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**“Evaluation and Optimization of Autologous Asymmetric
Bilateral Breast Reconstruction Techniques”**

Introduction: Breast reconstruction is an important part of breast cancer management and care. In autologous asymmetric bilateral breast reconstruction, the surgeon’s goal is to achieve a symmetric result despite working on two breasts with asymmetric needs. In addition, the surgeons often use different types of flaps, where a pedicle of the patient’s skin, fat, and blood supply is transferred to the breast. For example, the deep inferior epigastric perforator (DIEP) flap is a common choice for surgeons and uses the blood supply from the deep inferior epigastric artery. This use of the patient’s own tissue allows for a more natural, positive result. When performing these procedures, different techniques need to be considered for each breast to maximize aesthetic outcomes and minimize complications from surgery.

Methods: In this retrospective study, we analyzed data from 509 patients from the greater New Orleans area. We then determined that 359 of these patients had bilateral breast reconstruction. Sixty-three of the 359 patients were then categorized as asymmetric, autologous patients, and these patients had 136 flaps in total. These patients were then analyzed considering differences such as mastectomy weight, flap weight, and flap survival rate. We will also include four case studies from these patients to illustrate the techniques and complications more clearly.

Results: Fifty-two of these patients had one DIEP used on the right breast and one DIEP used on the left breast. Four had two DIEPs and one SIEA (superficial inferior epigastric artery flap). The average immediate side mastectomy weight was 554.07 grams, and the average delayed side mastectomy weight was 631 grams. The average weight of the immediate side flaps were 661.65 grams, and the average weights for the delayed flaps were 698.26 grams. The flap survival rate was 97.79%. We found thirteen patients with fat necrosis and five patients with mastectomy necrosis. Eight patients had to be taken back into the operating room due to complications. Eight patients also developed a hematoma, and eight patients had wound healing problems. One patient also had seroma.

Conclusions: The delayed sides seemed to require more flap weight than the immediate side. This finding may be because the delayed side on average took off more weight during mastectomy than the immediate side. In addition, more flap weight may be needed on the delayed side because the breast tissue is probably more fibrotic contracted due to radiation. The results also indicated serious complications concerning fat necrosis, hematoma, and wound healing. Further research should be performed to see if these complications are linked to certain techniques, co-morbidities, or factors. We are at the beginning of this project and hope to answer these questions as our work progresses.

