

AbstractID: 11004 Title: High Dose Rate Interstitial Brachytherapy (HDRIB) for Localized Breast Cancer: New Plan Evaluation Criteria

**Purpose:** To present our technique for HDRIB for treatment of localized breast cancer using a custom made template. The plan evaluation criteria, in correlation with clinical outcome are also discussed. **Materials and Method:** We have developed a breast implant template and successfully used in over 200 patients. The template has been modified successively in order to yield better clinical results. The holes were drilled at locations such that the neighboring holes formed a triangle with base and row separated at 1 cm apart. The catheters were implanted under ABBY mammography image guidance in order to cover the surgical clips, with margin. Planning CT images were taken at 3 mm slice thickness. Using Plato brachytherapy software the catheters were reconstructed and plan was developed using graphical optimization tool. The criteria that we have been using for plan evaluation, based upon our clinical tolerance for least toxicity, was to use 1.5x Dref (510 cGy) to receive  $\leq 30\%$  of PTV and 2x Dref (680 cGy) to receive  $\leq 10\%$  of PTV. The PTV was designed to cover 95 to 100% reference dose. **Result:** Using the new template we have treated 105 patients. The PTV for these patients varied from 24 to 245 cc with median value of 99. The criteria #1 followed a % PTV volume in the range of 18 to 31 with a median value of 24, well within the limit. The criteria #2 followed a % PTV volume in the range of 16 to 31 at a median value of 24%, also within limit. **Conclusion:** Using the above criteria, there were no adverse complications such as fat necrosis or skin scarring. The patients have tolerated the treatment very well