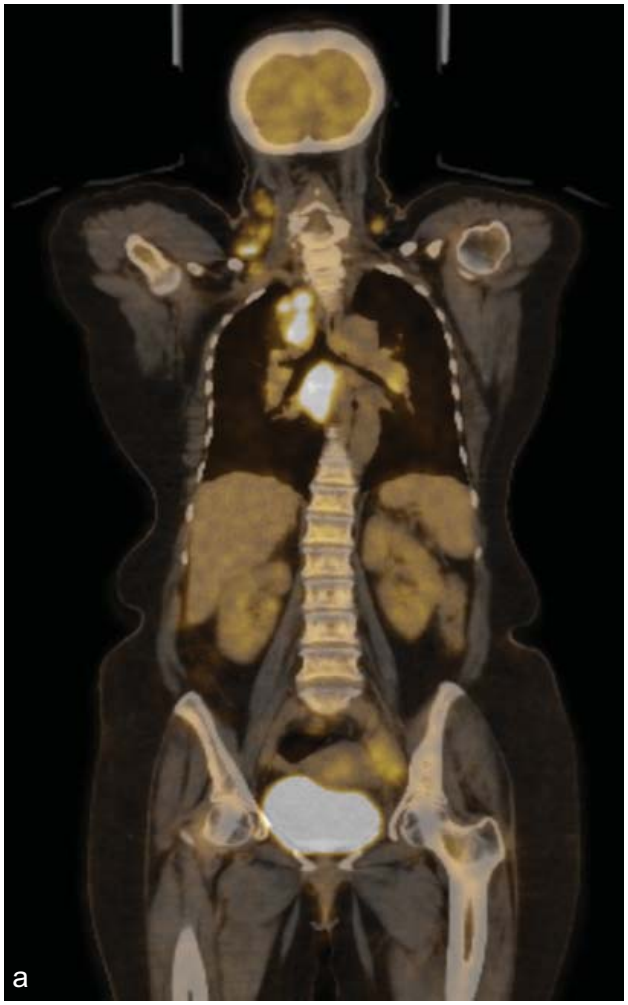

Figure 1a: Coronal image of PET CT showing hyper-metabolic neck and mediastinal nodes

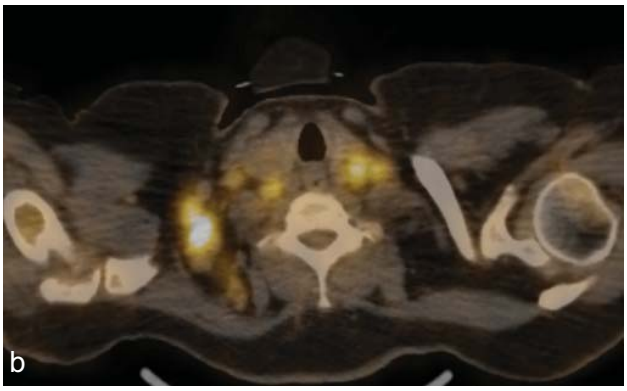

Figure 1b: Axial image at level of neck

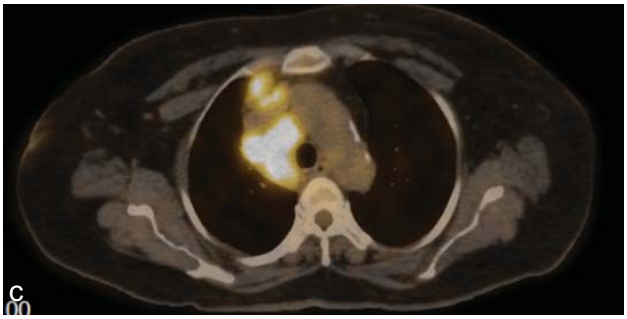

Figure 1c: Axial image at level of mediastinum showing hyper-metabolic calcified mediastinal nodes.

