

Purpose:Quality Improvement of prone breast radiotherapy by modification of the simulation technique and a prone breast board (PBB).

Methods:The “Horizon” PBB medial edge of the bridge was elevated and marked with radio-opaque BBs to avoid the bolus effect from the bridge and visualize the edge during simulation and treatment setup. Side bars were added to stabilize PBB. For support of the hands, shoulders and clavicles the superior platform was widened and elongated also indexed handles and shoulder support were installed. Head support was used for patient’s longitudinal setup. A “two-step” setup procedure was introduced to improve the setup accuracy: the patient is setup on the board using the “setup” point that is easily and reliably identified on patient body and then shifted to the treatment isocenter based on the treatment planning calculation.

Results:Implementation of the “two-step” setup procedure and modification of PBB significantly improved the setup accuracy. 74 patients were treated with this technique: 20% has a displacement (beam relative to the marked edge) of more than 1cm, 9.5% between 1cm and 0.5cm, and the rest 70.5% less than 0.5cm. Displacements more than 1cm mostly happened at the beginning of the implementation this procedure and there was a general trend of decreasing displacement as we became more familiar with this setup technique. The radio-opaque markers made it much easier to identify and avoid unexpected inclusion of the bridge in the treatment fields during the treatment planning and patient setup.

Conclusions:There are currently no commercially available PBB that are durable, comfortable and flexible for satisfactory patient setup and alignment. The modification of the prone breast board and implementation of the new simulation technique have partially addressed these concerns and significantly improved the quality of our prone breast RT program