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Breast Cancer-Related Lymphedema, a Frequent Complication of Axillary Surgery: A Prospective Single-Arm Study of Outcomes Before and After Decongestive Physical Therapy

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Abstract

Background: Breast cancer-related lymphedema (BCRL) is a frequent complication of axillary surgery, affecting about one in five patients. Complex decongestive therapy is the standard of care. We assessed limb circumference, pain, anxiety, and depression over a physical therapy programme.

Methods: Prospective single-arm study, without a control group. In 2025, 54 consecutive women with secondary upper-limb lymphedema underwent 10 physical therapy sessions with manual lymphatic drainage, three times weekly. Endpoints were total limb circumference (primary; sum of measurements every 10 cm), pain (Numerical Rating Scale) and anxiety and depression (Hospital Anxiety and Depression Scale, ordinal categories). Visit 1 and Visit 10 were compared using non-parametric tests.

Results: Total circumference decreased by a median of 8.50 cm (95% CI: 6.50–11.50) and median pain from 6 to 1 point. Normal anxiety levels rose from 29.6% to 63.0% and normal depression from 24.1% to 74.1% (all $p < 0.001$, large effect sizes). Circumference reduction was greater in stage 2 than in stage 1.

Conclusions: The programme was associated with significant improvement in all endpoints, but the absence of a control arm precludes causal attribution. The findings support integrating early lymphedema surveillance and prompt referral into post-operative follow-up.

Key words: axillary lymph node dissection, breast cancer-related lymphedema, surgical complication, physical therapy, pain, anxiety and depression