**CASE REPORT**

We report a case of a 36-year-old woman with no significant past medical history, no family history of breast cancer, and no prior history of breast implants. She initially presented to another institution in 2008 with a slowly growing, fist-sized lump on her left breast. A complex left breast cyst was completely aspirated. The patient was asymptomatic thereafter and had a normal mammogram in 2011. In 2012, the cyst on the left breast recurred. On examination, the patient had generally lumpy nontender breasts, with a discrete homogenous lump in her left breast. There was no palpable lymphadenopathy.

A blind fine needle aspirate of the cyst obtained approximately 100 mL of straw colored fluid. Cytological analysis of the fluid demonstrated a population of atypical cells with foamy macrophages in a background of proteinaceous material and cellu-

**Summary:** Anaplastic large cell lymphoma of the breast is a rare malignancy associated with prosthetic breast implants. We present a case of a woman with no prior history of breast implants who developed anaplastic lymphoma kinase-1 negative anaplastic large cell lymphoma on a background of a previous benign cyst aspiration. (Plast Reconstr Surg Glob Open 2014;2:e238; doi: 10.1097/GOX.0000000000000201; Published online 23 October 2014.)
lar debris. This atypical epithelioid population had markedly irregular nuclei and in certain cells marked pleomorphism and prominent nucleoli.

Within weeks, the cyst recurred, and given the cellular atypia, the patient elected to proceed to an excision of the cystic lesion. During her operation, a capsule from a previous cyst was identified, and the cystic capsule that extended to the inframammary fold was excised via a supramammary approach.

Macroscopic examination of the excised tissue showed a fibrous tissue capsule with no solid lesions, but a granular inner surface with small papillary projections and a wall thickness of 1–2 mm. Microscopically, the sections showed fibrotic and inflamed breast capsule. The inner surface of the capsule was lined by necrotic debris and fibrin, within which there were highly atypical cells arranged in small clusters and dispersed as single intact cells. The cells were focally degenerate but contained large pleomorphic nuclei with prominent nucleoli surrounded by abundant basophilic cytoplasm (Fig. 1). The atypical cells were confined to the inner layer of the breast capsule with no extension into or through the breast capsule into the pericapsular stroma.

Immunohistochemical staining showed that the large cells were strongly positive for CD30 and CD45, with T-cell marker positive for CD4 and T-cell intracellular antigen 1 (Fig. 2). The cells were negative for CD3, CD5, CD20, ALK-1, and CD79b. Other
T-cell markers were negative including CD2, CD7, and CD8. Epstein-Barr virus in situ hybridization was negative. These findings were consistent with ALK-negative anaplastic large cell lymphoma (ALCL) of the breast, a condition associated with previous breast implants.

Staging computed tomography scans demonstrated no evidence of lymphadenopathy or distant disease (Fig. 3). Positron emission tomography demonstrated mild fludeoxyglucose uptake in the site of soft-tissue thickening and a fluid collection in the left chest wall, consistent with inflammatory changes and a postoperative seroma, with no other areas of fludeoxyglucose avidity (Fig. 4). The patient remained clinically well postoperatively and was not offered adjuvant chemotherapy. She was disease free 12 months later.

**DISCUSSION**

Since it was first recognized as a distinct clinical and pathological entity, there has been ongoing debate about the strength of the association between breast prostheses and the development of breast ALCL.\(^1\)

Proposed subclassifications divide primary ALCL of the breast as either a local manifestation of systemic ALCL or a prosthesis, seroma or effusion related, which seems to follow a more clinically indolent course.\(^2,3\) Most of the latter group present as a peri-prosthetic effusion, swelling, pericapsular contracture, or pain.

This is a novel case of ALK-1-negative ALCL at the site of a previous cyst aspiration in a woman with no prior history of breast implants. Given that the immunohistochemical markers are more in keeping with prosthesis-related lymphoma rather than a cutaneous manifestation of systemic ALCL, this may suggest that an underlying pericapsular inflammatory process, perhaps from a previous cyst, may be an etiological factor. It may also suggest that in the reported cases of ALCL in women with previous prostheses, it may be the seroma or capsule rather than the implant which is the primary factor behind neoplastic change.

This case would also suggest that the development of ALCL does not rely on the presence of foreign material such as breast implants and can occur de novo. This has implications for surgeons and other clinicians to consider ALCL as a rare cause for the new onset of pain or swelling in a woman with previous cysts that have been surgically excised or aspirated.

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