

# PET-CT for the staging of breast implant-associated anaplastic large cell lymphoma

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[Received 5 III 2019; Accepted 5 VI 2019]

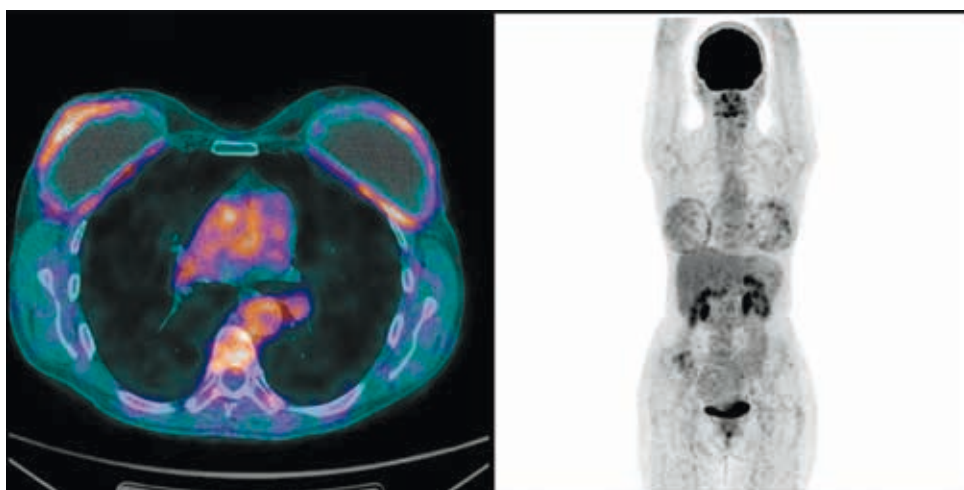
Breast implant-associated anaplastic large cell lymphoma (BIA ALCL) is an uncommon disease that affects women after breast reconstruction or cosmetic enlargement. It usually presents as fluid collection or mass, which may occur after 1 year, but mostly around 7 to 10 years after implant surgery. The cause for its development and risk factors are not known, but there is probably no influence of the material of the implant. We report two cases of women with BIA ALCL visualized by <sup>18</sup>F-FDG Positron Emission Tomography-Computed Tomography (PET-CT).

A 60-year-old woman underwent surgical reconstruction of both breasts in 2003 after mastectomy performed due to benign lesions that initially presented with high probability of malignancy. The patient underwent also combined hysterectomy and oophorectomy in 2005. The implants were exchanged several times, due to various reasons, recently in August 2018. During the last procedure, in the right breast area a fluid collection was found and the pathomorphological analysis of the fluid disclosed BIA ALCL. The <sup>18</sup>F-FDG PET-CT examination was performed and it showed metabolic activity around the implants, which corresponded to the

lymphoma. There was also an increased uptake of <sup>18</sup>F-FDG in the left axillary lymph node caused by BIA ALCL. On the right side, the lymph node was also enlarged but showed no increased uptake.

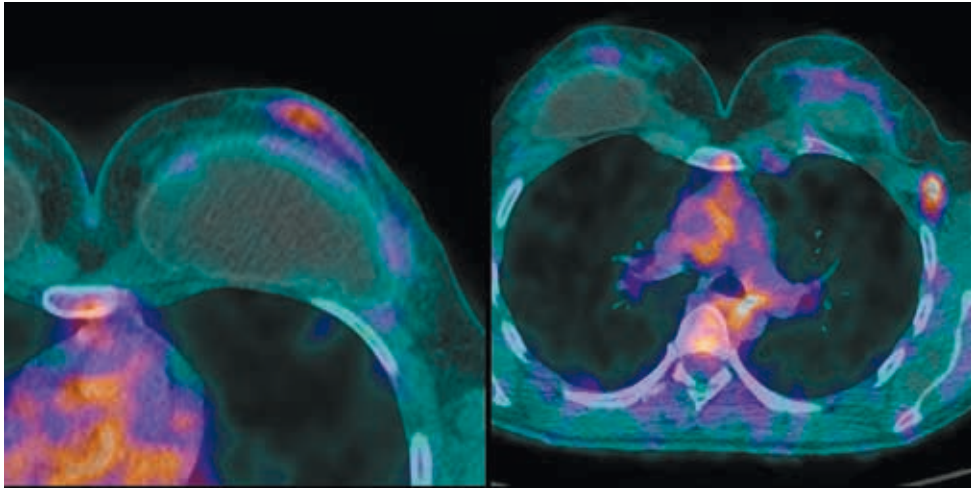
Our second patient is a 34-year-old woman who underwent breast enlargement in 2013 by introducing implants. The ultrasound examination detected fluid collection in the left breast. Fluid aspiration and pathomorphology confirmed BIA ALCL. <sup>18</sup>F-FDG PET-CT examination confirmed metabolic activity at the lower pole of the left implant and infiltration of lymph nodes in left axillary.

Despite the rare occurrence of breast implant-associated lymphoma, patients should be carefully followed-up after surgery. Ultrasound need to be performed in patients with clinical symptoms, like breast enlargement. After finding fluid collection the fine needle aspiration should be performed, or tissue biopsy if a mass is observed. The main treatment is surgical exploration with capsular biopsy, which provides very high survival rate. The preoperative <sup>18</sup>F-FDG PET-CT should be recommended for detection of tumor spread and for accurate staging, as well as for the postoperative follow-up.



**Figure 1.** Maximal intensity projection (MIP) image (A) and fused axial PET/CT image of the breasts (B) showing a diffuse <sup>18</sup>F-FDG uptake around both implants corresponding to BIA ALCL infiltrations in Patient 1

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**Figure 2.** Fused axial PET/CT image of the left breast in Patient 2 showing increased  $^{18}\text{F}$ -FDG accumulation around the nipple of the left breast (A) and in the left axillary lymph nodes (B)