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Integrating Quality of Life Metrics into Head and Neck Cancer Treatment Planning: Evidence and Implications

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Abstract

Background/Objectives: Head and neck cancers significantly affect patients’ functional and psychosocial well-being. Multidisciplinary tumor boards have a central role in optimizing treatment strategies, but the relationship between tumor characteristics, comorbidities, and quality of life (QoL) remains insufficiently explored. **Methods:** We conducted a retrospective study of 94 patients with head and neck cancers evaluated by the oncology committee of Coltea Clinical Hospital in 2024. QoL was assessed post-surgery using the EORTC QLQ-C30 and H&N35 questionnaires. Descriptive statistics, non-parametric tests, correlations, and multivariate regression analyses were performed to examine associations between clinical variables and QoL outcomes. **Results:** The cohort comprised 82 men (87.2%) and 12 women (12.8%), with a mean age of 61.5 ± 9.8 years. The most common tumor site was the larynx (43.6%). Global QoL was low (mean = 42.3, SD = 11.7), and fatigue scores were high (mean = 61.5, SD = 13.5). All EORTC domains showed non-normal distributions (Shapiro–Wilk, $p < 0.05$). Kruskal–Wallis analysis revealed significantly lower QoL scores in patients with metastatic adenopathy with unknown primary ($p = 0.03$). Spearman’s correlation indicated a moderate negative association between Charlson Comorbidity Index and QoL ($r = -0.38$, $p = 0.01$). Multivariate regression confirmed comorbidities ($\beta = -2.5$, $p = 0.02$) and tumor type (metastatic adenopathy, $\beta = -8.0$, $p = 0.04$) as independent predictors of reduced QoL. **Conclusions:** Patients with advanced disease and higher comorbidity burden experience significantly poorer QoL after head and neck cancer surgery. Tumor board decisions facilitate individualized treatment planning; however, systematic integration of QoL metrics is essential to optimize both oncological and functional outcomes.

Keywords: QoL; tumor board; head and neck cancer surgery



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1. Introduction

Head and neck cancers (HNCs) represent a heterogeneous group of malignancies arising from the upper aerodigestive tract, including the oral cavity, pharynx, and larynx. They account for approximately 4–5% of all cancers worldwide, with a high prevalence in regions where tobacco, alcohol, and viral risk factors are common [1]. Beyond survival outcomes, HNCs profoundly affect speech, swallowing, breathing, and appearance, resulting in major psychosocial and functional consequences.

The complexity of these malignancies requires coordinated, multidisciplinary management. Tumor boards have become essential in modern oncology, ensuring evidence-based, individualized treatment decisions through collaboration among surgeons, oncologists, radiologists, and other specialists. Previous studies have shown that multidisciplinary discussions improve treatment adherence, timeliness of care, and survival outcomes in HNC patients [2,3]. However, less attention has been paid to the impact of such decision-making processes on patient-centered outcomes such as quality of life (QoL).

QoL has emerged as a critical endpoint in oncology, complementing traditional measures of survival and recurrence. Validated instruments such as the European Organisation for Research and Treatment of Cancer (EORTC) QLQ-C30 and its head and neck-specific module (QLQ-H&N35) provide standardized tools to assess functional domains, symptom burden, and overall well-being [4]. These measures are increasingly recognized as essential in guiding treatment choices and evaluating therapeutic success.

Despite this, evidence on the relationship between tumor characteristics, comorbidities, multidisciplinary treatment planning, and QoL outcomes in surgically treated HNC patients remains limited, particularly in Eastern European contexts.

The objective of this study was to examine the factors impacting postoperative quality of life in patients with head and neck cancers, following evaluation by multidisciplinary tumor boards and using validated EORTC QoL questionnaires.

2. Materials and Methods

2.1. Study Design and Setting

This was a retrospective observational study conducted at the Coltea Clinical Hospital, ENT, Head and Neck Surgery Department, a tertiary referral center for head and neck oncology in Bucharest, Romania. Data were collected from patients discussed in the multidisciplinary tumor board between January 2024 and December 2024—patients in their first year of oncological treatment.

