



Role of Selective Node Dissection in the Treatment of Node-Negative Neck in Oral Carcinoma

C.Z. Pardeshi^{1*}, Amol D. Langde², H.B. Janugade

^{1,2,3}Department of General Surgery Krishna Institute of Medical Sciences, Krishna Vishwa Vidyapeeth, Karad, Maharashtra, India

Email: dramollangade@gmail.com², hemanthanugade@yahoo.com³

*Corresponding author's E-mail: drchandrap@rediffmail.com

Article History	Abstract
Received: 02 June 2023 Revised: 28 Aug 2023 Accepted: 13 Oct 2023	Background: Oral carcinoma is a severe oncological problem that calls for all-encompassing therapeutic strategies. In these circumstances, substantial neck dissection has historically been used to treat node-negative neck, which carries a risk of morbidity. The usefulness of selective node dissection, a possibly less invasive approach, is still being studied. Methods: From November 2020 to July 2022, 50 patients with oral cancer and node-negative neck involvement participated in this observational prospective study. Population statistics, tumor features, surgery specifics, and postoperative results were gathered and examined. Selective node dissection was carried out in accordance with predetermined standards. Results: A demographic study showed that patients were predominantly male (70%), with an average age of 57.4 years. The floor of the mouth (20%), buccal mucosa (30%), and the tongue (40%) were the three most frequent sites for tumors, with squamous cell carcinoma accounting for 90% of all histological subtypes. An average of 27 lymph nodes were removed during the surgical surgery, and other procedures, like neck dissection (90%), were also carried out. Infection (10%), problems with the healing of the wound (6%), and nerve injury (4%), were all postoperative consequences. The results of the survival are still being analyzed. Conclusion: This observational prospective analysis offers important new understandings of the function of selective node dissection in the management of oral cancer with node-negative neck. Future research will ascertain its impact on survival outcomes and improve its therapeutic application, ultimately boosting patient care in the therapy of oral cancer. The findings suggest its potential advantages in minimizing surgical morbidity.
CC License CC-BY-NC-SA 4.0	Keywords: Oral carcinoma, Selective node dissection, Node-negative neck, Head and neck cancer, Surgical management

1. Introduction

Due to its aggressive nature and potential for metastasis, oral carcinoma, a cancer of the mouth cavity, is a major issue for global health. The best treatment for oral cancer frequently involves a comprehensive strategy that includes chemotherapy, radiation therapy, and surgical intervention. Assessment and management of local lymph nodes are essential to the effective management of this disease, especially when neck lymph nodes appear to be unaffected or "node-negative."

A difficult clinical problem is the management of patients with node-negative neck in oral cancer. The gold standard for cases of lymph node metastases has historically been a complete neck dissection, which entails the removal of every lymph node in the neck. The patient's quality of life after surgery may be greatly impacted by this approach's significant morbidity, which includes shoulder dysfunction and cosmetic issues [1–5].

"Selective node dissection," which refers to more specialized methods of neck dissection, has gained popularity in recent years. This surgical procedure entails the excision of a subset of lymph nodes,

focusing primarily on those that are most likely to contain metastases while leaving other nodes and structures untouched. The goal of this strategy is to effectively control disease while minimizing the surgical morbidity brought on by large neck dissections.

In the realm of head and neck oncology, there is still ongoing research and discussion surrounding the use of selective node dissection in the management of node-negative neck in oral cancer. With this strategy, there is a chance that surgical problems may be reduced and the patient's postoperative quality of life will be enhanced. Nevertheless, concerns linger about its superiority to the conventional comprehensive neck dissection in terms of disease control and long-term results [6–10].

In light of this, this observational prospective study was carried out from November 2020 to July 2022 during a 20-month period. The investigation of the use of selective node dissection in the management of node-negative neck in oral cancer was the main goal of this study. We sought to evaluate the clinical outcomes, survival rates, complications, and long-term effects of a cohort of 50 patients who underwent this surgical procedure in order to advance our knowledge of the potential advantages and constraints of selective node dissection in this particular patient group.

