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Original Research Article

The influence of reconstruction following hemiglossectomy on perioperative outcomes

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ABSTRACT

Background: Hemiglossectomy can be required for oral cavity squamous cell carcinoma (OCSCC) resection but can result in functional and aesthetic deficits. Flap reconstruction is employed to restore form and function following hemiglossectomy but has procedure specific complications.
Methods: Our study is a retrospective cohort study analyzing perioperative outcomes in patients undergoing hemiglossectomy with and without reconstruction using the American College of Surgeons' national surgical quality improvement project (ACS-NSQIP) database. We identified 866 hemiglossectomy patients from 2008-2022, 233 of these patients underwent flap reconstruction. Modified Poisson regression was used to assess the effect of flap reconstruction on the risk of perioperative morbidity and mortality.
Results: Patients who received reconstruction were 1.74 times more likely (95% CI: (1.31, 2.3) p<0.001) to have perioperative complications (pneumonia, ventilator use >48 hours, urinary tract infection, myocardial infarction, surgical site infections) and longer length of stay (10.71 vs. 3.67 days, p<0.001) compared to those without. American Society of Anesthesiology score (ASA) and neck dissection were found to be independent predictors of morbidity. In addition, the need for operative interventions like tracheostomy and neck dissection was more prevalent in the reconstruction group. The association was similar when limited to those who had concurrent neck dissection.
Conclusions: Higher rates of complications associated with flap reconstruction among hemiglossectomy patients underscore the importance of careful consideration and surgical planning in flap reconstruction following hemiglossectomy. Understanding the relationship between perioperative risk and long-term functional outcomes will inform surgical decision making.

Keywords: Hemiglossectomy, Free-flap reconstruction, Neck dissection, Perioperative outcomes, Quality improvement, Evidence-based medicine

INTRODUCTION

Oral cavity cancer accounts for nearly half of head and neck cancers, with OCSCC being the sixth leading cause of cancer-related deaths in the United States.[1,2] Surgery is typically offered as a primary intervention for OCSCC; however, it can result in functional deficits, aesthetic changes, altered swallowing and speech, and overall quality of life.[1]

Microvascular free tissue transfer restores form and function following hemiglossectomy but has specific complications.[1] Among the various types of flap reconstructions, radial forearm flap (RFFF) and anterolateral thigh perforator flap (ALT) are the most reliable and widely used due to ease of dissection and availability of sufficient tissue for reconstruction.[3] RFFF is more commonly used due to its high success rate with low donor site morbidity; ALT is more commonly used for larger defect reconstructions.[4] Despite widespread use

of hemiglossectomy with reconstruction, the choice between reconstruction versus no reconstruction depends on the preference and training of the surgeon.[1]

There remain significant complications associated with ablative surgery of oral cancer. The surgeries performed at the time of ablation may vary, including the use of a surgical airway or reconstruction. In this study, we aim to assess the association between flap reconstruction, including free and regional flaps, and perioperative outcomes following hemiglossectomy.

METHODS

The ACS-NSQIP database was queried for patients who underwent a hemiglossectomy between 2008-2022. CPT code 41130 (description: "the provider removes a diseased lateral half of the patient's tongue during this procedure, which is often used to treat cancer") searched in primary, secondary and concurrent procedures to identify hemiglossectomy patients within database. We limited our analysis to hemiglossectomy procedures due to the lack of consensus in terms of choice for reconstruction for partial glossectomies. Partial glossectomy procedures typically do not have complex reconstruction versus total glossectomies usually mandate reconstruction.

The primary outcome of interest for this study was occurrence of perioperative complications following hemiglossectomy. Secondary outcomes included mortality and days from operation to discharge (length of stay).

The type of surgery was examined as a risk factor for perioperative complications. The CPT codes used for identifying patients who underwent flap reconstruction included "15570, 15572, 15574, 15576, 15733" for regional flaps and "15734, 15736, 15740, 15756, 15757, and 15758" for free flaps. Each code represents a secondary reconstructive procedure using a free skin flap from another body region, such as the lateral thigh or arm. We searched for all patients with the word "flap" in the description of CPT codes to identify those who underwent flap reconstruction after hemiglossectomy. In a subset analysis, we stratified flap reconstruction types into free-flap and regional flap reconstruction. Other risk factors included patient demographics such as gender, age, ethnicity, race, and comorbidities such as body mass index (BMI), dialysis, steroid use, blood transfusion, sepsis, ventilator use, congestive heart failure, hypertension, open wound infection, functional status, ASA score, diabetes, dyspnea, and COPD.

