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SUBPLATYSMAL FLAP RECONSTRUCTION AFTER HEMIGLOSSECTOMY AND RADICAL NECK DISSECTION FOR TONGUE SQUAMOUS CELL CARCINOMA IN LOW-RESOURCE SETTINGS

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Abstract
Tongue squamous cell carcinoma (SCC) is an Tongue cancer aggressive with a high propensity for cervical lymph node metastasis. Reconstruction following hemiglossectomy is essential to restore speech and swallowing. Although microvascular free flaps are considered the gold standard for tongue reconstruction, their use may be limited in elderly patients or in hospitals with limited microsurgical resources. A case report of a 71-year-old male with T3N2bM0 tongue SCC who underwent hemiglossectomy and radical neck dissection with subplatysmal flap reconstruction. The flap survived without major complications. The patient achieved FOIS level 6 at postoperative week 4. Surgical margins were negative, and extracapsular extension was detected in level II lymph nodes. The patient was referred for adjuvant radiotherapy and remained disease-free at 6-month follow-up.

Keywords*: Subplatysmal flap, tongue cancer, hemiglossectomy, radical neck dissection, head and neck reconstruction.*

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INTRODUCTION

Oral Squamous cell carcinoma (OSCC) represents one of the most common malignancies of the head and neck region. Globally, oral cancer accounts for a substantial proportion of cancer-related morbidity and mortality, with the tongue being the most frequently affected intraoral site. Recent epidemiological data indicate that cervical lymph node metastasis occurs in approximately 30–40% of patients at the time of diagnosis and remains one of the most significant prognostic factors influencing survival outcomes..

Surgical resection with adequate margins combined with neck dissection remains the cornerstone of treatment for locally advanced tongue cancer. However, oncologic resection often results in substantial tissue defects that can significantly impair essential functions such as speech articulation, swallowing, and mastication. Therefore, immediate reconstruction plays a critical role in restoring both functional and aesthetic outcomes.

Microvascular free tissue transfer, such as radial forearm free flaps and anterolateral thigh flaps, is widely considered the gold standard for tongue reconstruction due to its versatility and favorable functional outcomes. Nevertheless, free flap surgery requires microsurgical expertise, longer operative time, specialized equipment, and intensive postoperative monitoring. These requirements may limit its feasibility in elderly patients or in hospitals with limited microsurgical resources.

Regional and locoregional flaps therefore remain valuable alternatives in selected clinical case. The subplatysmal flap is a thin, pliable, and well-vascularized regional flap harvested within the surgical field of neck dissection. It offers advantages such as shorter operative time, minimal donor-site morbidity, and acceptable functional outcomes for moderate-sized oral cavity defects. In this case, free flap reconstruction was not selected due to the patient's advanced age, prolonged operative time associated with microvascular procedures, and the limited availability of microsurgical resources in the institution.

Despite these advantages, clinical reports regarding the use of the subplatysmal flap in tongue reconstruction remain limited, particularly in low-resource settings. This case report aims to describe the clinical presentation, surgical technique, and postoperative outcomes of subplatysmal flap reconstruction following hemiglossectomy and radical neck dissection for tongue squamous cell carcinoma.

CASE REPORT

A 71-year-old male presented with a one-year history of a progressively enlarging ulcerated mass located on the right lateral aspect of the tongue. The lesion was initially painless but gradually increased in size and was later associated with intermittent bleeding, pain, and mild dysphagia. The patient had a long history of chronic smoking and poor oral hygiene and had not previously received oncologic treatment.

Physical examination revealed an indurated ulcerative lesion measuring approximately 3 × 3 cm on the right lateral tongue with irregular margins. Palpable cervical lymphadenopathy was present in the right neck region. Histopathological examination of an incisional biopsy confirmed moderately differentiated squamous cell carcinoma.

Radiological staging and clinical assessment determined a tumor stage of T3N2bM0. The patient received neoadjuvant chemotherapy using a cisplatin-based regimen for six cycles, resulting in a partial clinical response.

Subsequently, the patient underwent definitive surgical management consisting of right hemiglossectomy and radical neck dissection (levels I–V). Reconstruction of the tongue defect was performed using a subplatysmal flap harvested from the ipsilateral anterior cervical triangle.

Figure 1. Right lateral tongue mass

Figure 2. The mass in right lateral tongue after chemotheraphy with partial response chemotheraphy

SURGICAL TECHNIQUE

The subplatysmal flap was elevated during the radical neck dissection procedure. Dissection was performed in the subplatysmal plane while preserving the vascular supply from the submental branch of the facial artery.

The flap measured approximately 7 × 3 cm and was mobilized through a submandibular tunnel into the oral cavity. The flap was then inset to reconstruct the lateral tongue and floor-of-mouth defect using absorbable interrupted sutures. The cervical donor site was closed primarily without tension.

