USE OF A 3-DIMENSIONAL MARKER FOR TARGETING INTERSTITIAL ACCELERATED PARTIAL BREAST IRRADIATION (APBI)

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PURPOSE/OBJECTIVES
✦ In contrast to single-entry brachytherapy devices (SAVI, Contura, MammoSite-ML), Multicatheter Interstitial brachy (MIB), and 3-D conformal XRT do not require a cavity, but the original lumpectomy site does need to be marked
✦ MIB is an attractive option for pendulous very small or augmented breast, as well as cavities that are closed using oncoplastic surgery
✦ A new 3-D tissue marker (Biozorb, Focal Therapeutics, Inc.) is placed by surgeons at the tumor site at the time of lumpectomy/re-excision to guide the radiation oncologist for defining the target volume for MIB

MATERIALS/METHODS
The 3-D marker was sutured at the base of the lumpectomy cavity in 15 patients who were candidates for APBI
✦ The CTV (clinical target volume) was contoured on each CT-slice
✦ The PTV (planning target volume) was generated by treatment planning software as a 2 cm growth of the CTV
✦ The volumes were compared to our average CTV and PTV without a 3-D marker

RESULTS
The 3-D marker and 6 embedded clips are easily identified in all 15 cases
✦ With the 3-D marker
  CTV = 25 cc
  PTV = 125 cc
✦ Without the 3-D marker
  CTV = 14.25 cc
  PTV = 156.2 cc

CONCLUSIONS
✦ A 3-D marker facilitates identification of the target volume for MIB-APBI
✦ With clear definition of the target volume, the amount of tissue exposed to radiotherapy decrease, while confidence in adequate and precise coverage of the target increase