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THE INFLUENCE OF THE BREAST TUMOR BED CLIPPED IN THE HEART AND LUNG IRRADIATED VOLUME DURING THE BOOST RADIATION PLANNING

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Objetives: Adjuvant radiotherapy is a standard procedure particularly in women following breast conserving surgery (BCS). Markers may be employed for accurate localization of the boost volume during treatment planning. The implanted clips are typically stable in the tumor bed throughout the course of radiation therapy. Brazil is one of the most countries that the oncoplastic surgery is employed in breast conservative treatment, and so the importance to clip tumor bed to guide the radiation boost planning volume. The purpose of this study was to evaluate the heart and lung irradiated volume considering the presence of surgical clips in breast tumor bed during the radiation treatment planning. **Methods:** A retrospective descriptive study of 103 post-surgical patients who underwent breast-conserving treatment in early breast cancer. Statistical analysis was performed using Fisher's test, with a 95% confidence interval (CI, $p < 0.05$). It was considered the irradiated volume of lung and heart relative to 40% of prescribed dose in the boost radiation planning (V40) that was compared in patients with or without surgical clips. Using the dose-volume histogram (DVH). **Results:** This study evaluated 103 from from 2011 to 2018, and the average age was 57 years, varying from 32 to 78 years; the predominant histological type was invasive ductal carcinoma, 90%; 76% of the patients were luminal type, which 53% were Luminal A and 23% were Luminal B. Among the patients, 62% had left breast carcinoma and 38% right breast tumor. The mean heart V40 of the right breast was 2.0 cm^3 (with clip) and 0 cm^3 (without clip); and the left breast was 3.4 cm^3 (with clip) and 0.9 cm^3 (without clip). The mean lung V40 of the right breast was 60,86 cm3 (with clip) and 54.81 cm^3 (without clip); and the left breast was 49.43 cm^3 (with clip) and 43.71 cm3 (without clip). **Conclusion:** It is known that the use of the clip increases the local control. It was observed that the pulmonary and heart volume irradiated in the boost planning was higher in the group of clipped tumor bed in the tumor bed. Despite the probability of a geographic error, due to the clip use, it can lead to a better local control. In contrast, a increase of irradiated volume in normal tissue, like the heart and lung, can increase the possibility of side effects.