2.2. Study Population

A total of 94 adult patients (≥ 18 years) diagnosed with head and neck cancers were included. Eligible cases were those for whom the tumor board recommended surgical treatment (with or without adjuvant oncological therapy) and had documented tumor board recommendations. Patients with incomplete records or those for whom the tumor board recommended exclusively nonsurgical treatments were excluded. Note that while the tumor board recommended surgery for all included patients (92.6% of cases), 25.5% of these patients did not undergo surgery due to factors such as advanced tumor stage, comorbidities, or patient preference, as determined post-tumor board evaluation.

Surgical interventions varied by tumor site and stage, encompassing a range of procedures tailored to the anatomical location (e.g., larynx, oropharynx, pharyngolaryngeal). Due to the heterogeneity of surgical procedures and the small subgroup sizes for specific interventions, which limited statistical power, QoL analysis was conducted by anatomical tumor site. A subset of patients received postoperative radiotherapy (RT) or chemoradiotherapy (CRT), but these were not analyzed separately due to their limited numbers.

2.3. Data Collection

Demographic and clinical data were extracted from medical records, including the following:

- Age and sex;
- Tumor site and histology;
- Stage and presence of metastatic adenopathy;
- Charlson Comorbidity Index (CCI) score;
- Final treatment modality (surgical vs. nonsurgical);
- Mortality status at last follow-up.

Tumor board recommendations were reviewed to determine concordance with final treatment.

2.4. Quality of Life Assessment

Quality of life was assessed using validated EORTC instruments:

- QLQ-C30: A 30-item core questionnaire evaluating global health status, functional domains (physical, role, emotional, cognitive, social), and symptoms (e.g., fatigue, pain).
- QLQ-H&N35: A site-specific module assessing head and neck-related symptoms including swallowing, speech, dry mouth, and social eating.

Scores were linearly transformed to a 0–100 scale following EORTC guidelines. Higher functional and global scores indicate better QoL, while higher symptom scores represent greater symptom burden.

2.5. Statistical Analysis

Data were analyzed using IBM SPSS Statistics v.26 (IBM Corp., Armonk, NY, USA). Descriptive statistics were reported as means $\pm$ standard deviation (SD) or frequencies (%). Normality was assessed with the Shapiro–Wilk test. Since all QoL variables were non-normally distributed, non-parametric tests were applied:

- Mann–Whitney U test for two-group comparisons (e.g., sex, treatment type).
- Kruskal–Wallis test for multiple-group comparisons (e.g., tumor location).
- Spearman’s rank correlation for associations between continuous variables (age, CCI, QoL).

Predictors of QoL were further analyzed with multiple linear regression models, adjusted for age and sex. Effect sizes were reported using eta squared (η^2) for Kruskal–Wallis tests and adjusted R^2 for regression models. A p -value < 0.05 was considered statistically significant.

2.6. Ethical Considerations

The study was conducted in accordance with the Declaration of Helsinki and approved by the Coltea Clinical Hospitals’ Ethics Committee (Approval No. 29/2025, approval date 8 August 2025). Patient confidentiality was maintained, and all data were anonymized prior to analysis. All patients agreed to participate in this study.

3. Results

3.1. Patient Characteristics

A total of 94 patients with head and neck cancers were included (Table 1). The majority were male (87.2%), with a mean age of 61.5 ± 9.8 years (range 25–83). The most common tumor site was the larynx (43.6%), followed by the oropharynx (11.7%), pharyngolaryngeal tumors (7.4%), and pelvilingual/oral cavity lesions (8.5%). Metastatic adenopathy of unknown primary accounted for 6.4% of cases.

Table 1. Baseline clinical and demographic characteristics of the study population.

