

Lobular Breast Cancer and Abdominal Metastasis: What Is The Correct Diagnostic Management?

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Abstract

Invasive lobular breast cancer represents the second most prevalent histological type of breast cancer after invasive ductal cancer (IDC) and its incidence has been constantly growing in the last few years. This trend is largely related to the use of MR as a radiological diagnostic method of second level. We have analyzed our institutional case and the use FDG CT/PET in this case. FDG CT/PET demonstrates lower SUV and less accuracy both in primary as well as in metastatic ILC compared to IDC. Moreover, the patterns of metastatic spread differ between ILC and IDC. We think that for this type of cancer could be use CT-PET with a particular metabolite: 1 [¹⁸F]-Fluoroestradiol (¹⁸F-FES-PET). ¹⁸F-FES-PET has the potential to assess heterogeneity in ER expression that are expressed in lobular breast cancer.

Keywords: Lobular breast cancer; ¹⁸F-FES-PET; Abdominal metastasis

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Introduction

Recently, we have read with high interest the results published by Linden et al. [1]. FES PET/CT could help predict endocrine therapy response and can identify tumor heterogeneity and may facilitate selection of the optimal biopsy site or confirm metastatic diagnosis if biopsy is not possible.

Invasive lobular breast cancer (ILBC) represents the second most prevalent histological type of breast cancer after invasive ductal cancer and its incidence has been constantly growing in the last few years [2]. Most ILBC diagnosed are estrogen receptor and progesterone receptor positive. The lobular histotype includes atypical epithelial lesions, originated from the ductal-lobular unit and characterized by a proliferation of small not thick cells with minute and uniform nuclei, with or without pagetoid involvement of terminal ducts. Breast carcinoma metastasized anywhere: Principal site are bones, lungs, pleura, liver, and brain. Gastrointestinal tract metastasis from breast carcinoma is relatively rare, and abdominal metastasis from breast carcinoma is very rare [3].

CT and MR furnish important anatomical information, but they don't offer meaningful functional information on the in relief lesions; this trend is largely related to the use of MR as a radiological diagnostic method of second level; contrarily, the physician-nuclear imaging "conventional" (to plane and SPECT) and the PET can furnish important additional functional

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information, also with a redoubt spatial resolution in comparison to the radiologics method [4]. Not all cancer can be visualizing about ¹⁸FDG CT/PET; slow-growing tumors (like prostatic cancer) because of their low glucidic activity do not usually show significant uptake of this radiotracer.

We have analyzed our institutional case and the use of FDG CT/PET in this case. In the last 5 years we had evaluated 27 case of ILBC with abdominal metastasize, 17 patients were submitted to CT-biopsy for define the origin of the abdominal-mass, 2 patients were submitted by surgery for abdominal obstruction for mass-like effect. Other patients were treated for likely locations of breast cancer.

In the cases where the surgical intervention has been performed with histological sampling, has been confirmed the diagnosis abdominal metastasis of lobular breast cancer with positive

estrogens receptors. In the 50% of the cases ^{18}F FDG CT/PET has been performed but there wasn't any uptake in abdominal district. FDG CT/PET demonstrates lower SUV and less accuracy both in primary as well as in metastatic ILC compared to IDC [5]. Moreover, the patterns of metastatic spread differ between ILC and IDC [6].

Discussion

PET/CT interpretation must be assessed with the knowledge of all the factor described above, principally the histologic subtype, stressing on the fact that ILC may have lower ^{18}F -FDG uptake, so all the unusual finding on the hybrid CT imaging with faint or even normal FDG uptake should be considered and reported (osteosclerotic bone lesions, visceral enlargement, peritoneal nodules) [7].

We think that for this type of cancer could be use TC-PET with a particular metabolite: 1 [^{18}F]-Fluoroestradiol (^{18}F -FES-PET). ^{18}F -FES-PET has the potential to assess heterogeneity in ER expression that is expressed in lobular breast cancer. In literature, in the last years, many jobs have appeared the use of this metabolite (FES) especially in the prostatic tumors, infect this marker ties it's to the cells that introduce the hormonal receptors.

For breast cancer, the last studies concern the evaluation of the effectiveness of the therapy in the patients with hormone-

receptor. Gong et al. in July 2017 present an explorative study for evaluate the clinical value of FES PET/CT in monitoring the change of estrogen receptor expression and potential predictive value in metastatic breast cancer patient [8]. In march 2018 was presented the first comparative study between the FDG CT/PET e ^{18}F -FES PET-CT methodic: this is the first study to evaluate the diagnostic strength and incremental value of ^{18}F -FES PET-CT and compare it with ^{18}F -FDG CT/PET. Peterson et al. have compared ^{18}F -FES uptake with estrogen receptor expression assayed *in vitro* by IHC with both quantitative and semi-quantitative measures and showed good agreement between ^{18}F -FES PET and ER expression [9].

Conclusion

From our experience, we have to notice the difficulty to note of these locations with the standard methodic, coming to submit the patient to CT biopsy or surgical operation. Breast cancer is the second cause of death in the United States; approximately the 75% of the new diagnoses are a breast cancer with positive estrogen receptors; we think that ^{18}F -FES PET can be used along ^{18}F -FDG CT/PET in patient with lobular breast cancer, for diagnostic, treatment monitoring, staging and when there is questions about suspicious secondary locations in abdomen without invasive methodic for patients.

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