This study was exempt by the Albany Medical Center Institutional Review Board.

Statistical analysis

The association between flap reconstruction and outcomes of interest were evaluated via bivariate analysis comparing proportions and means of outcomes. Pearson's Chi-square test and t-tests were used as appropriate. For the primary outcome, perioperative morbidity and potential confounders were evaluated. Multivariable adjusted effects were evaluated via Modified Poisson regression; corresponding risk ratios and 95% confidence intervals were reported. A subset analysis was conducted on patients who underwent neck dissection during hemiglossectomy using the CPT codes "38720, 38724, and 38700," which represent complete cervical lymphadenectomy, modified radical neck dissection, and suprahyoid lymphadenectomy, respectively. Within this patient population, we evaluated the effects of flap reconstruction, first by stratifying by the presence or absence of free-flap reconstruction and then further stratifying based on the type of flap used (regional or free). The same major perioperative outcomes were quantified in this subset analysis as listed above. Statistical software STATA 18.0 was used for analysis.

RESULTS

We identified 866 patients who underwent hemiglossectomy from the database, of which 233 (26.9%) received reconstructive flap surgery. Table 1 describes risk factors including demographic factors and comorbidities in our analysis. The distribution of age, ethnicity/race, BMI, open wound infection, and ASA score varied significantly between patients with and without flap reconstruction ($p<0.05$).

Table 2 shows the overall distribution of all outcomes of interest and compares the interventions and outcomes among patients with and without flap reconstruction.

Of the patients who underwent hemiglossectomy, 30.48% (264) had a tracheostomy placed and 41.34% (358) had a neck dissection. Patients who had a flap reconstruction were significantly more likely to have a tracheostomy (78.11% vs. 12.95%, $p<0.001$) and a neck dissection (84.98% vs. 25.28%, $p<0.001$). Mortality rate was low (1.04%) in both groups.

The average number of days from operation to discharge in patients with hemiglossectomy was 5.53 days; patients with reconstruction had a significantly longer postoperative hospital stay compared to those without (10.71±6.71 days vs. 3.67±5.68 days, $p<0.001$). The occurrence of major complications (morbidity) was significantly higher in patients with reconstruction compared to those without (48.93% vs. 18.01% $p<0.001$). Overall rate of SSI was 5.77% with the proportion of SSI being significantly higher among patients undergoing reconstruction (12.45%) compared to those without (3.32%, $p<0.001$). The incidence of pneumonia was significantly higher in patients with reconstruction compared to those without (9.01% vs. 2.53%, $p<0.001$). The need for ventilator support for more than 48 hours was significantly more frequent in the reconstruction group compared to the non-reconstruction group (8.15%

vs. 0.79%, p<0.001). Myocardial infarction occurred exclusively in reconstruction group (2.15%, p<0.001). Patients with reconstruction had a significantly higher rate of blood transfusions compared to those without (20.17% vs. 2.21%, p<0.001). There was significantly higher incidence of DVT/ thrombophlebitis in patients with reconstruction compared to those without (1.29% vs 0.16%, p=0.030).

A subset analysis was performed for the 358 patients who underwent neck dissection following hemiglossectomy. Table 3 includes the postoperative complications in this subset population, stratified based on the type of flap used for their reconstruction (regional flap vs free flap).

Significant differences observed between 3 reconstruction groups in this subset analysis (no flap, regional flap and free flap) in terms of incidence of ventilator use, blood transfusions, septic shock, morbidity, tracheostomy placement and length of hospital stay.

Within this subset analysis of patients, the requirement for a tracheostomy was significantly different among the groups. Patients undergoing regional or free flap reconstructions have a much higher incidence (85.71% and 81.36%, respectively) compared to those without a flap (28.12%, p<0.001). In addition, the length of hospital stays increased significantly for patients with regional (10.95±5.34 days) and free flaps (11.03±6.97 days) compared to those without a flap (5.90±5.00 days, p<0.001). Morbidity rates were also higher in patients with regional (52.38%) and free flaps (47.46%) compared to those without a flap (26.88%, p<0.001). Ventilator use for more than 48 hours was more common in patients with regional (9.52%) and free flaps (8.47%) compared to those without a flap (1.25%, p=0.009). The need for blood transfusion was also significantly higher in patients with regional (33.33%) and free flaps (17.51%) compared to those without a flap (5.62%, p<0.001).

