

DOI: 10.29289/259453942019V29S1G08

INFLUENCE OF THE SURGICAL CLIP ON BREAST, HEART AND LUNG VOLUMES OF PATIENTS SUBMITTED TO BOOST DURING THE PLANNING OF BREAST CANCER RADIOTHERAPY, ACCORDING TO ONCOPLASTIC SURGERY

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Objectives: To evaluate the breast, heart and lung irradiated volumes considering the presence of clip implantation in breast tumor bed boost during radiotherapy, according to the use of oncoplastic surgery. **Methodology:** Women submitted to boost radiotherapy tumor bed after breast conservative surgery for breast cancer patients between 01/2011-04/2018. Statistical analysis using Student T Test (95%CI; $p < 0.05$). It was considered volumes of lung and heart relative to 40% of prescribed dose in the boost radiation planning (V40Lung) (V40Heart) and 100% in the breast and boost volume (V100Breast) (V100Boost), which were compared by oncoplastic techniques and surgical clips using the dose-volume histogram (DVH) in 3D dose distributions radiotherapy. **Results:** 149 patients, of whom 71 had clip (48%). Of the 69 patients submitted to oncoplasty, 38 had clip in the surgical bed (55%). For the whole group, when the patient was clipped there was a difference between the mean volume V100Boost=110 cm³ (PD±37) and without clip V100Boost=213 cm³ (PD±208) $p < 0.001$, but there was no difference for V100Breast=282 cm³ with clip (PD±141) and without clip V100Breast=400 cm³ (PD±188) $p = 0.085$, nor for V40Lung=57 cm³ (PD±41) with clip and 43 cm³ (PD±47) $p = 0.72$ and V40Heart=2.40 cm³ (PD±6) with clip and 2.78 cm³ (PD±14) $p = 0.59$. For those who underwent oncoplasty, there was no difference between the means of the volumes analyzed according to the presence of the clip. However, for those who did not undergo oncoplasty only the V40Lung was not significant for the presence of the clip ($p = 0.28$), but were significant for V100Boost=111 cm³ (PD±35) with clip and 262 cm³ (PD±274) without clip ($p < 0.001$), V100Breast=306 cm³ (PD±147) with clip and 423 cm³ (PD±218) without clip ($p = 0.002$) and V40Heart=2.02 cm³ (PD±4) with clip and 0.62 cm³ (PD±2) without clip ($p = 0.009$). The most commonly used oncoplastic techniques were reduction mammoplasty in 23 patients (33%) and round block in 8 (12%). **Conclusion:** The presence of the clip significantly reduced the irradiated boost volume. When controlled by oncoplasty, there was no difference between groups. For those who did not undergo oncoplasty, the presence of the clip made it possible to reduce the irradiated volume that received 100% of the prescribed dose of the whole breast and the boost area, but increased the cardiac volume that received 40% of the prescribed dose during the radiotherapy boost planning.