

AbstractID: 6789 Title: A technique for verification of isocenter position in tangential field breast radiotherapy

Breast irradiation is one of the most challenging problems in radiotherapy due to its complex shape of the target volume and its proximity to the surrounding normal structures. Proper implementation of the planned parameter during treatment is very essential, especially, verification of the planned isocenter position. Small deviations in the positioning of the patient with regard to the beam set up could have a relatively important impact on the treatment volume. Hence, treatment verification and reproducibility of the breast treatment portals is an important step in breast radiotherapy. A simple technique has been proposed in this study to verify the planned isocenter during treatment using electronic portal imaging device. Ten patients were recruited in this study and CT based planning was performed with conventional tangential field technique. For verification purpose, in addition to the standard medial (F1) and lateral (F2) tangential fields, a field (F3) perpendicular to the medial field was used for verification of the treatment portals. Lead markers were placed along the central axis of the two defined fields (F1 & F3) and the separations between the markers were measured on the portal images and verified with the marker separation on the digitally reconstructed radiographs (DRRs). Any deviation will identify the shift in the planned isocenter position during treatment. The average deviation observed between the markers measured from the DRR and portal image was 1.6 mm and 2.1 mm with a standard deviation of 0.4 mm and 0.9 mm for field F1 and F3 respectively. The maximum deviation observed was 3 mm for field F3. This technique will be very useful in patient set-up for tangential breast radiotherapy.