Variable	N (%) or Mean $\pm$ SD
Sex	
Male	82 (87.2)
Female	12 (12.8)
Age (years)	61.5 $\pm$ 9.8 (range 25–83)
Tumor location	
Larynx	41 (43.6)
Oropharynx	11 (11.7)
Hypopharynx/pharyngolaryngeal	7 (7.4)
Oral cavity (pelvilingual/others)	8 (8.5)
Metastatic adenopathy (unknown primary)	6 (6.4)
Other sites (nasal cavity, parotid, skin, etc.)	21 (22.4)
Treatment type	
Surgical	70 (74.5)
Nonsurgical	24 (25.5)
Tumor board recommendation	Surgery in 87 (92.6)
Charlson Comorbidity Index (CCI)	Median 3 (IQR 2–5)
Mortality at follow-up	9 (9.6)

Of the 94 included patients, the tumor board recommended surgical treatment in 92.6% of cases ($n = 87$), with the remaining 7.4% ($n = 7$) receiving recommendations for nonsurgical management. However, only 74.5% of patients ($n = 70$) ultimately underwent surgical treatment (Tables 2 and 3), while 25.5% ($n = 24$) did not proceed with surgery. Reasons for not undergoing surgery included: advanced tumor stage identified after further diagnostic workup (e.g., imaging or staging procedures conducted post-tumor board), patient preference after shared decision-making with the treating physician (Table 4) or significant comorbidities precluding safe surgical intervention (e.g., cardiovascular or pulmonary conditions) (Table 5). These factors were not always fully evident at the time of the tumor board's initial evaluation, reflecting the dynamic nature of clinical decision-making.

Table 2. Distribution by tumor location and surgical treatment.

Tumor Location and Specific Intervention	N (%)	
1. Larynx	36	(51.43%)
Total Laryngectomy	26	
Partial Laser Laryngectomy	3	
Classic Partial Laryngectomy	2	
TOUSS Partial Laryngectomy	1	
Laser Cordectomy	3	
Tracheostomy (RT)	1	
2. Pharynx/Pharyngolaryngeal	10	(14.29%)
Partial Pharyngectomy	5	
Total Pharyngolaryngectomy	3	
Total Glossectomy with Total Laryngectomy	1	
Biopsy (no surgical intervention)	1	
3. Oropharynx/Lingual/Pelvilingual	16	(22.86%)
Bucopharyngectomy	7	
Transmandibular Glossopelvectomy	2	
Transoral Glossopelvectomy	3	
Hemiglossopelvectomy	1	
Partial Glossectomy	1	
Right Hemiglossectomy, Bucopharyngectomy	1	
Glossopelvectomy	1	

Table 2. *Cont.*

Tumor Location and Specific Intervention	N (%)	
4. Rhinosinusal/Auditory Canal	2	(2.86%)
Bilateral Frontal Sinusotomy	1	
Tumor Mass Ablation (Auditory Canal)	1	
5. Adenopathy of unknown primary/Other	6	(8.57%)
Lymph Node Dissection	5	
Tumor Debulking (Inoperable Case)	1	
Overall Total	70	

Table 3. Types of treatment.

Treatment		
Surgery	5	5%
Surgery + RT	31	33%
Surgery + CHRT	34	36%
Nonsurgical	24	26%
Total	94	100%

Table 4. Reasons for non-surgical treatment at the date of tumor board assessment and at follow-up.

Reasons for Non Surgical Treatment	Date of Tumor Board Assesment	Date of Follow-up	Total
Comorbidites	1	2	
Stage	4	3	
Personal decision	1	4	
Exitus	1	8	
Total	7	17	24

Table 5. Mean Comorbidity Count and Mean Charlson Comorbidity Index by Tumor Location.

Tumor Location (Recoded)	Mean Comorbidity Count	Mean Index Charlson
Larynx	2.97	3.87
Pharynx/Pharyngolaryngeal	4.67	4.70
Oropharynx/Lingual/Pelvilingual	2.38	2.80
Rhinosinusal/Auditory Canal	2.00	1.00
Adenopathy/Other	3.50	4.33

Overall mortality during follow-up was 9.6% ($n = 9$).

3.2. EORTC QoL Scores

Descriptive statistics of the EORTC QLQ-C30 and H&N35 domains are presented in Table 6.