Multivariable analysis

All demographic factors and comorbidities that were significantly associated with flap reconstruction (Table 1) were evaluated as potential confounders and the independently adjusted effect of flap reconstruction on the risk of perioperative morbidity was evaluated. Table 4 presents the multivariable adjusted model for the risk perioperative morbidity in hemiglossectomy patients. Patients with flap reconstruction were 1.74 times (95% CI: 1.31, 2.30) more likely to have a major perioperative complication compared to those without. ASA score was the only other independent risk factor associated with major complications. Compared to ASA score of 1 or 2 (None or Mild), those with an ASA score of 3 (severe systemic disease that is not life-threatening) were 1.33 times (95% CI: 1.02, 1.75) and those with ASA score of 4-5 (systemic disease that is a threat to continued life) were 1.86 times (95% CI: 1.27, 2.72) more likely to have a major complication. Patients who underwent neck dissection were 1.54 times (95% CI: 1.16, 2.06) more likely to have major complication. Table 4 presents the multivariable adjusted model for perioperative morbidity risk in hemiglossectomy patients who underwent neck dissection. Among the neck dissection patients, those with flap reconstruction were 1.52 times (95% CI: 1.11, 2.08) more likely to have a major complication as compared to those without. Those with an ASA score of 4-5 were 1.61 times (95% CI: 1.05, 2.47) more likely to have a major complication.

Table 1: Distribution of demographic characteristics and comorbidities within hemiglossectomy patients with and without reconstruction.

Variables	Total, (n=866)	No reconstruction, (n=633)	Reconstruction, (n=233)	P value
Gender				
Female	364 (42.03%)	277 (43.76%)	87 (37.34%)	0.090
Male	502 (57.97%)	356 (56.24%)	146 (62.66%)	
Average age (in years)	61.12 (14.25)	61.91 (14.22)	59.01 (14.16)	0.008
Ethnicity/race				
Non-Hispanic white	526 (60.74%)	381 (60.19%)	145 (62.23%)	0.005
Non-Hispanic black	46 (5.31%)	23 (3.63%)	23 (9.87%)	
Non-Hispanic Asian	45 (5.20%)	34 (5.37%)	11 (4.72%)	
Non-Hispanic native American/Pacific Islander	8 (0.92%)	6 (0.95%)	2 (0.86%)	
Hispanic	54 (6.24%)	43 (6.79%)	11 (4.72%)	
Missing	187 (21.59%)	146 (23.07%)	41 (17.59%)	
BMI (kg/m^2)				
Normal (18.5-24.9)	295 (34.06%)	218 (34.44%)	77 (33.05%)	0. 036
<18.5	41 (4.73%)	22 (3.48%)	19 (8.15%)	
25-29.9	287 (33.14%)	204 (32.23%)	83 (35.62%)	
30-39.9	200 (23.09%)	156 (24.64%)	44 (18.88%)	
40-49.9	30 (3.46%)	23 (3.63%)	7 (3.00%)	
50-59.9	2 (0.23%)	2 (0.32%)	0 (0.00%)	
Missing	11 (1.27%)	8 (1.26%)	3 (1.29%)	

Continued.