SURGICAL PROCEDURE

1. Incision and Exposure: A standard crile incision for radical neck dissection was made. Subplatysmal flaps were elevated to expose levels I–V cervical lymph node compartments.

2. Tumor Resection: A right hemiglossectomy was performed with adequate margins, including partial resection of the floor of the mouth. The specimen was oriented and sent for frozen section margin analysis plane. The vascular pedicle from the submental branch of the facial artery was preserved. Flap dimensions measured about 7 × 3 cm.

Figure 3. Intraoperative view showing after perfoming wide excision and radical neck dissection.

Figure 4. Intraoperative view showing elevation of the subplatysmal flap during radical neck dissection with preservation of the vascular pedicle.

3. Flap Harvest: During the radical neck dissection, the ipsilateral subplatysmal flap was elevated from the anterior cervical triangle in the subplatysmal

4. Flap Transfer and Inset: A submandibular tunnel was created to bring the flap into the oral cavity. The flap was inset into the tongue defect using interrupted 3-0 absorbable sutures.

5. Donor Site Closure: The cervical donor site was closed primarily without tension.

Figure 5. Intraoperative view showing using subplatysmal flap for reconstruction after hemiglosectomy

Figure 6. Intraoperative view showing reconstruction using subplatysmal flap

RESULT

The postoperative course was uneventful, and the flap remained viable without evidence of necrosis, wound dehiscence, or orocutaneous fistula. The patient resumed enteral feeding via nasogastric tube on postoperative day 7 and transitioned to oral intake on postoperative day 14.

Functional recovery was evaluated using the Functional Oral Intake Scale (FOIS). At postoperative week four, the patient achieved FOIS level 6, indicating near-normal oral intake without the need for tube feeding. Speech intelligibility was assessed clinically and was considered understandable without the need for repetition. The total length of hospital stay was 14 days.

Final histopathological examination confirmed negative surgical margins and extracapsular extension (ECE) in level II lymph nodes. The patient was referred for adjuvant radiotherapy according to oncologic treatment guidelines. At six-month follow-up, there was no evidence of local recurrence, regional recurrence, or distant metastasis.

Figure 7. Two weeks after reconstruction surgery, flap vital and no compliment about speech

DISCUSSION

The primary objective of tongue reconstruction following oncologic resection is to restore speech articulation, swallowing function, and oral competence while maintaining oncologic safety. Microvascular free flaps are widely considered the preferred reconstructive technique due to their versatility and ability to provide adequate tissue volume and mobility. However, free flap reconstruction may not always be feasible in elderly patients or in institutions lacking microsurgical resources. In such circumstances, regional and locoregional flaps remain valuable alternatives.

The subplatysmal flap provides several advantages in head and neck reconstruction. First, it can be harvested within the same surgical field as the neck dissection, eliminating the need for additional donor sites. Second, the flap is relatively thin and pliable, making it suitable for intraoral defects where excessive tissue bulk could impair tongue mobility and speech articulation.

Compared with the pectoralis major myocutaneous (PMMC) flap, the subplatysmal flap offers improved contour, better color match, and reduced donor-site morbidity. Furthermore, operative time is significantly shorter than microvascular reconstruction, which may be particularly beneficial for elderly patients with limited physiological reserve.

In this case, the subplatysmal flap provided adequate coverage of a moderate-sized tongue defect with satisfactory early functional recovery. The patient achieved near-normal oral intake within four weeks postoperatively and did not experience major complications. certain limitations must be considered when using this technique. The flap size is relatively limited compared with free tissue transfer, making it less suitable for large composite defects. In addition, careful preservation of the vascular pedicle is essential to ensure flap viability.

Despite these limitations, the present case demonstrates that subplatysmal flap reconstruction can provide acceptable functional outcomes while maintaining oncologic safety in selected patients. This technique may therefore represent a valuable reconstructive option in low-resource settings where microsurgical reconstruction is not readily available.

LIMITATIONS

This case report has several limitations. First, it represents a single case report, which limits the generalizability of the findings. Second, the follow-up period of six months is relatively short for evaluating long-term oncologic outcomes and functional recovery. Third, speech and swallowing assessments were based primarily on clinical evaluation rather than comprehensive instrumental assessments.

Further studies involving larger patient cohorts and longer follow-up periods are necessary to better evaluate the long-term functional and oncologic outcomes of subplatysmal flap reconstruction.

CONCLUSION

The subplatysmal flap is a practical, efficient, and reliable reconstructive option following hemiglossectomy and RND in selected patients. It is particularly suitable for elderly individuals, those with limited physiological reserve, and centers without microvascular capabilities. This technique should be considered more widely in head and neck oncologic surgery.

INFORMED CONSENT

Informed consent was obtained from the patient for publication of clinical information and accompanying images.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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