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Breast implant related Anaplastic Large Cell Lymphoma presenting as late onset peri-implant effusion

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ABSTRACT

In the past 10 years there has been a number of case reports of lymphoma associated with implants. In January 2011 the US FDA (United States Food and Drug Administration) produced a review of the medical literature reporting an association between breast implants and Anaplastic Large Cell Lymphoma (ALCL). A common presenting feature is late onset effusion around the implant.[1] We report the first case in New Zealand and add to the worldwide total of 34 reported cases.

Introduction

There has been extensive discussion in both the medical and lay press about the safety of breast implants. Complications include implant rupture, migration of the implant, infection and capsular contracture. Malignancies associated with implants are rare. In the past 10 years there has been a number of case reports of lymphoma associated with implants. In January 2011 the US FDA (United States Food and Drug Administration) produced a review of the medical literature reporting an association between breast implants and Anaplastic Large Cell Lymphoma (ALCL).[1] Further to this, the American Society of Plastic Surgeons conducted a structured expert consultation process. Based on a systemic literature survey,[2] several recommendations in diagnosis and management of this rare disease have been documented.[3] We report the first case in New Zealand and add to the worldwide total of 34 reported cases.

Case report

A 33-year-old lady was presented in October 2009 with a three-week history of gradual, painless swelling of the right breast. She had undergone bilateral breast augmentation seven years previously with insertion of Polyurethane covered cohesive gel filled implants (Silimed). There were no recorded post-operative problems and her subsequent course was unremarkable.

There was no history of trauma to the breast.

Clinical examination confirmed diffuse swelling of the right breast. There was no skin dimpling, peau d'orange or nipple retraction. There was no erythema and the breast was not painful or warm to touch.

Ultrasound examination revealed a large fluid collection surrounding the implant. The fluid tracked around the deep aspect and completely encased the implant. No collapse of the implant or breech in the capsule was seen.

Bilateral mammography revealed a unilateral (right) effusion. No parenchymal abnormality was noted.

Breast Magnetic resonance imaging (MRI) confirmed intact implants. The fluid was noted to lie between the primary silicone implant and the pseudo capsule.

A total of 600 mL of clear yellow fluid was aspirated and submitted for microbiology, biochemistry and cytology.

The fluid was an exudate — protein content of 50 g/L, with no growth for infective organisms Cytological examination revealed a cellular aspirate with a population of large, pleomorphic discohesive cells. These cells had irregular, lobulated nuclei with multiple variable nucleoli. A cell block preparation confirmed the large pleomorphic cells (Fig. 1).

The large cells were confirmed as a monoclonal population of T cells → CD4 positive, CD22, CD23 and CD11C — weak positive.

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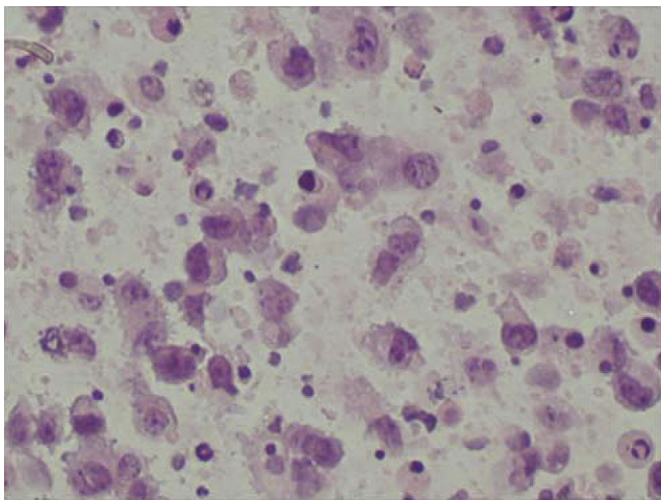

Fig. 1. H&E ×400. Cell block preparation showing discohesive, pleomorphic lymphoid cells.

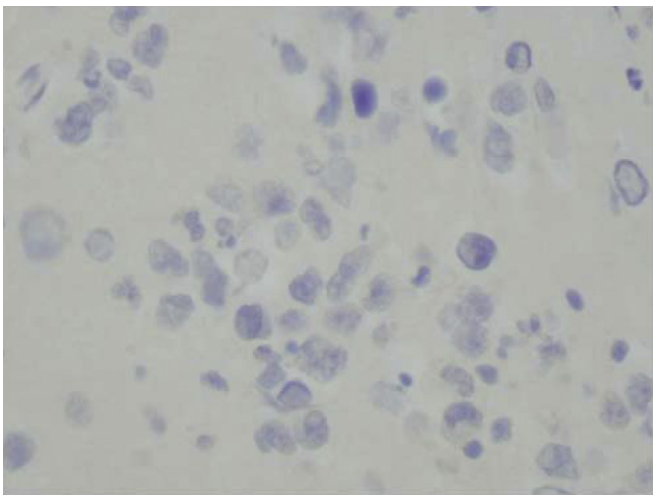

Fig. 3. IHC ×400. ALK1 – malignant lymphoid cells – negative.

