

CASE REPORT

Partial Glossectomy for Squamous Cell Carcinoma of Tongue with Local Anesthesia in Patient with End Stage Lung Disease, a Case Report

Peter H. Liddell, JD¹, Trace T. Palmer, MD¹, Anne C. Kane, MD¹

¹ Otolaryngology, University of Mississippi Medical Center

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Squamous cell carcinoma of the tongue is an aggressive malignancy which frequently metastasizes to cervical lymph nodes. Up front surgical resection is the mainstay of treatment for oral cavity squamous cell carcinomas. Glossectomies are typically performed under general anesthesia with endotracheal intubation for airway protection, to mitigate pain, and ensure patient tolerability for optimal oncologic outcomes. This is among a few reported cases using local anesthesia for partial glossectomy and sentinel lymph node biopsy to avoid the risks of general anesthesia in a patient with compromised respiratory status. Clinical data was obtained through electronic medical records and a literature search performed. A 63-year-old female presented with cT2N0M0 Squamous Cell Carcinoma of the right lateral tongue. Her relevant past medical history included idiopathic pulmonary fibrosis and pulmonary arterial hypertension with chronic hypoxic respiratory failure. Pulmonology was consulted pre-operatively given the patient's significant pulmonary co-morbidities and determined the patient would have a high risk of perioperative mortality given likelihood of developing post-operative respiratory failure. After discussing risks of general anesthesia with the patient, she opted to undergo the procedure utilizing local anesthesia. The procedure was technically successful, and the patient survived for 18 months following treatment without evidence of disease before succumbing to another disease process. This case report demonstrates the feasibility of utilizing local anesthesia for select early oral cavity cancer patients who are high risk for general anesthesia.

INTRODUCTION

Cancers of the oral cavity are among the the most common malignancies in the United States. According to the National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Database, cancers of the oral cavity and pharynx comprise 2.8% of all new cancers.¹ In 2020, there were 424,284 people living with one of these subtypes of cancer, including cancer of the tongue, with 54,540 new cases expected in 2023.¹ Glossectomy is the standard treatment for malignant tongue lesions.² It is usually performed under general anesthesia with endotracheal intubation for airway protection, to mitigate pain, and to ensure patient tolerability for optimal oncologic

outcomes; however, not all patients can safely undergo general anesthesia due to other medical comorbidities.³ Local anesthetic methods provide a feasible alternative solution for these patients. This case is one of a few reported in the literature of a partial glossectomy and sentinel lymph node biopsy performed under local anesthesia, as general anesthesia was contraindicated due to advanced idiopathic pulmonary fibrosis.

CASE PRESENTATION

A 63-year-old female presented for evaluation of a right lateral tongue lesion. She had a past medical history significant for cerebral vascular accident status post carotid endarterectomy, idiopathic pulmonary fibrosis, and pulmonary arterial hypertension. She had a 45 pack-year smoking history but quit more than 15 years prior to presenting to clinic.

The patient was found to have a 2.5cm lateral tongue ulcer concerning for malignancy. Physical exam revealed neither cervical lymphadenopathy nor other remarkable findings.

A computed tomography (CT) soft-tissue neck scan with contrast was obtained, which showed a 2.8 cm mass of the right lateral tongue with a depth of invasion of 8mm concerning for Squamous Cell Carcinoma (SCC). A subsequent punch biopsy of the lesion confirmed SCC. The patient was staged with cT2N0M0 SCC of the right lateral tongue. The patient's case was discussed at multidisciplinary head and neck tumor conference where recommendations were made for right partial glossectomy, right neck dissection, and reconstruction with a radial forearm fasciocutaneous free flap.

Due to the patient's medical co-morbidities, pre-operative medical clearance was requested from both cardiology and pulmonology. Pulmonology assessed the patient and recommended surgical removal of the lesion but advised against using general anesthesia given the patient's compromised pulmonary function and high perioperative mortality risk from prolonged post-operative respiratory failure. To avoid general anesthesia, the team decided to proceed with partial glossectomy and sentinel lymph node biopsy under local anesthesia. The patient agreed with this plan and consented to the procedure. The lesion was successfully removed in the operating room with local anesthesia including a lingual nerve block and cervical nerve block. The sentinel lymph node biopsy was negative, making the final pathologic staging pT2N0. The specimen demonstrated perineural invasion and focally positive posterior deep margin. Due to high-risk features, adjuvant radiation therapy was recommended. The patient completed 24 radiation treatments, but the therapy was later interrupted by further hospitalization. She was not eligible for chemotherapy due to her lung disease. At last visit, the patient showed no evidence of disease. She was placed on hospice and passed away 18 months later due to complications of lung disease.

DISCUSSION

Squamous cell carcinoma of the tongue is a serious malignancy that poses a high risk of metastasis if no intervention is performed. The standard treatment for oral cavity cancer is up-front surgery followed by adjuvant treatment for patients with advanced stage disease or high-risk features.⁴

Glossectomy, whether partial or total, is typically performed under general anesthesia with endotracheal intubation to protect the airway during the procedure and to ensure patient tolerability. Surgeons need a controlled and optimized setting to operate within the tight confines of the oral cavity, which is often tenuous due to patient discomfort and anxiety. Local anesthesia offers potentially adequate pain control but risks patient intolerability and potential airway compromise, explaining why it is rarely used for invasive oral cavity procedures such as glossectomy.

General anesthesia, despite its benefits, presents a variety of risks, particularly in relation to respiratory function.⁵ On rare occasions, patients with certain medical conditions, particularly chronic obstructive pulmonary disease (COPD) and Idiopathic Pulmonary Fibrosis, have enhanced risk of perioperative complications from general anesthesia.⁵ These complications are due to the physiologic effects of general anaesthetics which increase both respiratory secretion production and airway reactivity,⁵ leaving patients more susceptible to laryngospasm, bronchospasm, barotrauma, and ultimately hypoxemia.³ Moreover, these patients face increased risk of pneumonia, unplanned intubation, and other post-operative complications.⁶ Any one of these events bears significant consequences that require consideration before performing surgery. Local anesthesia provides a reasonable alternative for these patients who can otherwise psychologically and physically tolerate glossectomy by avoiding the systemic effects. The use of local anesthesia solely for extensive oral cavity surgeries, such as glossectomy, mandibulectomy, etc., is rare. A literature search for exclusive local anaesthetic use for either partial or whole glossectomy produced a retrospective study comparing the risk of close and positive of surgical margins in patients with oral squamous cell carcinoma following general anaesthesia or local anaesthesia.⁷ The general anaesthesia demonstrated a decreased risk of both close and positive margins.⁷ Albeit with enhanced recurrence risk, the current literature reflects instances of successful resection which is promising for patients who cannot otherwise undergo general anesthesia.^{8,9}

Sentinel lymph node biopsy has emerged as a minimally invasive and oncologically appropriate way to stage the neck in patients with early oral cavity cancer who are clinically node-negative.¹⁰ This procedure was successfully utilized in this case to help assess risk of regional metastatic disease while avoiding the more extensive neck dissection surgery.

CONCLUSION

Glossectomy is part of the standard treatment for all stages of Squamous Cell Carcinoma of the tongue. This case is one of a few reported cases of partial glossectomy and sentinel lymph node biopsy performed utilizing local anesthesia. The patient's ability to tolerate the procedure along with the successful post-operative outcome demonstrates that local anesthesia is a viable alternative modality to provide a necessary surgical intervention in patients with profound respiratory compromise.

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Consent

Patient consent was obtained for this case report.

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