



CHAPTER OF PLASTIC, RECONSTRUCTIVE AND AESTHETIC SURGEONS (COLLEGE OF SURGEONS, SINGAPORE)



Fellows

Chapter of Plastic, Reconstructive and Aesthetic Surgeons

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Advisory for Plastic Surgeons: Breast Implant Associated Anaplastic Large Cell Lymphoma

Introduction to BIA-ALCL

Breast implants are commonly used for cosmetic augmentation as well as post-mastectomy cancer reconstruction. Breast implants are composed of a silicone shell, filled with silicone gel or saline. Historically, smooth-shelled implants were used in the 1970s and 1980s. In the late 1980s, textured-shell breast implants were introduced to reduce the incidence of capsular contracture, and their use significantly increased in the 1990s^{1,2}.

BIA-ALCL is a rare peripheral T-cell lymphoma was first reported in the medical literature in 1997³, and more than 300 cases of BIA-ALCL have been reported to the United States Food and Drug Administration (FDA)⁴, mostly occurring in patients who have undergone textured-surface breast implants. It is thought that development of BIA-ALCL is a complex process involving many factors, including bacterial biofilm growth, textured implant surface, immune response, and patient genetics⁴. The estimated incidence of BIA-ALCL ranges from 1 case per 30,000^{5,6} to 1 case per 4,000⁷. The incidence of BIA-ALCL varies throughout the world and this may be due to different reporting, but there is also likely to be a genetic predisposition. There are currently no known reported cases occurring in Asian patients in the medical literature. Because this is an uncommon disease, data is still being accumulated and medical knowledge on this topic continues to evolve. Some brands of textured breast implants have been withdrawn from sale in Europe due to such concerns.

Presentation and diagnosis of BIA-ALCL

The most common clinical presentation is a late peri-implant effusion, manifesting as breast enlargement more than one year following the breast implant surgery. Other less signs and symptoms include include breast masses, axillary lymphadenopathy, and/or B-type symptoms (fever, night sweats, lymphadenopathy, and fatigue). The average time to onset of BIA-ALCL after implantation is 10.7 years^{5,6}. BIA-ALCL may affect patients with either silicone- or saline-filled implants.



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Ultrasound is usually the first study of choice to evaluate a woman who presents with breast enlargement following previous breast implantation⁴. MRI may also be used sometimes. If an effusion is present, image-guided fine-needle aspiration of fluid should be performed. Surgeons must supply the pathologist with an adequate volume (minimum, 20 to 50 ml; ideally > 100ml)^{8,9}. Pathologists will require a clinical history to aid their diagnosis. Fluid specimens do not require storage in any specialized media, and should be transported to the pathology laboratory within 48 hours. Cytology and immunohistochemistry is used to confirm the diagnosis. BIA-ALCL is CD30 positive, epithelial membrane antigen positive, and ALK negative¹⁰. If BIA-ALCL is confirmed on histology, positron emission tomography combined with computed tomography (PET/CT) is the preferred staging investigation to assess for systemic disease¹¹.

Treatment

Most cases present with localized (early) disease, which follows an indolent course, and are cured by implant removal and complete capsulectomy, without need for further intervention^{8,9,12,13}. After complete excision, regular surveillance examinations and imaging investigations may be required. Patients with more advanced disease, including patients with a tumor mass, lymph node involvement, and/or distant spread, should be referred to a medical oncologist for chemotherapy, radiotherapy, or both^{4,8,9}.

Recommendations for patients with existing breast implants

The US FDA states: "If you have breast implants, there is no need to change your routine medical care and follow-up"¹⁴. Additional screening or removal of implants is not required for asymptomatic women^{14,15}. The FDA continues to affirm that "BIA-ALCL is a very rare condition"¹⁴. Patients who develop symptoms or signs suggestive of possible BIA-ALCL should be investigated as described above.

Recommendations for patients undergoing breast implantation

Breast implants may be inserted for aesthetic or reconstructive purposes. It is recommended that plastic surgeons perform pre-operative counseling to prospective patients undergoing breast implantation, of the various implant choices, potential risks and complications, as well as risk of BIA-ALCL. It should be emphasized to patients that routine surveillance following implantation, and long-term follow-up is advised⁴ even though this appears to be an uncommon disease.

Conclusion

There has been recent association of textured breast implants with BIA-ALCL. Research will continue, and theories, data and clinical recommendations will evolve. Breast implantation remains a safe procedure in the hands of trained plastic surgeons and appropriately selected patients, regardless of whether it is performed for aesthetic or reconstructive purposes.



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