The overall quality of life (QoL) was low, with a mean score of 42.3 (SD 11.7). Physical functioning was moderately reduced, averaging 63.1 (SD 15.1). Among the symptoms, fatigue was particularly severe, with a mean score of 61.5 (SD 13.5). In domains specific to the head and neck, patients experienced a high symptom burden, including swallowing difficulties (mean = 75.4, SD 11.3), speech problems (mean = 69.2, SD 13.2), and frequent use of painkillers (mean = 74.6, SD 14.3).

Table 6. EORTC QLQ-C30 and H&N35 scores of the study population.

Domain	Mean $\pm$ SD
Global health status/QoL (QL)	42.3 $\pm$ 11.7
Physical functioning (PF)	63.1 $\pm$ 15.1
Role functioning (RF)	55.2 $\pm$ 14.9
Emotional functioning (EF)	59.3 $\pm$ 16.7
Cognitive functioning (CF)	65.7 $\pm$ 13.8
Social functioning (SF)	58.4 $\pm$ 15.2
Fatigue (FA)	61.5 $\pm$ 13.5
Pain (PA)	57.6 $\pm$ 12.9
Swallowing difficulties	75.4 $\pm$ 11.3
Speech problems	69.2 $\pm$ 13.2
Dry mouth	71.5 $\pm$ 12.8
Painkiller use	74.6 $\pm$ 14.3

3.3. Distribution and Normality Testing

The Shapiro–Wilk test demonstrated non-normal distributions for all EORTC domains ($p < 0.05$). Therefore, non-parametric tests were applied in subsequent analyses.

Visual inspection confirmed skewed distributions: PF was left-skewed, with most patients reporting higher scores. QL was right-skewed, with clustering toward lower values, indicating poorer perceived QoL. FA showed a nearly uniform distribution, with a tendency toward higher scores (greater fatigue).

3.4. Group Comparisons

3.4.1. Sex

No significant differences in QoL or PF were observed between males and females (Mann–Whitney U, $p > 0.05$).

3.4.2. Tumor Location

QoL scores varied significantly by tumor location (Kruskal–Wallis, $p = 0.03$). Patients with metastatic adenopathy of unknown primary had the lowest QoL scores compared to those with laryngeal or oropharyngeal tumors.

3.4.3. Final Treatment

Patients who underwent surgical intervention tended to have better functional scores compared to those who received only oncological treatment, although differences did not reach statistical significance.

3.5. Correlation Analyses

Spearman's correlation results showed a weak negative correlation between age and QoL ($r = -0.27$, $p = 0.026$) and a moderate negative correlation between Charlson Comorbidity Index and QoL ($r = -0.38$, $p = 0.01$).

3.6. Multivariate Analysis

Multiple linear regression showed that a higher Charlson Comorbidity Index ($\beta = -2.5$, $p = 0.02$) and metastatic adenopathy tumor type ($\beta = -8.0$, $p = 0.04$) were independent predictors of reduced quality of life, after adjusting for age and sex (Table 7).

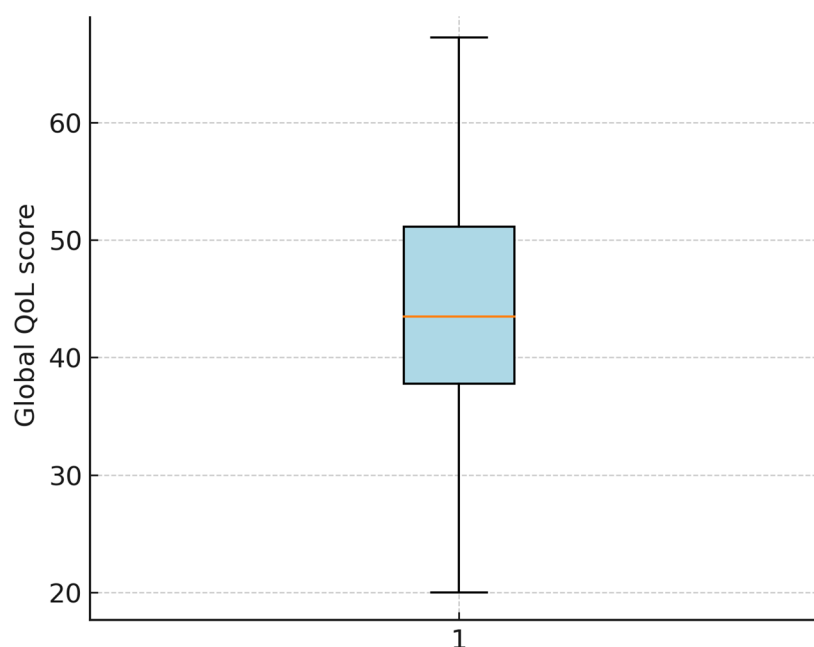
Table 7. Multivariate regression analysis of predictors of QoL (dependent variable: Global QoL score).

