Placement of the BioZorb® Marker is Associated with Smaller Irradiated Tumor Bed in Patients Receiving Breast Conserving Therapy
The Center for Breast Care at Rhode Island Hospital

METHODS (cont…)

Tumor bed volume was determined based upon the contour established by the treating radiation oncologist in Philips® Pinnacle3 TPS. Linear regression analyses were performed to determine the relationship between excised surgical specimen volumes and tumor bed volumes in patients with and without BioZorb® marker. The differences in the slopes of the two groups of patients were assessed for statistical significance using the t-test.

RESULTS

A total of 117 women were included; 42 with implantable BioZorb® marker and 75 without. Mean surgical specimen volume was 102.7cc for women with BioZorb® and 104.2cc for women without. Mean tumor bed volumes were 27.5cc and 43.2 cc for women with and without BioZorb® placement, respectively. Figure 1 demonstrates the linear relationship between excised surgical specimen volume and tumor bed volume. A t-test for significance found that the difference in the slopes of the lines of best fit between the two groups was, in fact, statistically significant (t=0.001).

CONCLUSIONS

The BioZorb® implantable device is associated with smaller tumor bed volumes and as such, with smaller apbi or boost irradiated volumes. These findings suggest that the Biozorb system may offer an advantage in more precisely defining the lumpectomy site and in sparing larger volumes of healthy breast tissue from radiation. As these are early institutional data, the sample size is small, representing one limitation of the study.

METHODS

Women diagnosed with breast cancer who were treated in the radiation oncology department at RIH between May 1, 2015 - April 30, 2016 were retrospectively identified from an institutional database. Patients were classified as having had a BioZorb® placed or not having had a BioZorb® placed. Surgical pathology reports were examined to calculate the total specimen volume excised during breast-conserving surgery. For all patients, three dimensions were reported for the lumpectomy specimen size and volume was calculated as a cube to represent the lumpectomy specimen volume.

OBJECTIVES

The BioZorb® marker is a walnut-sized coil equipped with six titanium surgical clips that can be implanted in the tumor bed during breast-conserving surgery. By precisely defining the lumpectomy site in three dimensions, the device marks the surgical site for radiotherapy planning and is particularly helpful for boost planning. We aim to evaluate if patients with BioZorb® marker have smaller volume tumor bed than those with free clips or no clips.

FIGURE 1

The BioZorb® implantable device is associated with smaller tumor bed volumes and as such, with smaller apbi or boost irradiated volumes. These findings suggest that the Biozorb system may offer an advantage in more precisely defining the lumpectomy site and in sparing larger volumes of healthy breast tissue from radiation. As these are early institutional data, the sample size is small, representing one limitation of the study.