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BREAST IMAGES

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Breast implant-associated Anaplastic large cell lymphoma (BIA-ALCL): Imaging findings

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We report the case of a 36-year-old female who presented with several days of pain and swelling in her left breast. The patient had a BRCA mutation and history of breast, thyroid, and lung cancer. She had undergone prophylactic mastectomy and reconstruction with silicone implants 5 years prior to presentation.

Physical examination revealed pain and firmness of her left breast.

Breast ultrasound demonstrated a left peri-implant fluid collection and inflammatory changes in the periprosthetic breast tissue. The patient was conservatively treated.

One month later another ultrasound was performed because of lack of improvement of symptoms. Findings in this second ultrasound were similar to those in the first one, and no mass was identified. Differential diagnosis for these findings includes inflammation, infection, implant rupture, seroma, hematoma, malignancy, and gel bleed (in the setting of silicone implants).

MRI, including contrast gadolinium-enhanced sequences, was performed to evaluate implant integrity, showing homogeneous peri-implant enhancement in the left breast and periprosthetic effusion. On dynamic sequences after gadolinium an increased perfusion around the peri-implant capsule was found (Figure 1).

The diagnosis was made with ultrasound guided fine needle aspiration cytology. Pathology demonstrated a seroma-associated anaplastic large cell lymphoma of the left breast (Figure 2).

The patient underwent F-fluorodeoxyglucose positron-emission tomography (PET/TC) which revealed no metastatic disease and showed diffuse FDG uptake in the peri-implant capsule (Figure 3).

After removal of both breast implants diagnose was confirmed (Figure 4). The patient did not receive neoadjuvant or adjuvant chemotherapy nor radiation therapy.

Breast implant–associated Anaplastic large cell lymphoma (BIA-ALCL) is a rare T-cell lymphoma associated with breast implants. It was first reported in 1997. In 2011, the FDA issued a warning statement about the association of breast implants with BIA-ALCL and at that time approximately 359 cases of breast implant-associated lymphoma had been confirmed. There is no difference in disease incidence between patients with saline versus silicone implants, but it is more frequent with texture than with smooth implant. There is also no difference identified in the number of patients with BIA-ALCL among women who received implants for cosmetic reasons versus breast reconstruction following mastectomy.

The pathogenesis of BIA-ALCL is not yet known. The underlying mechanism is thought to be related to chronic inflammation from indolent infections, leading to malignant transformation of T cells that are anaplastic lymphoma kinase (ALK) negative and CD30 positive.

Clinical presentation is variable and nonspecific and may include breast pain, breast firmness and swelling or, less often, a palpable mass in the breast or axila. An adequate history and physical examination are necessary to exclude other (much more common) causes of breast swelling and pain, such as trauma or infection. Patient with these symptoms should be referred for imaging techniques of the breast. Imaging findings, although nonspecific, can suggest peri-implant lymphoma in the appropriate clinical context.

Histopathological evaluation is needed to diagnose BIA-ALCL.

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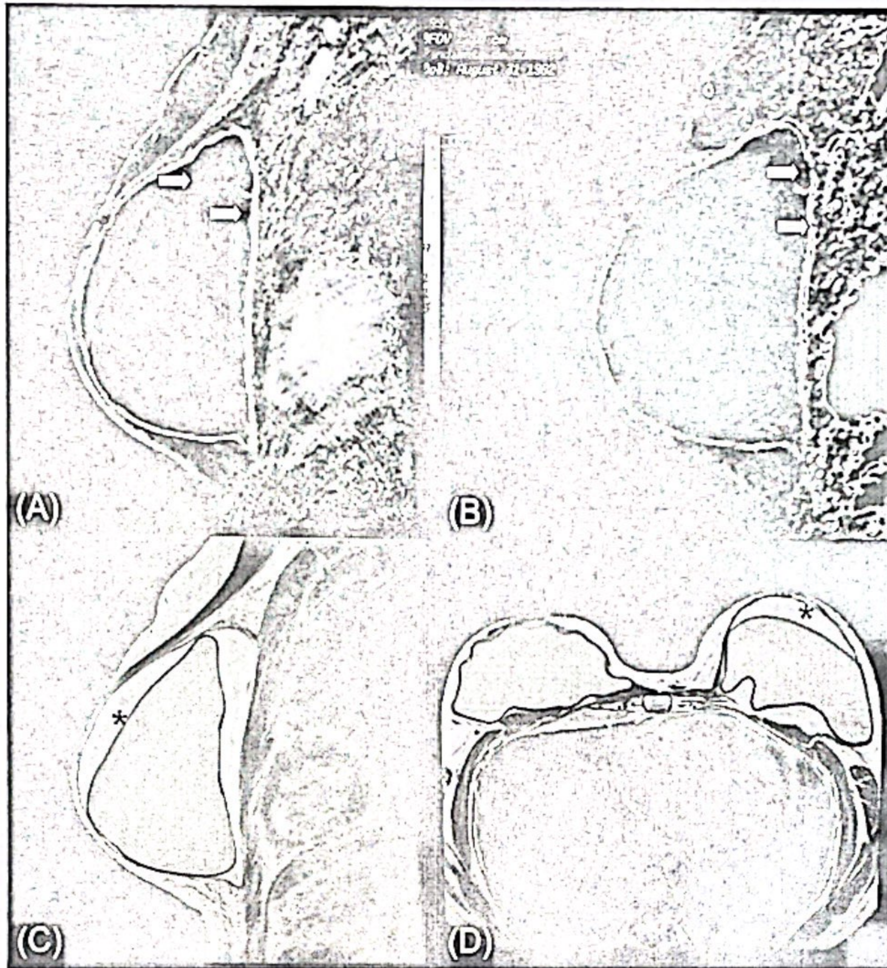