Variables	Total, (n=866)	No reconstruction, (n=633)	Reconstruction, (n=233)	P value
Dialysis	2 (0.23%)	1 (0.16%)	1 (0.43%)	0.46
Steroid use	23 (2.66%)	18 (2.84%)	5 (2.15%)	0.57
Blood transfusion	3 (0.35%)	2 (0.32%)	1 (0.43%)	0.80
Congestive heart failure	9 (1.04%)	8 (1.26%)	1 (0.43%)	0.28
Hypertension	401 (46.30%)	291 (45.97%)	110 (47.21%)	0.75
Functional status				
Fully independent	843 (97.34%)	616 (97.31%)	227 (97.42%)	0.69
Partially dependent	14 (1.62%)	11 (1.74%)	3 (1.29%)	
Fully dependent	2 (0.23%)	1 (0.16%)	1 (0.43%)	
Missing	7 (0.81%)	5 (0.79%)	2 (0.86%)	
American society of anesthesia score (ASA)				
ASA 1 and 2 (No/mild disturbance)	309 (35.68%)	263 (41.55%)	46 (19.74%)	<0.001
ASA 3 (Severe)	507 (58.55%)	346 (54.66%)	161 (69.10%)	
ASA 4 and 5 (Life-threatening or Moribund)	46 (5.31%)	21 (3.32%)	25 (10.73%)	
Missing	4 (0.46%)	3 (0.47%)	1 (0.43%)	
Diabetes				
None	719 (83.03%)	528 (83.41%)	191 (81.97%)	0.77
Non-insulin dependent diabetic	106 (12.24%)	77 (12.16%)	29 (12.45%)	
Insulin-dependent diabetic	41 (4.73%)	28 (4.42%)	13 (5.58%)	
Dyspnea				
None	621 (71.71%)	457 (72.20%)	164 (70.39%)	0.47
Dyspnea with exertion	28 (3.23%)	18 (2.84%)	10 (4.29%)	
Dyspnea at rest	6 (0.69%)	5 (0.79%)	1 (0.43%)	
Missing	211 (24.36%)	153 (24.17%)	58 (24.89%)	
COPD	38 (4.39%)	25 (3.95%)	13 (5.58%)	0.30

Table 2: Comparison of operative interventions and postoperative outcomes in patients who underwent hemiglossectomy with and without flap reconstruction.

Variables	Total, (n=866)	No reconstruction, (n=633)	Reconstruction, (n=233)	P value
Interventions				
Tracheostomy	264 (30.48%)	82 (12.95%)	182 (78.11%)	<0.001
Neck dissection	358 (41.34%)	160 (25.28%)	198 (84.98%)	<0.001
Outcomes				
Mortality	9 (1.04%)	5 (0.79%)	4 (1.72%)	0.23
Length of stay from operation to discharge	5.53 (6.72)	3.67 (5.68)	10.71 (6.71)	<0.001
Morbidity (any major complication)	228 (26.33%)	114 (18.01%)	114 (48.93%)	<0.001
Surgical site infection (superficial, deep, organ space)	50 (5.77%)	21 (3.32%)	29 (12.45%)	<0.001
Wound disruption	16 (1.85%)	9 (1.42%)	7 (3.00%)	0.13
Pneumonia	37 (4.27%)	16 (2.53%)	21 (9.01%)	<0.001
Unplanned intubation	13 (1.50%)	7 (1.11%)	6 (2.58%)	0.11
Pulmonary embolism	3 (0.35%)	1 (0.16%)	2 (0.86%)	0.12
Ventilator use for > 48 hours	24 (2.77%)	5 (0.79%)	19 (8.15%)	<0.001
Progressive renal insufficiency	95 (10.97%)	70 (11.06%)	25 (10.73%)	0.89
Urinary tract infection	6 (0.69%)	2 (0.32%)	4 (1.72%)	0.028
CVA/stroke with neurological deficit	3 (0.35%)	1 (0.16%)	2 (0.86%)	0.12
Cardiac arrest requiring CPR	4 (0.46%)	2 (0.32%)	2 (0.86%)	0.30
Myocardial infarction	5 (0.58%)	0 (0.00%)	5 (2.15%)	<0.001
Blood transfusion	61 (7.04%)	14 (2.21%)	47 (20.17%)	<0.001
DVT/thrombophlebitis	4 (0.46%)	1 (0.16%)	3 (1.29%)	0.030
Sepsis	7 (0.81%)	3 (0.47%)	4 (1.72%)	0.070

Table 3: Comparison of outcomes in hemiglossectomy patients with neck dissection by reconstruction type.

