Purpose/Objective: To investigate the impact of surgery, oncoplastic surgery versus lumpectomy, on the volume of tumor bed delineation in irradiated breast cancer (BC) patients.

Materials and Methods: A consecutive series of 293 BC patients were treated with breast conserving surgery followed by radiotherapy. Of this series, 44 patients underwent an oncoplastic procedure and were included in this study. The control group consisted of 67 patients who underwent a lumpectomy. The controls were matched for location (lateral upper quadrant versus other) and tumor to breast ratio (small versus large). For the small tumor to breast ratio group we included 2 controls for each oncoplastic patient. For the group with large tumor to breast ratios we included all available patients (1 to 1). The tumor bed was delineated based on the presence of the surgical clips, hematoma, seroma and/or other surgery-induced changes and interpretation of radiology, pathology and surgical reports. The association between surgery (oncoplastic surgery versus lumpectomy) and delineated tumor bed volumes in cm³ was assessed with linear regression analyses. Here we present the crude association (using univariable analysis) and the association corrected for confounding factors (using multivariable analysis). Only confounders that changed the association more than 10% were included. In these analyses the outcome delineated tumor bed volume was log-transformed, the estimated beta’s represent the change in log tumor bed volume.

Results: The oncoplastic operated patients had a radiological larger median tumor diameter (21 mm versus 14 mm) than the lumpectomy patients. The volume of the pathological specimen was not significantly different between the two groups: 148.8 cm³ in the oncoplastic group and 135.0 cm³ in the lumpectomy group. The median delineated tumor bed volume was significantly larger after oncoplastic surgery compared to lumpectomy alone (26.3 cm³ vs. 16.4 cm³, p<0.001). In the univariable analysis the delineated tumor bed volume was 1.7 (8 = 0.547, 95% CI 0.297-0.797) times larger in patients with an oncoplastic procedure than in the patients who underwent a lumpectomy only. After correcting for confounders (presence of postoperative seroma and radiological tumor diameter (mm)) the delineated tumor bed volume after the oncoplastic procedure was 1.9 (8 = 0.616, 95% CI 0.353-0.879) times larger than after a lumpectomy only.

Conclusions: Oncoplastic surgery in breast conserving treatment for breast cancer results in larger tumor bed volumes for radiotherapy.

Purpose/Objective: Neoadjuvant radiochemotherapy (NRT-CHX) is an innovative technique for the treatment of patients with locally advanced non inflammatory breast cancer (LABC). The aim of this study was to analyze the long term cosmetic outcome in breast conserving and mastectomy patients after NRT-CHX.

Materials and Methods: In a time period from 1991 to 1998 a total of 315 LABC patients (cT1-cT4/cN0-N1) were treated with NRT-CHX. 160 patients received breast conserving surgery (BCS) and 154 patients mastectomy. One patient had no surgery. Preoperative radiotherapy (RT) consisted of external beam radiation therapy (EBRT) of 50 Gy (5 × 2 Gy/week) to the breast and the supra-/infraclavicular lymph nodes (n=255) combined with a consecutive electron boost in 214 cases or a 10-Gy interstitial boost with (192)Ir afterloading before EBRT in n=101 cases. Chemotherapy with CMF and AC/EC was administered prior to RT in 192 patients, and Mitoxantrone concomitantly in n=113 patients; 10 patients received no chemotherapy. The cosmetic outcome was assessed by patient questionnaire in 2013. A panel with 5 independent investigators evaluated the cosmetic outcome in 4 grades (excellent, good, moderate and bad). The breast retraction assessment (BRA) was quantified by van Limbergen Score. Quality-of-life was measured by EORTC QLQ-C30 and BR23 and late radiation side effects by LENT/SOMA scale.

Results: In 64 patients after breast conserving surgery and 43 patients after mastectomy a long term follow up of the cosmetic outcome was possible. Most patients rated their overall cosmetics as ‘excellent’ or ‘good’ (94% in the breast conserving group and 55.8% of the mastectomy group). The results for the mastectomy group is in detail: excellent: 27.91%, good: 27.91%, moderate: 39.53% and bad 4.65%. After a follow up of 16-22 years we did not detect any grade III or IV late side effects in both groups. The median BRA score after breast conserving surgery was 2.9 and the over-all quality of life (QLQ-C30) was rated ‘excellent’ or good in 82%.

Conclusions: NRT-CHX is associated with an acceptable radiotherapeutic toxicity and a good cosmetic outcome.

PO-0688
Implementation of a breath-hold lung gating system for left-sided breast cancer; hurdles and benefits
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Purpose/Objective: Left sided breast cancer poses a significant challenge in sparing the heart and specifically the left descending coronary vessels (LCV). Often, a compromise between PTV coverage and OAR sparing must be made. Lung Gating is seen as a useful method to maximize both. However, it is always associated with increased complexity, cost and time. We prospectively evaluated the cost-benefit of a modern system implemented in a busy community hospital environment.

Materials and Methods: A lung gating system based on the breath-hold technique (SDX, QFix, Avondale PN, USA)