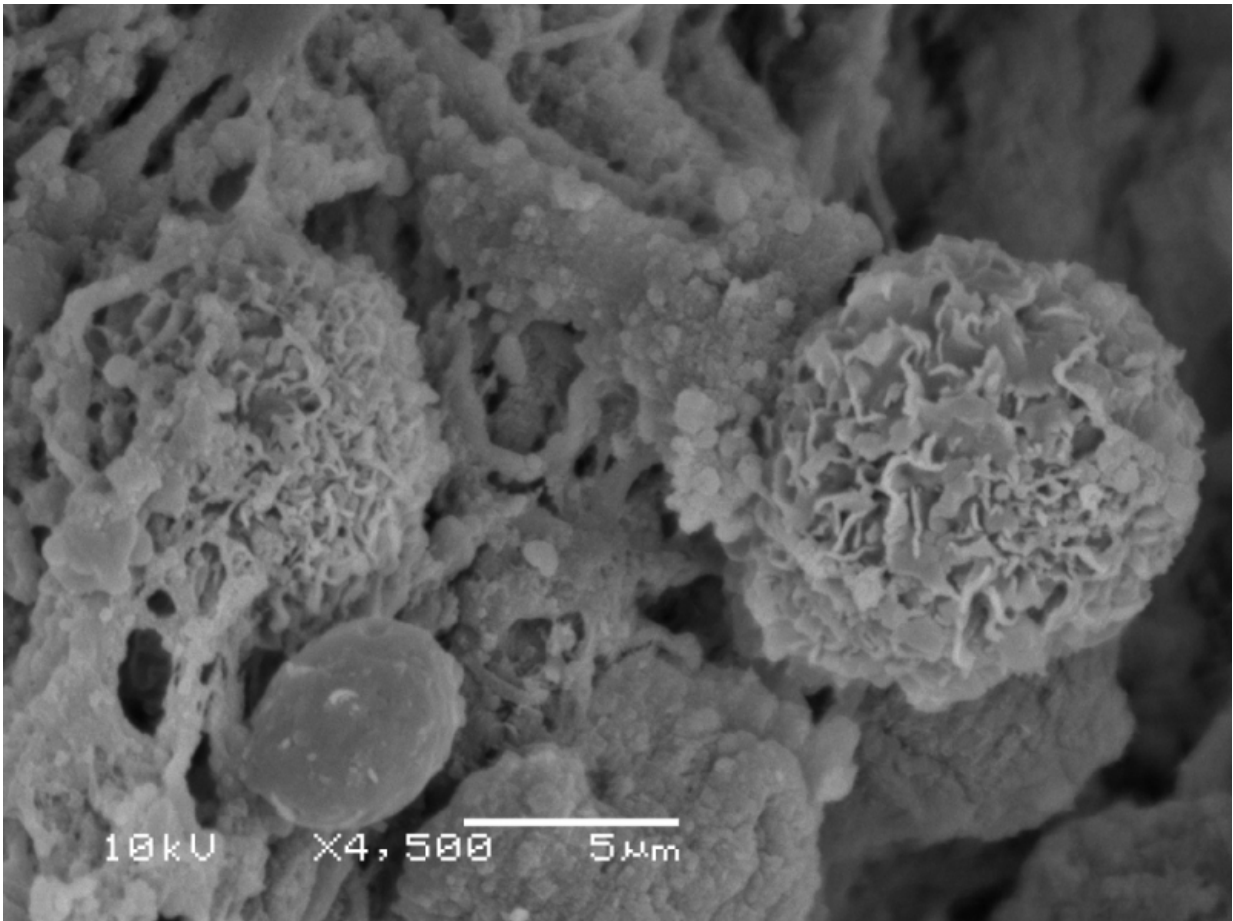


Research reveals which breast implants pose the greatest risk of implant-associated cancer

May 17 2017



Scanning electron microscope image of bacteria and activated lymphocytes.
Credit: Macquarie University

Researchers at Macquarie University's MQ Health have revealed that women implanted with textured breast implants are at a significantly higher risk of breast implant-associated anaplastic large cell lymphoma (BIA-ALCL).

