



Novel innovations and advancements in breast reconstruction

The field of breast reconstruction has witnessed tremendous advancements over the years both in terms of breast conservation as well as reconstruction following a mastectomy. The field of oncoplastic surgery has quickly become the standard of care where techniques engrained in the field of cosmetic, aesthetic plastic surgery are now employed to provide the most optimal means of reconstruction for patients undergoing a partial mastectomy. However, other techniques including local pedicle flaps as well as fat grafting or lipofilling have also become useful adjuncts to improve the overall cosmetic results for these patients. For patients undergoing reconstruction following a mastectomy, new technologies are constantly emerging to optimize reconstruction using a prosthesis-based approach, not simply in terms of the devices themselves, but also in terms of surgical techniques and in particular acellular dermal matrices (ADM). The frequent use of ADM has ushered in an era where the prosthesis has returned to a subcutaneous or prepectoral location which was previously plagued with high complications including capsular contracture. Early studies examining this approach have demonstrated high satisfaction and promising results. However, just as there have been beneficial developments in breast reconstruction, so have controversies arisen, the most prevalent of which is the description of breast implant associated- anaplastic large cell lymphoma associated with textured devices.

Tremendous advancements have also occurred in the arena of autologous reconstruction where free tissue transfer has quickly become the gold standard means of reconstruction. However, whereas previously the abdominal donor site was the only means of autologous reconstruction, novel donor sites including the thigh and lumbar region are quickly gaining in popularity with the increased comfort with perforator flaps and microvascular surgery. With the growing experience with microsurgery, free tissue transfer no longer focuses solely on achieving a viable flap, but on optimizing patient satisfaction and outcomes. The creation of a sensate flap through neurotization is also quickly becoming commonplace, but long-term outcomes remain to be determined.

Finally, the field of lymphedema super microsurgery is now a critical component for reconstruction in patients undergoing treatment for breast cancer. Given the need for multimodality therapy including chemotherapy and radiation, coupled with the need for an axillary dissection in patients with more advanced disease, the risks of lymphedema are only expected to increase. The two physiologic techniques, the lymphovenous bypass (LVB) and vascularized lymph node transfer (VLNT) have proven to be remarkably effective and have dramatically altered the treatment for breast cancer related lymphedema (BCRL) and proven to be an effective means at improving the quality of life of patients suffering from BCRL.

The current compendium of articles in the series on breast reconstruction aims to provide a comprehensive overview of the most novel issues in breast reconstruction in the modern era from some of the most world-renowned experts in the field. While the series is not meant to be exhaustive, the compilation of articles aims to provide the readership with a broad overview of novel techniques, data, and research on some of the premier topics in breast reconstruction.

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