

Skin Marker Design Can Make the Difference in Revealing Potential Breast Cancers

Mammography (film screen, digital, and tomographic) is used as a screening and diagnostic tool for the early detection of breast cancer. Breast cancers can be seen on a mammogram as a mass, microcalcifications, or a combination of both. Since the tissue density and architecture of a small breast cancer can be very similar to surrounding normal breast tissue, a false negative rate of 15–20% accompanies the procedure.

The most important factor in detecting early breast cancer in the absence of a palpable mass is the presence of microcalcifications. These tiny calcifications can be seen when they are only 200–300 microns (0.2–0.3 mm) in size. Calcifications greater than 1–2 mm are almost always indicative of a benign lesion or process. Those less than 0.5 mm are highly correlated with malignancy, especially if they number more than four, are rough, punctate, and heterogeneous.

This is clearly evidenced in the excerpts below from the study “**Management of Microcalcifications Developing at the Lumpectomy Bed after Conservative Surgery and Radiation Therapy**”¹

“Calcifications are the most important marker of new or recurrent breast carcinoma. In a series by Stomper et al.², 43% of the mammographically detected recurrences were manifested by microcalcifications.

It is common for new calcifications to occur at the site of the tumor excision in patients treated with breast conservation therapy. Mendelson³ reported new calcifications in 28% of 110 patients treated by breast conservation therapy.

Microcalcifications developing in the conservatively treated breast may pose a diagnostic challenge to distinguish from local breast cancer occurrence.

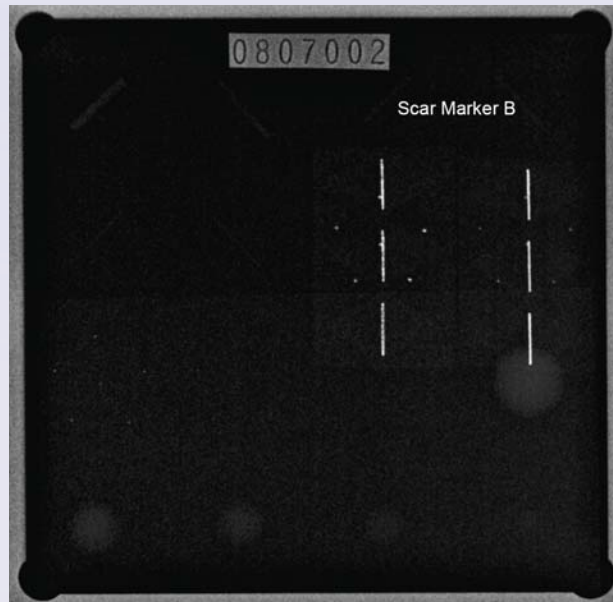
Surgery and radiation therapy may result in changes that can be confused with the appearance of recurrent tumor on mammograms. These changes include calcifications, architectural distortion, increased density, and skin thickening.”

Because the number, size, and shape of microcalcifications are so important, it is crucial that they be viewable through any marker placed on the skin to identify an old scar, a mole, an area of pain, concern, or a palpable mass.

A panel of radiologists⁴ was asked to examine two sets of phantom images below in a side-by-side, double-blind comparison and record which scar marker they felt was more likely to obscure a calcification and why.



Scar Marker A: Beekley Medical® S-SPOT® [REF 777](#)
(3mm radiolucent marker)



Scar Marker B: Other brand
(1mm radiopaque marker)

All radiologists indicated that “Skin Marker B” (other brand) was most likely to obscure a calcification.

