OUTCOMES FOLLOWING PLACEMENT OF A 3-D VOLUMETRIC MARKER FOR BREAST IRRADIATION TARGETING

Linda Ann Smith MD | Robert Raymond Kuske MD
Comprehensive Breast Care, Albuquerque, NM
Arizona Breast Cancer Specialists, Scottsdale, AZ

PURPOSE/OBJECTIVES
✦ Lumpectomy followed by tissue rearrangement poses significant challenges for targeting post-operative irradiation
✦ Traditionally, clips or post-operative seromas have been used as a surrogate for the tumor bed
✦ An implantable fiduciary is now available; slowly dissolving coil containing six clips which is secured by the surgeon at the tumor site.
✦ This study documents clinical outcomes as documented by physical examination, imaging, and photography

RESULTS CONTINUED
✦ Post-operative imaging was performed as usual
✦ No increase in tissue reaction was identified
✦ Several devices were palpable, but resolved with time
✦ Irradiation began on schedule and was facilitated by the excellent targeting

MATERIALS/ METHODS
✦ The device was tethered at the tumor site, with tissue draped around it
✦ Post-operative radiotherapy followed
✦ Patients were closely examined

RESULTS
✦ Forty one patients underwent 43 implants. Three were removed at subsequent surgery and two patients declined radiation
✦ Twelve patients received whole breast irradiation and boost, twenty four patients received partial breast irradiation with interstitial brachytherapy, and two received interstitial boost plus whole breast irradiation.
✦ No devices migrated and none were infected

PATIENTS IMPLANTED 51
AVERAGE AGE 61.8 yrs (45-83)

AVERAGE NUMBER OF NEEDLES
without with difference
36.4 19.4 17
Needle Reduction 47%

AVERAGE PTV VOLUME FOR PLAN
without with difference
299 135 164
Volume Reduction 55%

CONCLUSIONS
✦ Forty- three implants were studied with uniformly excellent results
✦ The 3-D fiducial clearly identified the cancers origin, allowing precise coverage of the target volume for WBI or PBI
✦ Significant reductions in boost or PBI treatment volumes have been reported elsewhere
✦ Future studies will explore the long term cosmesis of a 3-D marker