Given the clinical and cytological suspicion of an ALK1-negative anaplastic large cell lymphoma, CD30, CD43 and ALK1 and T cell gene rearrangement analysis were added. The results supported the diagnosis of an ALK1neg ALCL (Figs. 2 and 3).

The patient was referred to the Haematology Department for treatment and received six cycles of CHOP-14. After completion of chemotherapy both implants were removed and the implant capsule was examined for residual malignancy. Histological assessment, flow cytometry and immunohistochemistry confirmed an inflammatory reactive process with no evidence of tissue involvement by lymphoma.

The patient remains well one year after treatment (Last follow-up visit on 23 November 2010).

Discussion

Primary lymphomas of the breast are rare. Most are B-cell related. T cell lymphomas are even more uncommon. Anaplastic T cell lymphomas can be either ALK 1 (alkaline kinase) positive subsequent to reciprocal *t*(2,5) translocation fusing the nucleophosmin and ALK genes — or ALK negative. The ALK negative tumours in the systemic format are highly aggressive lymphomas with poor outcomes. In contrast the implant-related ALK 1 negative lymphomas appearing cytologically high grade, are similar in phenotype to the systemic type but are different in outcome.[4] Rodin et al. therefore proposed that this may be a reactive response to the implant. The ALK 1 negative ALCL described with implants appears to be a different disease with localised presentation, an indolent course and may be cured with chemotherapy/removal of implant, although case numbers are small and follow-up is relatively short.

Clinicians involved in the assessment and management of implant-related problems need to be aware of the possibility of ALCL as a cause for late onset peri-implant effusion. Fluid should be submitted for cytology and cell marker studies. The pathologist should be alerted to this possibility, aspirated material submitted within a 2-h period and the additional markers (CD30, ALK1, CD45) added to the routine cell marker panel.

If the implant is removed surgically, then a portion of the capsule is submitted fresh for flow cytometry. Histological assessment of the implant capsule and surrounding breast tissue should include the appropriate immunochemistry.

Increased awareness of this entity and formal reporting of diagnosed cases are necessary to produce a more accurate picture of the true incidence and outcome of this condition. This approach is supported by the recommendations produced by the American Society of Plastic Surgeons.

Conflict of interest

None declared.

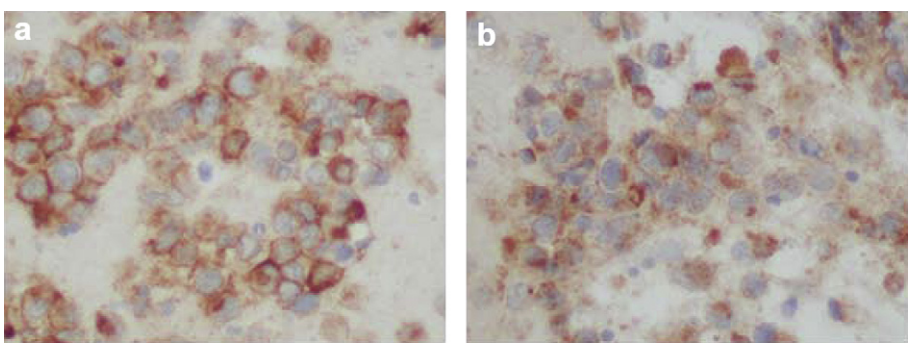

Fig. 2. IHC ×400. CD 30 (a) and CD 4 (b) malignant lymphoid cells with positive granular staining.

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References

1. US FDA. *Anaplastic large cell lymphoma in women with breast implants: preliminary FDA findings and analyses*. Centre for Devices and Radiological Health US Food and Drug Administration; Jan 2011.
2. Kim B, Roth C, Chung KC, Young VL, Van Busum K, Schnyer C, et al. Anaplastic large cell lymphoma and breast implants: a systemic review. *PRSJ* June 2011;**127**(6):2141–50.
3. Kim B, Roth C, Chung KC, Young VL, Van Busum K, Schnyer C, et al. Anaplastic large cell lymphoma and breast implants: results from a structured expert consultation process. April 2011 [Epub ahead of publication].
4. Roden AC, Macon WR, Keeney GL, Myers JL, Feldman AL, Dogan A. Seroma-associated primary anaplastic large-cell lymphoma adjacent to breast implants: an indolent T-cell lymphoproliferative disorder. *Mod Pathol* 2008 Apr;**21**(4):455–63 [Epub 2008 Jan 25. PubMed PMID: 18223553].

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