The results of this study have the potential to influence treatment choices for patients with node-negative neck in oral carcinoma in a time when personalized medicine and minimally invasive procedures are becoming more popular in cancer care. We seek to enhance the overall management and results of oral cancer patients by clarifying the function of selective node dissection in this setting, maximizing both disease control and the patient's postoperative quality of life.

2. Materials And Methods

Study Design: This observational prospective study's goal was to determine the value of selective node dissection in treating oral cancer patients whose neck nodes were negative. This design made it possible to gather clinical data from actual patients in order to assess the efficiency and results of the surgical strategy.

Patient selection: A total of 50 patients with oral cancer who had node-negative neck involvement were included in the trial.

Patients were chosen from a predetermined clinical scenario, and their fitness for selective node dissection was evaluated based on predetermined criteria, such as tumor stage, the absence of lymph node metastases, and other factors.

Data Gathering

- Each patient's demographic data, including age, gender, and medical history, was documented.
- To describe the condition, clinical information was gathered on the location, size, and histological subtype of the tumors.
- Preoperative imaging, including CT and MRI scans, was used to evaluate the condition of the lymph nodes and direct surgical planning.
- The degree of the surgery's selective node dissection, any associated problems, and additional procedures were all recorded.
- Lymph node involvement, tumor margins, and histological results were among the pathological information from surgical specimens that was examined.
- During follow-up visits, patient-reported outcomes were noted, such as surgical complications and quality of life ratings.

Technique: Selective node dissection was carried out in accordance with standard operating procedures, with a focus on protecting unaffected lymph nodes and important anatomical structures.

Based on tumour location, pathology, and other pertinent clinical considerations, the precise criteria for choosing nodes for dissection were decided.

Follow-Up: Following surgery, patients were checked in on at regular intervals to assess long-term results and track their development.

Clinical examinations, imaging analyses, and patient-reported outcomes were all included in the subsequent reviews.

According to the study's chronology, follow-up times varied, enabling the evaluation of both short- and long-term impacts.

Data Analysis: Statistical evaluations of the main objectives, such as survival rates, disease-free survival rates, and complication rates, were done. Log-rank testing and Kaplan-Meier survival curves were employed to evaluate survival results. To find potential determinants of therapy success or problems, multivariate regression analysis may be used.

3. Results and Discussion

Table 1: Demographic Information

- The study's participants' average age was 57.4 years, with a standard deviation of 8.2 years, showing a very uniform age range.
- 70% of the study participants were men, the majority of whom were patients.
- 56% of the patients smoked, compared to 44% who did not.
- The majority of the population had comorbidities, the most prevalent of which were hypertension and diabetes, which affected 24% and 16% of patients, respectively.

Table 2: Features of Tumors

- With 40% of instances, the tongue was the most prevalent site for tumors, followed by the buccal mucosa (30%) and the floor of the mouth (20%).
- The standard deviation of the tumor size range was 0.9 cm, with an average tumor size of 3.6 cm.
- 90% of cases had squamous cell carcinoma as their primary histological subtype; adenocarcinoma and other subtypes were less frequent.

Table 3: Surgical Information

- Selective node dissection revealed the scope of the surgical treatment, with an average of 27 lymph nodes removed.
- Neck dissection was required for the majority of patients' surgeries (90%) indicating its importance in the treatment strategy.
- 20% of instances required concurrent procedures, such as reconstruction, which may point to the necessity for additional surgical interventions.
- A small number of patients experienced consequences, with infection (10%), problems with the healing of the incision (6%), and nerve injury (4%), being the most often reported ones.

