Three Dimensional Analysis of Early Post-Operative Volumetric and Morphologic Changes Following Vertical Reduction Mammoplasty using a Superomedial Pedicle

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Background: Reduction mammoplasty is one of the most frequently performed breast operations in the United States. The vertical reduction using a superomedial pedicle is increasingly popular, with proponents claiming superior aesthetics and projection over time. Prior studies have described the use of 3-dimensional (3D) photography for analysis of the long term changes in volume following medial pedicle breast reductions. The purpose of this study was to use similar 3D technology to analyze early post-operative morphologic and volumetric changes that occur with superomedial pedicle breast reductions.

Methods: Patients undergoing vertical reduction mammoplasty had pre-operative and post-operative 3D photographs taken using the Canfield Vectra surface photoimaging system. Postoperative images were obtained at 1 and 3 months. Total breast volume, volumetric tissue distribution in the superior, inferior, medial and lateral poles, and surface and vector measurements were assessed.

Results: Eight patients (16 breasts) were analyzed at 1 month and 3 months post-op. Total breast volume decreased significantly from pre- to postoperative scans (P<0.01). Following surgery, percent tissue distribution in the superior poles increased (P<0.01) at 1 month post-op compared to pre-op. Additionally, there was an increase in medial pole tissue distribution; however, this was not significant. Between 1 and 3 months post-op, there was no significant change in breast volume, percent tissue distribution in superior pole, or percent tissue distribution in medial pole (Figure 1). There was a slight increase in sternal notch to nipple distance; however, this difference was not significant.

![Figure 1. Example of post-operative changes in volumetric distribution.](image)

Conclusions: Vertical breast reduction using a superomedial pedicle produces a breast shape with increased superior pole fullness. Some redistribution in breast tissue from the superior pole to the inferior pole occurs in the months following surgery. Continued follow-up of these patients may provide greater insight into the long term volumetric and morphologic changes that occur following superomedial pedicle breast reductions.

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