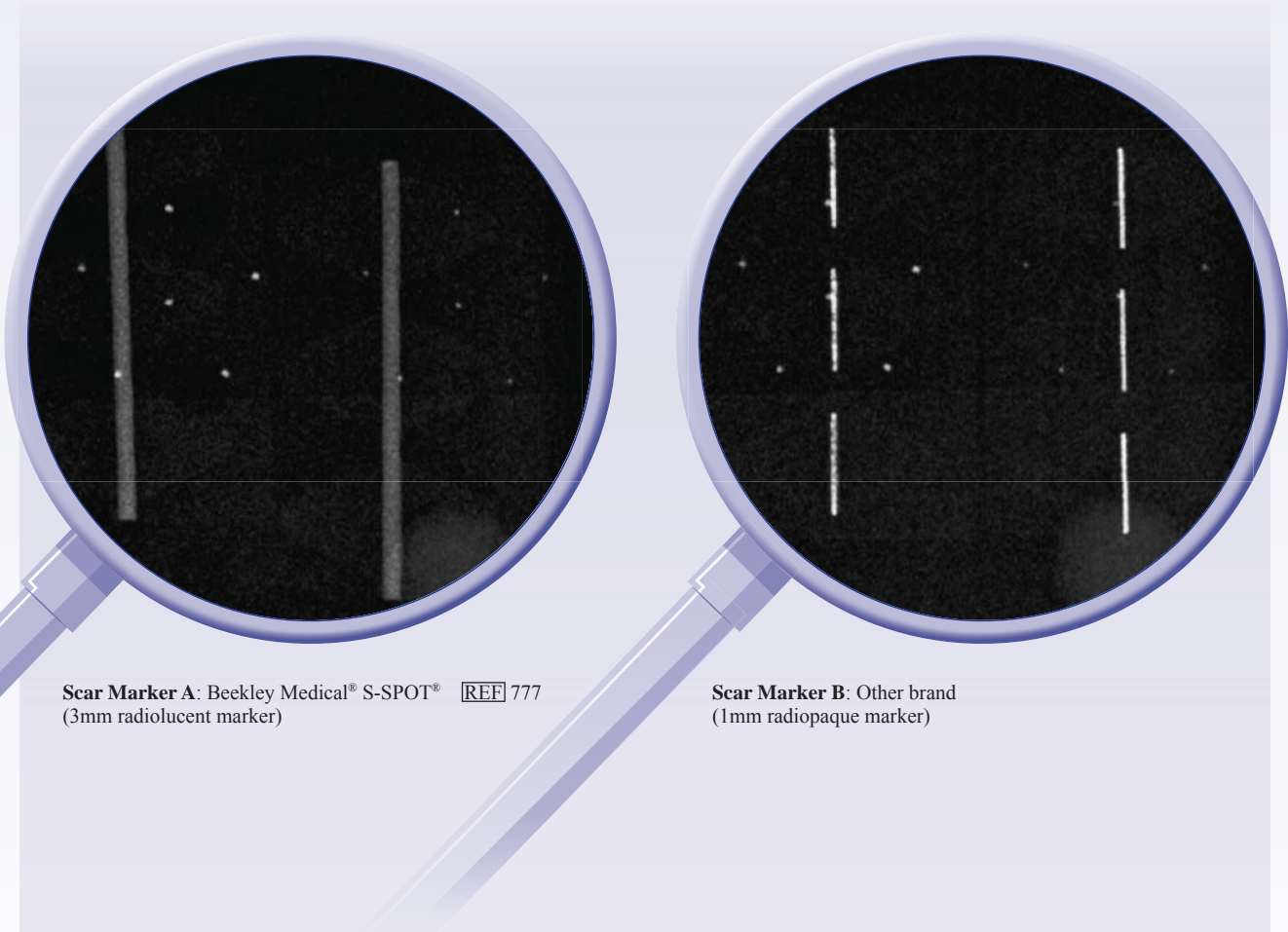
And here is why...

Results...

- “B is too dense, and might overlies and obscure the calcium. Also makes the whole image overexposed in order to expose the markers.”
- “The density of the scar marker B is equal or greater than that of calcifications.”
- “Scar marker B is as opaque as the calc.”
- “Scar marker B is the same density as a calcification.”

Uniform, low-density mammography skin markers such as “Skin Marker A” (Beekley Medical®) are best for breast imaging as they allow for maximum visualization of tissue detail through the marker and highlight without distraction.

Magnified view of the skin marker with calcifications.



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¹ Işıl Günhan-Bilgen and Ayşenur Oktay, “Management of Microcalcifications Developing at the Lumpectomy Bed After Conservative Surgery and Radiation Therapy,” *American Journal of Roentgenology*, Vol. 188, Feb 2007, pp: 393–398.

² Stomper PC, Recht A, Berenberg AL, Jochelson MS, Harris JR. Mammographic detection of the re-current cancer in the irradiated breast. *AJR* 1987; 148:39–43

³ Mendelson EB. Imaging the post-surgical breast. *Semin Ultrasound CT MR* 1989; 10:154–170

⁴ Phantom Comparison Survey Study – Beekley Medical, February 2014