Variable	β (95% CI)	<i>p</i> -Value
Age	−0.12 (−0.28 to 0.04)	0.14
Sex (male vs. female)	−1.9 (−6.5 to 2.8)	0.42
Charlson Comorbidity Index	−2.5 (−4.6 to −0.4)	0.02 *
Tumor type: metastatic adenopathy of unknown primary	−8.0 (−15.2 to −0.9)	0.04 *
Other tumor sites (ref = larynx)	−3.1 (−7.8 to 1.6)	0.19

Adjusted $R^2 = 0.21$; * $p < 0.05$.

Tumor location explained approximately 17% of the variance in QoL scores ($\eta^2 = 0.17$). The overall multivariate model accounted for 29% of the variance (adjusted $R^2 = 0.21$).

The distribution of global QoL scores is illustrated in Figure 1, showing a clustering of values in the lower-to-mid range, with a median of 42 (IQR: 36–48). This reflects an overall reduced quality of life among the study cohort.

**Figure 1.** Distribution of Global QoL Scores.

When stratified by tumor site (Figure 2), patients with metastatic adenopathy of unknown primary reported the lowest mean QoL (35.2 ± 9.8), significantly lower compared to those with laryngeal, oropharyngeal, or oral cavity tumors ($p = 0.03$, Kruskal–Wallis test). No significant differences were observed between the other subgroups. For the 6 patients with metastatic adenopathy, no primary tumor was identified during the study period, and treatments followed standard protocols for unknown primary cancers, such as neck dissection or radiotherapy, which may impact QoL due to their functional and psychosocial effects.

A negative association was identified between comorbidity burden and QoL (Figure 3). Higher Charlson Comorbidity Index (CCI) scores correlated with lower global QoL (Spearman's $\rho = -0.38$, $p = 0.01$). In regression analysis, CCI remained an independent predictor of poorer QoL ($\beta = -2.5$, 95% CI −4.6 to −0.4, $p = 0.02$).