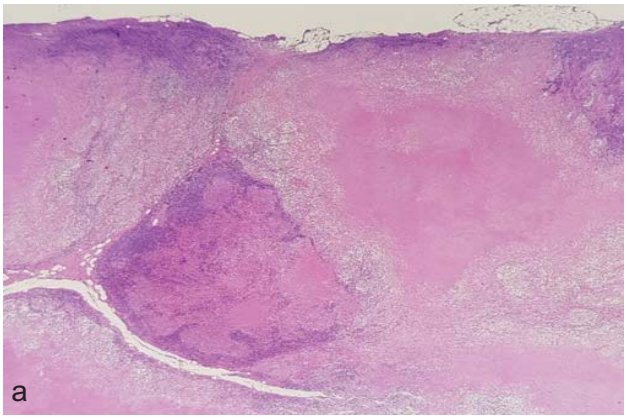

Figure 2a: Low power image showing marked replacement of lymphoid parenchyma by extensive areas of necrosis, surrounded by coalescent granulomashistocytes

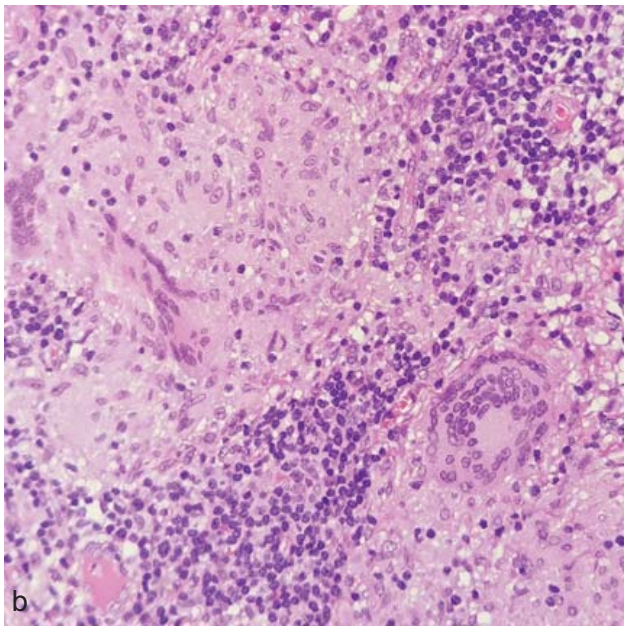

Figure 2b: High power view showing palisading epithelioid admixed with few Langhan s type giant

The case was again discussed in Gynecology Oncology tumor board meeting, infectious disease consultant was taken on board and patient was started on anti-tuberculous treatment (ATT). As her cervical cancer treatment was getting late, one week after starting ATT she was started on concurrent chemo-radiation therapy to pelvis. She was prescribed 5000 cGy/25 fraction of radiation therapy to pelvis with weekly concurrent cisplatin @ 40 mg/m^2 followed by 2400 cGy dose of HDR brachytherapy over 3 fractions using tandem and ovoids. The external beam pelvic radiotherapy was delivered after 3-D conformal planning and HDR brachytherapy delivered after CT based planning. She will complete ATT as per schedule and follow up CT scan will be done to assess response of mediastinal and neck nodes.

Discussion

Cervical cancer is potentially a curable disease when diagnosed in early stage,[4] but metastatic disease carries very dismal prognosis. Before starting treatment of cervical cancer patient they should be properly staged using clinical examination and imaging investigations. However, among imaging investigations not all have 100% sensitivity and specificity. So the investigations should be complemented by thorough history and physical examination to determine accurate stage of disease. If we rely only on imaging then we may incorrectly stage the disease leading to inaccurate treatment and poor outcome.[5,6] Hence biopsy and histopathology should be considered as a standard next investigation to confirm the nature of the nodes.

In our case the nodes seen on PET/CT were not following the patterns of spread of cervical cancer, which raised the suspicion and lead us to further investigate neck nodes by excisional biopsy. Histo-pathology confirmed it to be a chronic granulomatous inflammation and it down staged the disease. SUV^{max} was even higher in mediastinal nodes (SUV^{max} 8.1) than primary cervical cancer (SUV^{max} 6) and that of pelvic nodes (SUV^{max} 4). In one pilot study by Con-gcong Yu et,al SUV^{max} was not helpful in differentiating between benign and malignant lesions in patients with enlarged mediastinal nodes.[7] Many benign lesions like sarcoidosis and tuberculosis had high FDG uptake. So SUV^{max} should be carefully inter-preted in staging of cervical cancer. Rui-Lin-Ding et, al also reported that tuberculous nodes can mimic as malignancy due to high FDG uptake, and tissue diagnosis must be considered whenever there is suspicion.[8] So our report also emphasizes on the fact that clinical suspicion should always be kept in mind when there is unusual pattern of nodal involve-ment in a patient with diagnosed malignancy.

Conflict of Interest: None

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