

AbstractID: 13361 Title: Dosimetric comparison between Contura MLB and MammoSite ML

Purpose:

To quantify the dosimetric differences between Contura and Mammosite Multi-lumen (ML) plans for Accelerated Partial Breast Irradiation (APBI)

Method and Materials:

Twenty High Dose Rate (HDR) treatment plans using the new Mammosite ML balloon applicator were retrospectively generated for patients previously treated with HDR-APBI using Contura Multi Lumen Balloon applicator. ML lumens were placed by coincidence with the central lumen and oriented with an offset lumen closest to skin. Plans were optimized using the same constraints and had the same D95 target coverage. Dosimetric parameters from Contura and Mammosite plans were extracted and compared. These parameters included: max dose to skin, max dose to ribs, target coverage, conformity and dose homogeneity indices.

Results:

For large skin/rib to balloon distances, treatment plans with these two APBI techniques can achieve comparable coverage and dose homogeneity. V100, V150 and V200 were in the range of 0.2 to 3 cm³, 0.2 to 3.6cm³ and respectively 0.3 to 1.2cm³ typically lower for Contura. The ML conformity index was an average of 0.83 (min 0.71) versus 0.84 (min 0.74) for Contura. In constrained cases (small skin and rib distances), the maximum dose to skin was higher for ML, on average by 10% with a maximum of up to 20%. The differences for the maximum dose to closest ribs in these cases were smaller than 5%.

Conclusion:

For balloons placed at larger distances from skin and/or chest wall, the two balloon applicators achieve comparable target coverage, conformity and dose homogeneity. However, for smaller breast sizes, when the balloon becomes close to both skin and chest wall, Contura can achieve a better skin sparing than MammoSite, likely due to its lumen geometry.

Conflict of Interest: DA, DT are consultants for SenoRx. Inc.