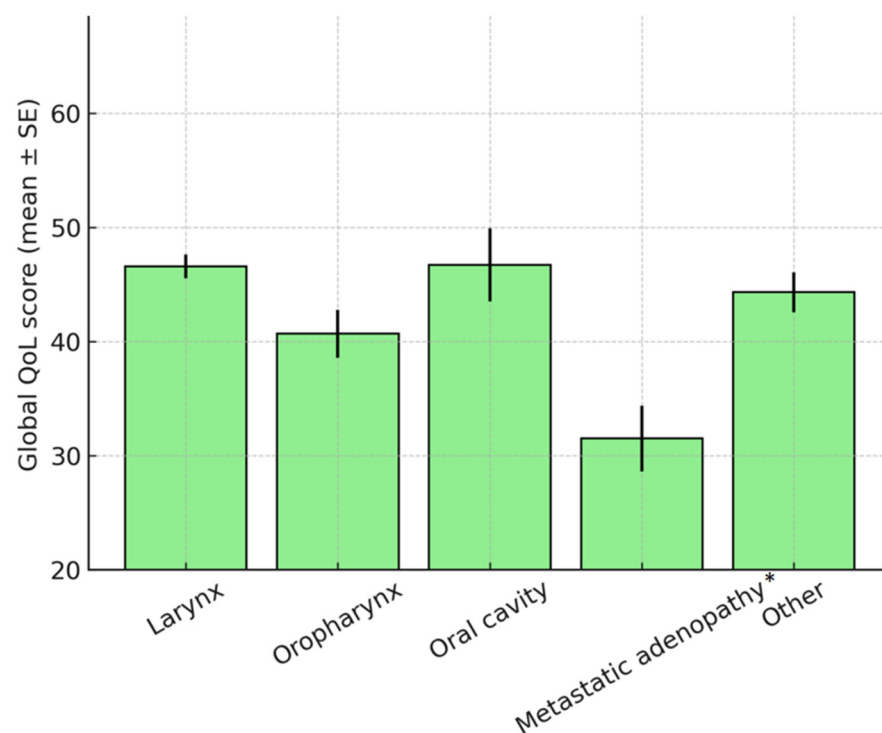


Figure 2. QoL scores by tumor site * Metastatic adenopathy of unknown primary.

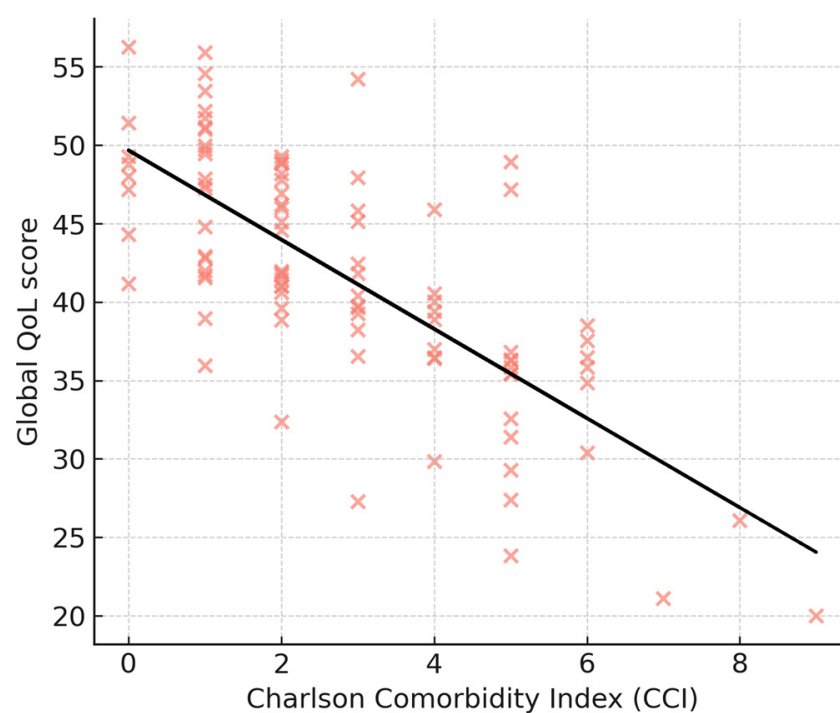


Figure 3. Correlation of QoL with comorbidity burden.

4. Discussion

This study evaluated the impact of tumor board decisions, tumor characteristics, and comorbidities on quality of life (QoL) in patients with head and neck cancers treated at a single tertiary hospital. Consistent with previous literature, our results show that QoL is substantially reduced in this patient group, particularly among individuals with advanced disease or significant comorbidity burden.

4.1. Quality of Life in Head and Neck Cancer

The mean global QoL score in our cohort (42.3) was lower than reported for other oncological populations, reflecting the unique functional and psychosocial challenges of head and neck malignancies. High symptom burden, especially related to swallowing, speech, and fatigue, further illustrates the profound impact of these tumors and their treatments. Similar findings have been reported by Lima et al., who demonstrated substantial short-term deterioration in QoL during treatment [5].

