It Takes Two: One Resects, One Reconstructs

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KEYWORDS

• Head and neck oncology • Reconstruction • Microvascular • Surgical technique • Two-team approach

KEY POINTS

- In planning for resection of head and neck defects, a thorough understanding of the preoperative anatomy, expected surgical defect, and options for reconstruction should be communicated between the teams.
- Each case of head and neck surgery is unique and so requires an individualized approach for management.
- A 2-team approach to simultaneous ablation and reconstruction of head and neck tumors should be highly considered and can contribute to obtaining optimal outcomes and decreased operative time.

TISSUE IS THE ISSUE

Through all phases of care, the care of patients with advanced head and neck cancer is a multidisciplinary effort. Demonstrably, optimal control of disease requires oncologic resection of tumors with adequate margins, which can require extensive resection involving soft tissue, bone, cartilage, and/or neurovascular structures. The resulting defects can often result in devastating physical and functional deficits associated with a significant decrease in quality of life.[1,2] This consideration is especially

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significant within the boundaries of the head and neck, where tumors surround and involve structurally complex and functionally critical anatomy. Given the advances in free tissue reconstruction, the vast majority of defects can be reconstructed using free flaps. Although previous work has suggested that secondary free flap reconstruction is feasible and associated with high success,[3] immediate reconstruction of tissue defects is preferred, because recipient vessels are more easily accessible near the surgical field, and fibrosis and scarring associated with secondary reconstructions can be avoided.

One of the most significant advances in the ability to care for head and neck cancer patients effectively is having a 2-team operative collaboration. Multiple institutions have advocated a 2-team surgical approach, which includes an oncologic team, responsible for effective and complete tumor ablation, as well as a team that reconstructs the resulting defect with optimal form and function. Additional surgical subspecialists should be involved when needed; for example, neurosurgery and vascular surgery may be required in the event of intracranial extent or involvement of critical vascular structures. A significant advantage of the 2-team approach is that it allows the oncologic team to ensure adequate resection with wider tumor free margins, thereby potentially facilitating increased local control of the tumor and optimal patient survival. In this dynamic, the oncologic team is free to resect to tumor-free margins without undue concern about conserving local tissue for reconstructive efforts. By shifting the responsibility of reconstructive planning to the reconstructive team, a 2-team approach allows the ablative surgeon to remove as much tissue as required to accomplish a 3-dimensional, tumor-free margin. The reconstructive team is then called on to reconstruct the defect and to maximize speech and swallow outcomes while preserving form when possible. Through this approach, operations can be combined into a single major effort to facilitate single-stage functional and aesthetic restoration.

THE STATE OF CURRENT OPINION

In 1980, Freiberg and Bartlett[4] described a 10-year experience with a 2-team reconstructive and ablative approach for complex head and neck cancers at Toronto East General and Orthopedic Hospital. At this time, immediate reconstructive techniques were limited to skin grafts and locoregional tissue transfers, and more definitive reconstruction usually involved multistaged flap transfers. Definitive, immediate reconstruction is now the preferred modality for head and neck cancers, because recipient vessels are typically easily accessible near the surgical field, and the fibrosis and scarring associated with secondary reconstructions are avoided. Advances in techniques and free tissue transfers allow for reliable single-stage reconstruction after radical surgical resections.[5] As the complexity of microvascular techniques advances, oncologic surgeons are increasingly reliant on the teamwork and expertise of reconstructive surgeons. A 2-team approach can provide great benefit for patients throughout the comprehensive treatment of head and neck cancers.

There are differing opinions regarding the timing of the reconstructive operation for immediate, single-stage reconstructions. Simultaneously raising tissue flaps for reconstruction, as the oncologic resection is underway, enables decreased operative times. Thus, minimizing fluid shifts and blood loss, decreasing risk of pressure sores and ulcers, and lessening the chance for neuropathic injuries, such as brachial plexus palsy from prolonged incorrect patient positioning. It can also facilitate communication between the surgical teams regarding boundaries and size of the defect intraoperatively. However, some institutions feel that the reconstruction should only start when