Mammographic imaging after partial breast reconstruction: impact of a bioabsorbable breast implant

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ABSTRACT

BACKGROUND

Making the site of the excised tumor bed during partial mastectomy is critical for radiation targeting and surveillance for breast cancer recurrence. However, delivering the lumpectomy cavity margins is a challenge, and dense fibrosis and scarring often present obstacles when reviewing post-operative mammograms for signs of early recurrence. To determine whether implantation of a "true" implant used for partial breast reconstruction adversely affected post-operative breast imaging, we reviewed clinical imaging of 100 patients that had been implanted with a new bioabsorbable breast implant over a three year period.

Methods

Following informed consent, 110 patients were implanted at the time of partial mastectomy with a bioabsorbable implant with a primary purpose of marking the surgical site of tumor excision for radiation therapy. In each case, the surgeon outlined the implant into the cavity of the location believed to be at greatest risk for recurrence. Implants were placed for partial breast reconstruction, or to provide a visual cue for monitoring the tumor bed site (see Figures 1-5). Results

In all cases the implant was rated as easily visible on mammography and CT without appreciable artifact or interference with diagnostic capabilities (see Figures 4-7). In addition, as shown in the case examples below, there was notably less dense fibrotic tissue commonly seen on post BCT mammographic imaging. This visual decrease in the post-surgical artifact at the tumor excision site was a clear and consistent finding within this group of patients implanted with the 3-D marker.

RESULTS

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METHODS

Following informed consent, 110 patients were implanted with the 3-D bioabsorbable marker at the time of partial mastectomy with the primary purpose of marking the surgical site of tumor excision. In each case, the device was surgically placed into the cavity at the location believed to be at greatest risk for recurrence and was sutured into position. The device demonstrated utility in assisting with partial breast reconstruction, as a guide for radiation treatment planning and for follow-up imaging. Mammograms were reviewed for implant visibility, presence of artifacts and other diagnostic criteria.

CONCLUSIONS

The potential for improved cosmetic outcomes with the use of this 3-D marker during BCT has been previously described, with a reduction in the severity of scarring as seen on clinical exam and with preservation of breast shape and contour. This observation has been noted at other centers that have adopted use of the marker as well. The mammographic images in Figure 8 are consistent with the observation of reduced scarring after BCT. The authors note that mammographic images of patients implanted with the marker and followed long-term reveal notably less visible scar tissue in the region of the excised tumor, correlating the internal and external reduction in scar and fitness of the breast.

REFERENCES