Importantly, our study confirmed that patients with metastatic adenopathy with unknown primary had significantly lower QoL than those with localized tumors. This aligns with prior evidence showing that advanced disease stage is a major determinant of worse functional outcomes and patient-reported well-being [6].

4.2. Impact of Comorbidities

The Charlson Comorbidity Index was a significant predictor of QoL, with higher comorbidity burden correlating with poorer outcomes. This finding is consistent with recent reports highlighting the role of comorbidities in shaping both survival and functional recovery in head and neck cancer [7].

4.3. Role of Tumor Boards in QoL Outcomes

This study evaluated the role of integrating quality of life (QoL) metrics into treatment planning for patients with head and neck cancers, focusing on the interplay of tumor board recommendations, tumor characteristics, and comorbidities. Tumor boards provide multidisciplinary recommendations based on tumor characteristics (e.g., stage, location) and comorbidities (e.g., cardiovascular or pulmonary conditions), guided by evidence-based guidelines. However, incorporating standardized QoL assessments into these discussions may further optimize treatment personalization, particularly when patient preferences or additional clinical findings identified post-tumor board evaluation influence the final treatment decision. Our findings suggest that integrating QoL metrics into tumor board deliberations can enhance patient-centered care and improve QoL outcomes.

In our study, the vast majority of patients were recommended for surgical treatment (92.6%), underscoring the board's preference for aggressive disease control when feasible. While oncological efficacy is critical, the incorporation of QoL measures—such as those employed here—may provide a more balanced framework for decision-making. This aligns with evidence showing that tumor boards not only improve adherence to guidelines and timeliness of care but also contribute to more holistic, patient-centered treatment strategies [6].

The tumor board's recommendation for surgical treatment in 92.6% of cases reflects an initial multidisciplinary evaluation based on available diagnostic data. However, 25.5% of patients did not proceed with surgery due to advanced tumor stage, significant comorbidities, or patient preference, which were often identified or clarified through additional workup or shared decision-making after the tumor board meeting. This highlights the dynamic nature of treatment planning, where post-tumor board assessments (e.g., advanced imaging, functional status evaluations, or patient counseling) may lead to deviations from initial recommendations. These findings underscore the importance of flexible, patient-centered approaches in head and neck cancer management.

The variability in surgical procedures (e.g., more extensive surgeries like total laryngectomy versus less invasive resections like cordectomy) and the use of postoperative radiotherapy or chemoradiotherapy likely contribute to differences in QoL outcomes across anatomical tumor sites. Due to the heterogeneity of surgical interventions and the small number of patients receiving specific procedures or adjuvant therapies, QoL analysis was

conducted by tumor site (e.g., larynx, oropharynx) to ensure statistical robustness. This approach, while limiting procedure-specific insights, provides a broader understanding of QoL trends in head and neck cancer patients. Integrating standardized QoL metrics into tumor board discussions, as emphasized in this study, can help account for the differential impacts of surgical and adjuvant treatments, particularly for patients with advanced-stage tumors or those opting for nonsurgical management (25.5% of our cohort). Future studies with larger cohorts are needed to evaluate QoL outcomes by specific surgical procedures and adjuvant therapies to further refine treatment personalization.

4.4. General Literature Findings and Broader Context

Our study represents one of the few single-institution analyses in Romania that systematically integrates multidisciplinary tumor board decisions with validated QoL instruments (EORTC QLQ-C30 and H&N35). The use of standardized tools allows for direct comparison with international data, and the incorporation of comorbidity indices adds valuable clinical insight. Our findings are consistent with broader oncological literature, which increasingly emphasizes the centrality of patient-reported outcomes in cancer care. A recent meta-analysis of follow-up strategies across 35 oncological studies demonstrated that less intensive surveillance protocols are non-inferior to traditional, high-frequency follow-up in terms of health-related QoL, emotional well-being, and patient satisfaction, while also reducing anxiety and logistical burden [7]. This suggests that follow-up intensity should be tailored to individual patient needs rather than uniformly intensified.

