

AbstractID: 3102 Title: Development of 3D planning for obese patients larger than CT FOV using PHILIPS Pinnacle³ treatment planning system

Purpose: To develop a methodology for development of 3D planning of obese patients larger than CT field of view (FOV) using PHILIPS Pinnacle³ treatment planning system.

Material & Methods: Obese patient larger than CT FOV was scanned on Siemens Emotion Duo CT simulator in two laterally shifted positions. The Patient had appropriate BBs (central and lateral CT markers) on the central plane. The patient was first positioned such that one side of the patient's contour is fully visible in the reconstructed image. Another similar data set was acquired by shifting the patient laterally. A new composite CT data set with a larger FOV was generated by mapping the left and right halves of the two data sets using the indigenously developed software. Typically the images were joined at a user selectable sagittal plane. In this way, it was possible to fuse the above image sets to makeup the full patient for target/structures delineation. A traditional 3D planning on Pinnacle³ was carried out.

Results: An acceptable 3D plan data set was generated and dose distribution along with DRR was obtained using Pinnacle³. The DRRs were compared with AP and LAT simulation films and acceptable results were obtained. Similarly, the plan SSDs and depths were compared with data from patient setup with satisfactory results.

Conclusion: A methodology has been developed, tested and implemented for the obese patients with larger CT FOV for 3D planning on Pinnacle³. Essentially using this method, the 50 cm diameter FOV limitation of our scanner has been increased to 70 cm FOV. This was useful for a few selected individual cases in our clinic. While the composite data set is dependent upon the accuracy of patient positioning, several improvements are planned for the future.