

AbstractID: 1564 Title: Interstitial HDR Breast Implant Using a Custom Designed Template

Interstitial HDR Breast Implant For Early Stage Breast Cancer Using Custom Designed Template

Between 2000 and 2004, 74 patients underwent interstitial HDR brachytherapy for stage T1, T2 breast cancer. The dosimetry was performed using CT images. Our protocol called for 3400 cGy in 10 fractions over 5 days prescribed to 85% isodose line. The target volume used for dosimetry was chosen at 1.5 to 2 cm beyond the surgical margin delineated by the clips and/ or mammogram finding. The 100% 200% isodose lines were used for studying the quality of implant volume. The parameters used for analyzing the quality of the implant volume were the Quality Index (QI), the Uniformity Index (UI) and the Dose Gradient Ratio (DGR), obtained from the dose volume histogram generated for each implant. We observed soft tissue necrosis in 10% (7/74) of our patients. Several risk factors for soft tissue necrosis were identified including catheter spacing, implant volume and chemotherapy. As a result, the catheter spacing was reduced from 1.5 to 1.0 cm, which in turn reduced high dose volume (150 to 200%). In addition total implant volume was limited to 150 cc. Finally patients receiving anthracycline based chemotherapy were excluded. These modifications helped improve the UI, the DGR thereby minimizing the clinical complications. The results of the in-vivo dosimetry, using TLDs placed on skin surface of implant volume in selected patients are discussed...