FIGURE 1 A, Sagital MRI T1WI postgadolinium demonstrates diffuse enhancement of the periprosthetic capsule, B, Kinetic map shows increased perfusion of the periprosthetic capsule, C, Periprosthetic efussion on sagital MRI T2WI, D, Periprosthetic efussion on axial MRI T2WI [Color figure can be viewed at wileyonlinelibrary.com]

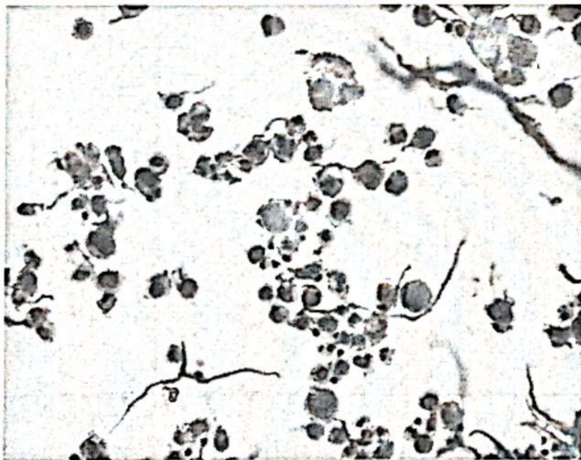

FIGURE 2 Cytological preparations of the seroma showed a population of noncohesive large cells with pleomorphic nuclei, suspended in a serous/fibrinous background [Color figure can be viewed at wileyonlinelibrary.com]

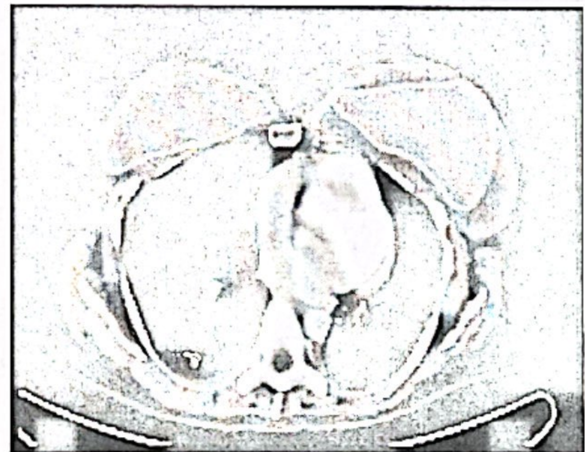

FIGURE 3 PET-TC shows peri-implant effusion and FDG uptake in the left periprosthetic capsule [Color figure can be viewed at wileyonlinelibrary.com]

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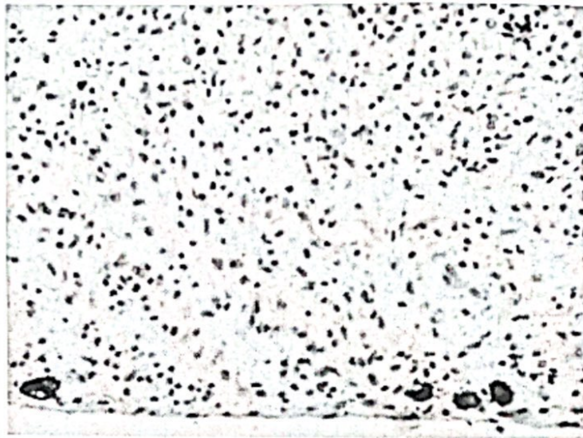

FIGURE 4 Tissue block of the periprosthetic capsule: immunohistochemistry shows 4 tumor cells with uniform expression of CD30 [Color figure can be viewed at wileyonlinelibrary.com]

Treatment must include removal of the implant and surrounding capsule. More advanced disease may require chemotherapy, radiotherapy, and lymph node dissection. It is important for surgeons, radiologist, and oncologists to be aware of this rare entity to ensure prompt diagnosis.

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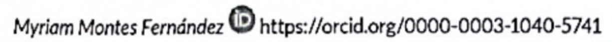
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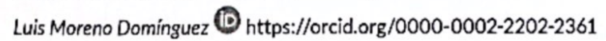
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