In the head and neck cancer setting, long-term outcomes after reconstructive surgery show persistent deficits in oral function and speech, particularly in patients receiving adjuvant radiotherapy, though pain tends to diminish over time [8]. Similarly, psychological distress—including depression, fear of recurrence, and financial hardship—remains highly prevalent and has been shown to directly influence survival outcomes [9]. These findings underscore the importance of integrating psychosocial care alongside medical treatment.

Methodological gaps also exist in patient-reported outcome measurement. Despite the proliferation of PROMs in head and neck oncology, few have undergone rigorous validation, particularly for domains such as speech and chewing [10]. Developing and implementing validated, patient-centered tools remains a priority for advancing personalized care.

From a rehabilitative perspective, early swallowing therapy following oral cancer surgery has demonstrated significant improvements in both function and QoL, reinforcing the value of structured postoperative rehabilitation pathways [11]. Functional outcomes after soft palate reconstruction [12,13], organ-preserving surgical techniques such as transoral robotic surgery (TORS) and endoscopic laryngopharyngeal surgery (ELPS) [14] and total glossectomy with laryngeal preservation [15] further illustrate that surgical innovation can yield acceptable functional results, provided rehabilitation is integrated. For early laryngeal cancer, treatment choices between endoscopic laser surgery and radiotherapy should be guided not solely by survival equivalence but also by patient-reported outcomes regarding voice and swallowing [15].

4.5. Limitations

Certain limitation of this study must be acknowledged. The retrospective design restricts causal inference, and missing data may have introduced bias in subgroup comparisons. The sample size ($n = 94$) was relatively small, limiting statistical power, especially for less frequent tumor sites. Furthermore, QoL was assessed only among patients undergoing surgery ($n = 70$), excluding those managed with radiotherapy or chemoradiotherapy, thereby restricting treatment comparisons. Finally, as a single-center study, findings may not be generalizable to other settings with different patient demographics or resource

availability. In addition, the timing of the QoL assessment is restricted to the post-surgery period and in further studies we should consider assessments conducted pre-treatment, as well as short-term and long-term follow-ups evaluations.

Future research should involve multicenter prospective studies with larger cohorts, longitudinal QoL assessment, and integration of patient-reported outcomes at multiple treatment stages. Such approaches would provide deeper insights into the dynamic interplay between treatment decisions, comorbidities, and patient well-being.

5. Conclusions

This study demonstrates that tumor site and comorbidity burden are key determinants of QoL in patients with head and neck cancer. Metastatic adenopathy without unknown primary and higher Charlson Comorbidity Index scores were independently associated with poorer QoL outcomes.

Taken together, our findings and the broader evidence highlight the multifactorial determinants of QoL in head and neck cancer. Disease stage, comorbidities, treatment modality, psychological well-being, and access to supportive care all converge to shape outcomes. Multidisciplinary tumor boards are well-positioned to integrate these diverse elements into decision-making, but this would require the systematic incorporation of QoL measures and validated PROMs. A paradigm shift toward individualized, patient-centered follow-up and rehabilitation strategies is warranted to optimize survivorship in this vulnerable population.

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Abbreviations

The following abbreviations are used in this manuscript:

Abbreviation	Definition
QoL	Quality of Life
HNC/HNCs	Head and Neck Cancer(s)
EORTC	European Organisation for Research and Treatment of Cancer

QLQ-C30	Quality of Life Questionnaire Core 30
QLQ-H&N35	Quality of Life Questionnaire Head & Neck 35
PF	Physical Functioning
RF	Role Functioning
EF	Emotional Functioning
CF	Cognitive Functioning
SF	Social Functioning
FA	Fatigue
PA	Pain
CCI	Charlson Comorbidity Index
SD	Standard Deviation
IQR	Interquartile Range
η^2	Eta Squared (effect size measure)
R^2	Coefficient of Determination (explained variance)
CI	Confidence Interval
TORS	Transoral Robotic Surgery
ELPS	Endoscopic Laryngopharyngeal Surgery
ENT	Ear, Nose, and Throat
PROMs	Patient-Reported Outcome Measures

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