Variables	Total neck dissections, (n=358)	No reconstruction, (n=160)	Regional flap, (n=21)	Free flap, (n=177)	P value
Interventions					
Tracheostomy	207 (57.82%)	45 (28.12%)	18 (85.71%)	144 (81.36%)	<0.001
Outcomes					
Mortality	4 (1.12%)	0 (0.00%)	0 (0.00%)	4 (2.26%)	0.13
Length of stay from operation to discharge	8.71 (6.57%)	5.90 (5.00%)	10.95 (5.34%)	11.03 (6.97%)	<0.001
Morbidity (any major complication)	138 (38.55%)	43 (26.88%)	11 (52.38%)	84 (47.46%)	<0.001
Surgical site infection (superficial, deep, organ space)	35 (9.78%)	10 (6.25%)	2 (9.52%)	23 (12.99%)	0.11
Wound disruption	8 (2.23%)	2 (1.25%)	0 (0.00%)	6 (3.39%)	0.32
Pneumonia	25 (6.98%)	8 (5.00%)	3 (14.29%)	14 (7.91%)	0.23
Unplanned intubation	8 (2.23%)	3 (1.88%)	0 (0.00%)	5 (2.82%)	0.65
Pulmonary embolism	2 (0.56%)	0 (0.00%)	0 (0.00%)	2 (1.13%)	0.36
Ventilator use for >48 hours	19 (5.31%)	2 (1.25%)	2 (9.52%)	15 (8.47%)	0.009
Progressive renal insufficiency	44 (12.29%)	24 (15.00%)	3 (14.29%)	17 (9.60%)	0.31
Urinary tract infection	5 (1.40%)	1 (0.62%)	0 (0.00%)	4 (2.26%)	0.38
CVA/stroke with neurological deficit	2 (0.56%)	0 (0.00%)	0 (0.00%)	2 (1.13%)	0.36
Cardiac arrest requiring CPR	2 (0.56%)	0 (0.00%)	0 (0.00%)	2 (1.13%)	0.36
Myocardial infarction	5 (1.40%)	0 (0.00%)	1 (4.76%)	4 (2.26%)	0.084
Blood transfusion	47 (13.13%)	9 (5.62%)	7 (33.33%)	31 (17.51%)	<0.001
DVT/thrombophlebitis	3 (0.84%)	1 (0.62%)	0 (0.00%)	2 (1.13%)	0.80
Sepsis	6 (1.68%)	2 (1.25%)	0 (0.00%)	4 (2.26%)	0.64

Table 4: Multivariable adjusted estimates for risk of morbidity (any major complication) in hemiglossectomy patients and those who received a neck dissection.

Variables	All hemiglossectomy, (n=862)	Risk ratio, (95% CI)	P value	Hemiglossectomy with neck dissection, (n=358)	Risk ratio (95% CI)	P value
Flap reconstruction	No	Reference (1.00)		No	Reference (1.00)	
	Yes	1.74 (1.31, 2.30)	<0.001	Yes	1.52 (1.11, 2.08)	0.009
ASA	1 or 2 (None or mild)	Reference (1.00)		1 or 2 (None or mild)	Reference (1.00)	
	3 (Severe)	1.33 (1.02, 1.75)	0.039	3 (Severe)	1.11 (0.79, 1.55)	0.529
	4 or 5 (Life threatening or moribund)	1.86 (1.27, 2.72)	0.001	4 or 5 (Life threatening or moribund)	1.61 (1.05, 2.47)	0.030
Neck dissection	No	Reference (1.00)				
	Yes	1.54 (1.16, 2.06)	0.003			

DISCUSSION

Comparative outcomes based on reconstruction following hemiglossectomy remains area of ongoing investigation.

Existing research primarily focuses on functional and aesthetic results across different flap types and reconstructive approaches. For instance, Uwiera et al reported improved speech and swallowing with bilobed

radial forearm free flap reconstruction compared to primary closure.[7] Similarly, Yi et al found that longer flap lengths negatively correlated with articulation and intelligibility which emphasizes the impact of flap dimensions on speech outcomes.

Postoperative chemotherapy and radiotherapy also play part in postoperative tongue retraction, articulation, and intelligibility, which are crucial for effective speech and swallowing.[8] Contrastingly, Ji et al found that secondary intention results in better tongue mobility, articulation, and speech intelligibility compared to free flap reconstruction in partial glossectomy. Free flap reconstruction yields better outcomes in tongue mobility, articulation, verbal diadochokinetic, and speech intelligibility compared to secondary intention.[9] Li et al conducted a prospective survey study using the university of Washington quality of life questionnaire preoperatively and at 2 years postoperatively. Most patients who received a radial forearm free flap reconstruction post-hemiglossectomy reported good articulation and chewing capacity 2 years after surgery.[10] Quality of life and functional outcomes following oral cancer resection are integral to ensuring successful treatment.

