

Unfavorable Results After Free Tissue Transfer to Head and Neck

Lessons Learned at the University of Washington



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KEYWORDS

- Free flap reconstruction • Free tissue transfer • Antibiotics • Tracheotomy tube placement
- Total glossectomy • Laryngopharyngectomy • Total cervical esophagectomy • Jejunal free flap

KEY POINTS

- Overnight intubation has allowed a decrease in the use of tracheotomy tube placement without adverse patient outcomes. The authors have found earlier return to normal swallow, decreased intensive care unit stay duration, and decreased overall hospitalization.
- Current practice is to follow the Infectious Disease Society of America guidelines for perioperative antibiotic use with ampicillin-sulbactam or clindamycin with levofloxacin (or another agent for broad-spectrum gram-negative coverage) for 24 hours postoperatively.
- For postoperative flap monitoring, the authors use a needle-stick technique every 6 hours for 72 hours postoperatively. For buried flaps without a monitor paddle, the authors use both arterial and venous Cook implantable Dopplers.
- For total glossectomy defects, our preference has evolved to use the anterolateral thigh flap for its bulk, minimal atrophy, and large surface area. We use the fascia of the vastus lateralis to suspend the flap to the mandible and perform hyoid suspension concomitantly.
- For total cervical esophagectomy defects, our preference is to use jejunal free flap secondary to improved swallow outcomes with decreased fistula and stricture rates. We have found the voice changes to be inconsequential to patients.

INTRODUCTION

Free tissue transfer to the head and neck is a complex and multistep procedure. With experience, clinicians can become proficient with the reconstructive technique, but achieving consistently reliable functional and cosmetic results is a challenge

even for the most seasoned surgeon, particularly when reconstructing head and neck oncologic defects, which are frequently seen in previously irradiated patients with complex functional needs and/or multiple medical comorbid conditions.

At the University of Washington (UW), the senior author has performed more than 2500 free tissue

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transfers to the head and neck over the past 20 years. This article shares our experience with 3 areas that we find particularly challenging in the management of our patients. The article describes our approach to postoperative care, because most unfavorable outcomes arise in the early postoperative period. It then describes 2 complicated defects: the total glossectomy defect and the total laryngopharyngectomy defect. These 2 defects result in severe form and functional losses for patients and are challenging to adequately restore.

POSTOPERATIVE MANAGEMENT: MINIMIZING THE MORBIDITY OF HEAD AND NECK FREE FLAP SURGERY

Convalescence from head and neck free flap surgery is a challenging endeavor. Recent studies suggest that between 11% and 52% of patients with head and neck cancer meet Diagnostic and Statistical Manual of Mental Disorders criteria for major depressive disorder during treatment and recovery.¹⁻⁴ As a result, some recent investigators have suggested the prophylactic initiation of antidepressant therapy for all patients with head and neck cancer⁵ because of the common and significant physiologic insults caused by either surgery or postoperative chemoradiotherapy. In the postoperative period, significant facial/neck swelling, restriction of oral intake, loss of normal vocalization, frequent blood draws, and invasive procedures contribute to a high rate of discomfort and, at times, hopelessness. In addition to the development of a free flap clinical care pathway, the authors have focused on 3 aspects of postoperative management that, in our experience, have minimized morbidity and improved the quality of care: reduction in tracheostomy tube placement, prevention of postoperative infection while minimizing side effects and complications associated with antibiotic use, and reduction in the risk of free flap loss with dependable monitoring.

Development of a Clinical Care Pathway

The perioperative care of all free flap patients at UW is guided by a streamlined clinical care pathway. This pathway begins preoperatively with significant counseling and an assessment of anticipated postoperative social work/nursing needs. Our head and neck cancer care team consents patient before surgery for peripherally inserted central catheter (PICC) and percutaneous endoscopic gastrostomy (PEG) placement; procedures that are performed while the patient is still anesthetized in the intensive care unit (ICU) the morning after surgery. PEG placement ensures that patients receive enteral tube feeds and

medications within 24 hours of surgery, allowing the decreased use of intravenous fluids and avoiding the discomfort of a nasal tube. The PICC allows most new needle sticks to be avoided during their stay. Although these measures do not eliminate the recovery burden, anecdotally, they make the hospitalization and immediate home care much more tolerable. In addition, early ambulation and care by a focused head and neck nursing team has resulted in a 2-day reduction of hospital stay (average now 8.2 days) and increased levels of patient satisfaction within the first 6 months of implementation of the care pathway.

Overnight Intubation Versus Tracheostomy

Tracheostomy has traditionally been considered the mainstay of airway management following free tissue transfer to the head and neck. Many patients require this type of secure airway to avoid life-threatening obstruction; however, tracheostomy tube placement involves morbidity and complications. Therefore, at UW, we have shifted the airway management paradigm to reduce tracheostomy-related morbidity by avoiding tracheostomy in most of our head and neck free flap patients.

Tracheostomy tube complications include bleeding, infection, mucous plugging, tracheitis, aspiration-related pneumonia, and tracheal stenosis.⁶ Data suggest that there may be an increased risk of pulmonary complications in head and neck patients with tracheostomies, because tracheostomy is known to exacerbate aspiration, although it does improve pulmonary toilet.^{7,8} Avoiding a tracheostomy allows patients to speak earlier and maintain a strong cough. A tracheostomy may require increased nursing care and patient education and frequently complicates patients' placement after surgery, because many US skilled nursing facilities are disinclined to approve the transfer of patients with tracheostomy tubes.

In a 2010 retrospective review published by our UW group, 37 patients who were nasally intubated following an oral cavity resection/free flap reconstructions were compared with 21 patients who underwent a tracheostomy following similar oral cavity reconstruction.⁹ The mean hospital stay (8.4 days vs 12.4 days) and the likelihood of requiring a feeding tube (19% vs 76%) at discharge were both independently increased in the tracheostomy group on multivariate analysis. There were no airway emergencies or secondary tracheostomies performed in the nasal intubation group.

Similarly, there seems to be a growing trend elsewhere in the literature toward the decreased

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