with patients who have not had chest radiation (47% vs 36%; p < 0.03).

**CONCLUSION:** Radiation therapy can significantly influence the outcomes of breast reconstruction and the need for reoperation afterward. Understanding the effects of chest radiation can help improve preoperative patient counseling in breast reconstruction.

**Risk Factors Associated with Post-Mastectomy Breast Cancer**

**Lymphedema: The New York State Experience**

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**INTRODUCTION:** As an edematous condition diminishing quality of life, the risk factors predictive of breast cancer patients’ post-mastectomy lymphedema have not been identified previously. The objective is evaluating trends over time and identifying risk factors predicting breast cancer post-mastectomy lymphedema.

**METHODS:** Using billing codes, the 2010-2016 New York State-wide Planning and Research Cooperative System database identified first-time, breast cancer, post-mastectomy, 2-year survivors (n = 65,543; median age = 59 ± 20 years).

**RESULTS:** Overall, 1-year and 2-year post-mastectomy breast cancer survivor’s lymphedema diagnosis rates were 4.06% (99% CI, 3.85% to 4.27%) and 6.25% (99% CI, 5.99% to 6.51%), respectively. Rates varied by index surgical procedure (n = 11,110 [16.95%] lymph node biopsies only, n = 14,786 [22.56%] lymph node dissections, and n = 39,647 [60.49%] mastectomy-only procedures; p < 0.001). In addition, full vs partial mastectomies had lymph node procedures more frequently (p < 0.001). Treating upward over time (p < 0.001), post-mastectomy rates at 1 year (2.69% [2010] to 5.97% [2016]) rose dramatically at 2 years (4.62% [2010] to 9.75% [2016]). Through 2018, 3,409 patients with breast cancer (5.20%) had 2-year post-mastectomy lymphedema-related diagnoses; predictors of lymphedema development included (in priority order): higher Elixhauser score, prolonged mastectomy stay (more than 1 day), time period (mastectomy procedural year), obesity, younger, non-Asian race, Medicaid insurance, and hypertension (all, p < 0.01).

**CONCLUSION:** To improve post-mastectomy care, broad-based screening for the “at risk of lymphedema development” breast cancer patient sub-group should include perioperative counseling, pre-discharge consultations, and post-discharge monitoring. Additional research appears warranted to proactively reduce post-mastectomy breast cancer patients’ future lymphedema rates.

**Single-Cell RNA Sequencing Reveals Fibroblast Heterogeneity Across Mouse and Human Embryonic Origins**

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**INTRODUCTION:** Human skin scarring varies according to anatomic location, with the face healing at differing rates from scalp, ventrum, and dorsum. Fibroblasts are the key cells involved in wound healing originating from 4 embryonic origins. Fibroblasts from the face, scalp, ventrum, and dorsum originate from the neural-crest, cephalic mesoderm, lateral plate mesoderm, and somite mesoderm, respectively. Here, we use single-cell RNA sequencing to understand fibroblast heterogeneity across embryonic origins.

**METHODS:** Stented excisional wounds were created in the facial, scalp, ventrum, and dorsum regions in C57/BL6J mice. Wounds were harvested at postoperative day (POD) 7 (midday through healing) and POD 14 (wound re-epithelialization), with unwounded skin serving as controls. Fibroblasts were then processed for droplet-based microfluidic single-cell RNA sequencing analysis.

**RESULTS:** Facial wounds derived from the neural-crest displayed significantly accelerated wound closure and decreased scar thickness, compared with dorsal, ventral, and scalp wounds (7 vs 14; *p < 0.05*) (n = 10). We identified 6 distinct clusters of fibroblasts at POD 14. Two subpopulations were abundant in facial-derived fibroblasts enriched for CD200, Ncam1, and Jag1. Pathway analysis showed upregulation of known neural-crest signaling pathways, including Wnt canonical signaling, transforming growth factor-β.