Despite these benefits, flap reconstruction after hemiglossectomy carries certain risks. Bilateral neck dissection and APACHE II score are associated with increased postoperative complications and longer hospital stays. ICU admission, systemic complications, and advanced disease severity also negatively impact prognosis. Early identification of risk factors can help guide interventions to improve survival and cost-effectiveness.[13] Overall, the literature remains mixed about perioperative outcomes following free flaps. Our study found higher rate of perioperative complications following flap reconstruction post-hemiglossectomy, which may be intuitive due to procedure complexity. It is integral for the physician to employ a patient-centered approach and consider flap reconstruction in cases where it will provide beneficial functional outcomes.

We can enhance patient outcomes and quality of life by carefully assessing surgical technique. ASA score, which reflects greater preoperative systemic disease severity, is an important factor to consider; our analysis suggests that both free flap reconstruction and ASA classifications are significant predictors of morbidity, suggesting that undergoing reconstruction after hemiglossectomy and having a baseline higher ASA score (ASA 3-5) increases the risk of perioperative complications and morbidity. The elevated risk in the reconstruction group (IRR=2.50) highlights the potential trade-off between the benefits of reconstruction after hemiglossectomy and the associated increased risk of major complications.

A subset analysis was conducted in patients who underwent neck dissection. We designated the neck dissection subset because we felt that patients with neck dissection were more likely to be undergoing definitive oncologic surgery. Of those patients, 739 had a clear post-operative diagnosis for malignancy while the remaining 127 without a malignancy code refers to the general population in which we began with. Of important note, patients in the ACS-NSQIP database represent only a sample of the surgical data from each hospital.

The rate of neck dissections to assess for metastasis in patients who underwent hemiglossectomy, with and without reconstruction, is lower than expected in this population with oral cancer at 41.34% (Table 2). A study by Gad et al showed that around 85.2% of all patients who underwent hemiglossectomy received a neck dissection to assess for lymph node metastasis (75 out of 88).[11] It is likely that the low rate of neck dissections reflected in this patient population is due to coding discrepancies. CPT codes have changed since the development of the ACS-NSQIP database which could contribute to the loss of data. Billing for hemiglossectomy might not take the differences in cancer staging into consideration. Another possible reason for lower rate of neck dissections is because the ACS-NSQIP database collects their data from an array of hospitals including academic and rural centers. It is possible that the extent of surgery may vary between settings. Some patients that did not have a neck dissection could also have been valid cases in the setting of recurrence where necks had previously been dissected.

In general, this study has limitations due to its retrospective nature and use of NSQIP, which over-represents tertiary care centers and may not be applicable to all hospitals.[12] The CPT codes for hemiglossectomy were chosen since it denotes the exact extent of surgery unlike other glossectomy codes; this may have missed the opportunity to analyze patients with bundled glossectomy and neck dissection codes. While the term hemiglossectomy seems discrete, there is still some heterogeneity in the patient population. For instance, some cases may involve more soft tissue work or base of tongue resection. NSQIP also de-identifies the institution where the data originated; therefore, it is not possible to identify which data is tied to individual hospitals. Given the retrospective nature of the study, we are only able to assess association, not causation, between the preoperative risk factors and perioperative outcomes following hemiglossectomy. Important information, such as disease characteristics, the specific clinical indication that prompted the hemiglossectomy, and preoperative treatments like radiation or chemotherapy regimens are unavailable. Furthermore, NSQIP does not contain information on other important variables such as socioeconomic status or poverty, which are integral to health outcomes. Another important point is that NSQIP provides a perioperative snapshot of patient outcomes but does not have any data about functional speech and swallowing outcomes in long-term survivorship. It may very well be worth the increased perioperative risk to improve long term quality of life in this patient

population. Despite these limitations, the study's strength lies in its validated clinical data and broad applicability of perioperative risk in hemiglossectomy patients.

CONCLUSION

This study highlights differences in perioperative outcomes and operative interventions among hemiglossectomy patients with and without reconstruction. Patients undergoing flap reconstruction had higher rates of complications, longer hospital stays, and greater healthcare resource use. Tracheostomy and cervical lymph node dissections were also more commonly implemented in this group. While many studies demonstrate reconstruction improves quality of life, function, and aesthetics, its risks must be carefully weighed. The choice of reconstruction after hemiglossectomy should be made using evidence-based decision making combined with patient-centered care in a team-based approach. Future research should focus on developing standardized guidelines to optimize surgical decisions and minimize complications in high-risk patients with oral cavity cancer.

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