

# BrachyBytes



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## Delivering APBI in Patients with Augmented Breasts



Robert Kuske, MD

According to the American Society of Plastic Surgeons, breast augmentation is the most popular cosmetic surgery procedure in the U.S., with over 300,000 women undergoing the procedure each year. As these women age, their risk for developing breast cancer increases, and many physicians are seeing a significant increase in the number of women with augmented breasts who are diagnosed with breast cancer.

Many of these women opt for implant removal and mastectomy with reconstruction in lieu of breast conservation therapy (BCT), due to the risk of capsular contracture associated with whole breast irradiation. However, radiation oncologist Robert Kuske, MD, of Arizona Breast Cancer Specialists pioneered the use of breast brachytherapy as part of breast-conserving treatment for women with augmented breasts and has published widely on the topic.

In this article, Dr. Kuske discusses the challenges of treating this patient population, how the availability of modern radiation therapy techniques is enabling more women with augmentation to choose BCT and how his research may impact the standard of care.

### What are the challenges of providing breast cancer treatment to women with implants?

It's a formidable problem because you want to prevent a recurrence without causing severe complications. Traditional whole breast irradiation circumferentially wraps the radiation dose around the implant, which results in capsular contracture in about 55 percent of cases. And yet if it's an early-stage breast cancer, it shouldn't mean they have to have a mastectomy just because they have implants. I think every radiation oncologist in the country who has patients with augmented breasts struggles with this.

The other problem is we're seeing more women with implants being diagnosed with breast cancer. In the early 2000s, breast augmentation was the most common cosmetic surgery procedure, and now a decade later many of these women are reaching an age where they're at a greater risk for breast cancer. Ten years ago, less than one percent of my practice included women with augmented breasts. Today, those

women make up 20 to 30 percent of my practice.

### What is the typical course of treatment for women with augmented breasts who are diagnosed with breast cancer?

The fact is that, due to the current literature, most of these women are getting mastectomies. It's unfortunate because many of these women are diagnosed very early with small tumors (less than 2 cm) and negative nodes, and they're still getting mastectomies simply because they have implants. Cosmesis is obviously important to these women, which is why they had the augmentation to begin with. Because they care about their appearances and had prior plastic surgery procedures, therefore they have to have a mastectomy with a 20 cm scar and reconstructions that lack sensitivity—it doesn't make sense to me. Why lose your breast when you can remain whole, especially in this population of women who prioritize appearance and optimal cosmetic outcomes? There needs to be an alternative.

*"The availability of modern radiation therapy technology like the SAVI® applicator enables women with augmented breasts to choose BCT by giving them a radiation option that does not result in capsular contracture."*

## For women with breast implants, how does the availability of SAVI impact their ability to choose breast conservation therapy?

The availability of modern radiation therapy technology like the SAVI® applicator enables women with augmented breasts to choose BCT by giving them a radiation option that does not result in capsular contracture. With every patient, I initially do a checklist to assess their suitability for partial breast radiation—tumor size  $\leq 3$  cm, either negative nodes or 1-3 positive nodes without extra capsular extension, and clear surgical margins by at least 1 mm. If they meet those criteria, I have a consultation with them in which we discuss the benefits, risks, cosmetic outcomes and tumor control results of APBI. Every woman who met the criteria for partial breast radiation has chosen BCT—I can't think of a single woman who has opted for a mastectomy after our consultation.

SAVI is particularly helpful for enabling the delivery of partial breast radiation in areas where the space between the skin and the implant is very thin—areas where it would be challenging, if not impossible to use a balloon. In particular, high upper outer quadrant tumor locations are amenable to SAVI. The women with implants who have received APBI with SAVI have done very well and are quite pleased to have a radiation technique that delivers a minimal amount of dose to their implant. When we use SAVI, the surface area of the implant that is exposed to a significant amount of radiation may be the size of a quarter or a dime, which is why we're not seeing the capsular contracture. For women who have a very thin space between the skin and the implant, a 5-day option is still available with interstitial brachytherapy.

## Based on your research, what kind of outcomes have you observed when treating augmented patients with APBI?

We reported our most recent data at the 2012 meeting of the American Society for Radiation Oncology (ASTRO). Based on 104 patients with a median follow up of three years, we observed an actuarial 5-year cancer recurrence rate of less than two percent, with no increase in capsular contracture. Cosmesis was rated as either good or excellent in over 90 percent of the patients. In fact, we have shown that cosmetic results in our patients with augmented breasts are better than the cosmetic

results with partial breast radiation in non-augmented women. That was a surprising finding that we're still investigating.

We now know that cosmetic outcomes are very dependent on maximum skin dose. With modern techniques like SAVI and interstitial brachytherapy, we can limit the skin dose to less than the prescription dose, which I believe is the reason our cosmetic results are so outstanding.

We also observed in our study that women with augmented breasts who are diagnosed with breast cancer tend to be younger than the rest of our patients. The average age of our breast cancer patients without implants is approximately 60 years, while the average age of patients with implants is about 48 years. Given the reputation of breast cancers in younger women being more aggressive, the fact that our results are so positive—particularly for tumor control—speaks even more to the power of the APBI. We're treating more aggressive cancers and yet having these outstanding outcomes.

## How do you think your research on APBI and breast augmentation will impact the standard of care in the future?

I think our study could be a paradigm shift for women who have augmented breasts and are diagnosed with breast cancer, provided that the 10-year outcomes are as favorable as our 5-year actuarial results presented at last year's national meeting. According to the definition of evidence-based medicine, this is a mature study with many patients more than five years past treatment and the results are so positive. Based on this data, I think fewer mastectomies will be required in the future due to the availability of BCT with partial breast radiation.

*Dr. Robert Kuske is a radiation oncologist at Arizona Breast Cancer Specialists in Scottsdale, Arizona. He previously led the breast cancer program at the University of Wisconsin and was chairman of Radiation Oncology at the famed Ochsner Clinic in New Orleans. While in New Orleans, Dr. Kuske and colleagues pioneered accelerated partial breast irradiation, and he is now a co-principal investigator of the North American 4300 patient phase III trial through the NSABP and RTOG, approved and funded by the National Cancer Institute. In April 2011, Dr. Kuske received the American Brachytherapy Society Presidential Award for contributions to the science of his field of radiation oncology.*



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