The research, led by Macquarie University's Surgical Infection Research Group (SIRG) and Professor Anand Deva, Head of the Discipline of Plastic and Reconstructive Surgery at MQ Health, conducted this research in collaboration with a joint task force with members of the Plastic Surgery, Breast Oncology, Hermatology and Oncology and Cosmetic surgical societies. The risk of developing BIA-ALCL is as high 1 in 3800 implants.

"Between 2007 and 2016, of the 55 patients diagnosed with BIA-ALCL, all were exposed to textured implants," says lead author, Professor Anand Deva from MQ Health. "What's frightening is that in Australia, there has been a shift away from smooth implants and now 90 per cent of implants used in Australia are textured."

This study has been able to identify with great accuracy the number of cases in Australia and New Zealand thanks to the cooperation of all doctors involved in breast [implant](#) surgery, leading breast implant manufacturers who made available their sales data and to the newly established Australian Breast Device Registry which will seek to collect important usage and outcome data for all women with [breast implants](#) going forward.

"We knew that growth of bacteria on the surface of breast implants can, over time, cause an increase in stimulation of the lymphocytes, turning them into BIA-ALCL. However, we now know textured implants, which have a higher surface area, carry a significantly higher risk of BIA-ALCL. This is because these high surface area textured implants act as a passive conduit for the growth and proliferation of bacteria," said

Professor Deva.

The research found that Biocell salt loss textured implants, manufactured by Allergan accounted for 58.7 per cent of implants that developed BIA-ALCL. The second highest type of implant found to be associated was a polyurethane coated texture manufactured by Silimed. The risk of developing BIA-ALCL was calculated to be 14.11 times higher in Biocell textured implants and 10.84 times higher with polyurethane (Silimed) textured implants, compared with Siltex textured implants (manufactured by Johnson & Johnson), which are of low surface area.

The mean time for developing BIA-ALCL was found to be 7.35 years.

Clearly, these new findings reinforce the need for surgeons to be aware of the potential infection risks associated with specific types of breast implants and incorporate anti-infective strategies into their practice when performing breast implant surgery.

"Textured implants offer a perfect hiding place for bacteria. As well as this, we have found implants with a higher [surface area](#) grow bacteria quicker. The best way to prevent bacterial attaching onto implants is through proven surgical strategies and preventing bacterial contamination at the time the implant is placed in surgery" said Professor Deva.

The research has also sparked serious concerns about a potential increase in cases of BIA-ALCL in Australia and New Zealand where the research was conducted, and around the world. The Australian Regulator, the Therapeutic Goods Administration (TGA), has been notified and will be closely monitoring developments.

"Projections of implant sales show a significant increase in the number of textured implants being used in the past five years. As the average

time to development of this disease is eight years, we are concerned the number of cases could rise exponentially," said Professor Deva.

"We strongly recommend that women in Australia and New Zealand ensure they get their [breast](#) implants checked regularly and seek medical attention if they are concerned about any change in size, shape or symptoms associated with their breasts following surgery. We are working with government, industry and regulatory authorities to make sure there is an adequate monitoring system in place and that both women and doctors are well informed."

Professor Deva was one of a group of specialists to recently join MQ Health and has garnered international acclaim for his work to minimise hospital-acquired and implant infections. At MQ Health, Professor Deva will continue his longstanding work on reducing patient infections during surgery under MQ Health's new model.

"The newly formed MQ Health, with its world class facilities and drive to connect clinical research to better patient outcomes, is vital to the success of research projects like this one," said Professor Deva.

"At MQ Health we are very well-positioned to conduct translational research because of the integration of researchers and clinicians, with a state of the art hospital, on campus at Macquarie University."

Further translational research being undertaken by SIRG is focused on revolutionary anti-bacterial technologies that will prevent implant infection in the first place. This work is being performed in conjunction with both Government and Industry funding, and will lead to new smart implants being developed that are able to repel bacteria and result in a stable, long lifespan for all implants by reducing the risk of biofilm infection.

Provided by Macquarie University

Citation: Research reveals which breast implants pose the greatest risk of implant-associated cancer (2017, May 17) retrieved 24 April 2024 from

<https://medicalxpress.com/news/2017-05-reveals-breast-implants-pose-greatest.html>

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