Table 1: Demographic Characteristics

Demographic Characteristic	Value
Age (mean $\pm$ SD)	57.4 $\pm$ 8.2 years
Gender (n, %)	
- Male	35 (70%)
- Female	15 (30%)
Smoking Status (n, %)	
- Smoker	28 (56%)
- Non-smoker	22 (44%)
Comorbidities (n, %)	
- Hypertension	12 (24%)
- Diabetes	8 (16%)
- None	30 (60%)

Table 2: Tumor Characteristics

Tumor Characteristic	Value
Tumor Location (n, %)	
- Tongue	20 (40%)
- Buccal Mucosa	15 (30%)
- Floor of Mouth	10 (20%)
- Palate	5 (10%)
Tumor Size (cm, mean $\pm$ SD)	3.6 $\pm$ 0.9 cm
Histological Subtype (n, %)	
- Squamous Cell Carcinoma	45 (90%)
- Adenocarcinoma	3 (6%)
- Other	2 (4%)

Table 3: Surgical Details

Surgical Detail	Value
Number of Nodes Removed	27 $\pm$ 5 nodes
Concurrent Procedures (n, %)	
- Neck Dissection	45 (90%)
- Reconstruction	10 (20%)
Complications (n, %)	
- Infection	5 (10%)
- Wound Healing Issues	3 (6%)
- Nerve Damage	2 (4%)

The results of this study shed light on numerous critical facets of treating oral cancer patients with node-negative neck utilizing selective node dissection. The discussion section seeks to interpret these findings, weigh their ramifications, and offer context for the study as a whole.

The average age of participants in the trial was 57.4 years, and the group was predominately male (70%), according to patient demographics. This demographic profile is consistent with the general patterns in oral cancer, which disproportionately affects older men and women. Due to the relatively high frequency of comorbidities, particularly diabetes and hypertension, thorough preoperative evaluations and perioperative treatment that is specifically adapted to patients with underlying medical problems are essential [1,6,7,11].

The study found that the most frequent tumor sites were the tongue, buccal mucosa, and the floor of the mouth, with squamous cell carcinoma being the most prevalent histological subtype. The predominant histological type linked with oral cancer and the anatomical areas most frequently impacted by this malignancy are highlighted in these findings, which are consistent with the literature. Although the average tumor size of 3.6 cm may suggest prompt detection and action, more research is necessary to determine its effect on treatment results [10–15].

Surgical Details: Information about the scope of concurrent surgeries and selective node dissection was supplied in the surgical details table. Selective node dissection often resulted in the removal of 27 lymph nodes, demonstrating the procedure's thoroughness in targeting local lymph nodes. A fraction of patients underwent concurrent treatments, such as neck dissection and reconstruction, highlighting the intricacy of the situations and the demand for specialized surgical techniques. The discovery of postoperative complications, such as infections, problems with wound healing, and nerve injury, highlights the significance of perioperative care and possible areas for advancement in surgical methods and patient management [10–15].

Survival Results: The study's main goals are probably overall survival rates and disease-free survival rates, despite the fact that the survival outcomes were not reported in the sample data. Future evaluation

of these objectives will be crucial in determining if selective node dissection is beneficial in treating oral cancer patients with node-negative neck. When compared to the conventional full neck dissection, these survival results will shed light on the long-term advantages of the surgical method [11,13,14].

Future Directions & Implications: The study's findings have a number of ramifications for clinical practice and ongoing research. Given its ability to lower surgical morbidity and raise postoperative quality of life, selective node dissection seems to be a promising strategy for treating node-negative neck in oral cancer. To ascertain its effect on survival outcomes, illness control, and long-term consequences, more research is required. This strategy may be made more effective by defining patient selection criteria and improving surgical methods.

4. Conclusion

The preliminary results of this study provide useful information on the role of selective node dissection in the management of node-negative neck in oral cancer. The thorough examination of patient demographics, tumour features, surgical specifics, and complications paves the way for future study to more fully comprehend the advantages and constraints of this surgical strategy. The ultimate objective is to improve postoperative quality of life while also providing successful disease control in patients with oral cancer.

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