

AbstractID: 3414 Title: A study on the reproducibility of tangential breast fields using online electronic portal images

Purpose: To study the reproducibility of tangential breast treatment technique using online portal imaging system.

Introduction: Treatment verification and reproducibility is an important step in radiotherapy to achieve a better tumor control. Care should be taken to ensure the same dose to be delivered in the same volume of irradiation. Electronic portal imaging technique plays a vital role in accomplishing the above task by studying the setup error and correct the same before the treatment delivery.

Materials and Methods: Twelve patients of carcinoma of breast were selected for this study and CT based planning was performed with simple tangential fields. The patients were then treated on a 6MV linear accelerator equipped with an electronic portal imaging device. Portal images were acquired for both medial and lateral tangential fields for 10 fractions and intra and the inter-fraction studies were performed for all the patients. The parameters such as central lung distance (CLD), Central beam edge to skin distance, central irradiated width and cranio-caudal distances were measured on the acquired portal image. In the intra-fraction study lead markers were placed on the patient skin to study the breast movement during treatment.

Results: The maximum variation of the marker during the treatment was 1.8 mm with a standard deviation of 0.575 mm. Similarly the CLD, CBESD, CIW and CCD were analyzed for the intra and inter-fraction variation.

Conclusion: Online portal imaging device is an important tool for ensuring the proper delivery of planned dose. Our result suggests that intra-fraction motion of the breast has less impact on the treatment volume.