



## OUTCOME OF GERIATRIC PATIENTS UNDERGOING HEAD AND NECK CANCER SURGERY: TERTIARY CARE CENTER EXPERIENCE IN CENTRAL INDIA

<b>Dr. Vaibhav Gupta</b>	Senior Resident, SAIMS, Indore
<b>Dr. Mayank Pancholi</b>	Head And Professor, SAIMS, Indore
<b>Dr. Vinod Dhakad</b>	Professor, SAIMS, Indore
<b>Dr. Kavin Rawal</b>	Senior Resident, SAIMS, Indore
<b>Dr. Himanshu Patidar*</b>	Associate Professor, SAIMS, Indore *Corresponding Author

### ABSTRACT

**Background:** With the global rise in life expectancy, an increasing number of elderly patients are undergoing complex oncologic procedures, including surgeries for head and neck cancers (HNC). In India, where tobacco-related malignancies are common, evaluating surgical outcomes in the geriatric population is crucial for guiding treatment decisions. **Material And Methods:** This retrospective cross-sectional study included 914 patients who underwent head and neck cancer surgery between January 2020 and September 2024 at a tertiary care center. Patients were divided into two age groups: <65 years and ≥65 years. A total of 122 elderly patients (aged 65–90 years) were included. Data on demographics, comorbidities, cancer site, perioperative complications, and 30-day outcomes were collected. Multivariable logistic regression was used to assess risk-adjusted morbidity and mortality. **Results:** Elderly patients represented 13.34% of the surgical cohort. The most frequent cancer subsites were buccal mucosa (37.7%), tongue (20.5%), and lower alveolus (13.1%). Comorbidities were common, with hypertension (21.3%), diabetes, and pulmonary diseases being most prevalent. Postoperative complications occurred in 36.06% of patients, with pulmonary complications (12.3%) being the most frequent, followed by infections (7.4%) and bleeding (5.7%). Blood transfusion was required in 14.75% of cases. The 30-day readmission rate was 2.45%, and mortality rate was 3.27%. **Conclusion:** Elderly patients undergoing HNC surgery are at increased risk for complications, but with appropriate selection, surgical outcomes can be favorable. Chronological age alone should not preclude surgical intervention; instead, clinical decisions should focus on comorbidity burden, functional status, and perioperative optimization.

**KEYWORDS :** Elderly patients, geriatric oncology, postoperative complications, comorbidities, surgical outcomes.

### INTRODUCTION

Head and neck cancers (HNC) represent the sixth most common malignancy worldwide and are a leading cause of cancer-related mortality [1]. A significant proportion of the global burden is concentrated in Southeast Asia, particularly in India, where high-risk behaviors such as tobacco chewing with betel quid ("paan") are prevalent [2]. Although HNC typically affects individuals between the fifth and sixth decades of life, its occurrence in the geriatric population (≥60 years) is increasingly reported [3]. By 2030, it is projected that approximately 20% of the global population will be aged 65 years and older—an increase from just 9% in 1960—posing a substantial challenge to healthcare systems [4,5].

Management of head and neck cancer in the elderly is complex, owing to age-associated physiological changes, multimorbidity, polypharmacy, reduced physiological reserves, and socioeconomic barriers [6-8]. Surgical intervention, while potentially curative, may be associated with higher perioperative risks and longer recovery periods in this demographic. Despite this, elderly patients remain underrepresented in major oncological trials, leading to a paucity of tailored guidelines for this age group [9-11]. Consequently, treatment decisions are frequently extrapolated from studies in younger populations. [12,13]

The present study aims to evaluate the clinical profile, perioperative challenges, and outcomes of geriatric patients (aged 65–90 years) undergoing head and neck cancer surgeries at a tertiary care center in Central India. This research seeks to provide insight into the unique considerations required for managing elderly patients in oncological surgical settings.

Additionally, the study analyzes demographic and clinical

risk factors contributing to postoperative complications and mortality, with the goal of informing more tailored and effective perioperative management strategies in this vulnerable age group.

### MATERIAL AND METHODS

This retrospective cross-sectional study was conducted in the Department of Surgical Oncology at Sri Aurobindo Medical College & Postgraduate Institute, Indore, covering the period from January 2020 to September 2024. The study focused on evaluating clinical outcomes in geriatric patients aged between 65 and 90 years who underwent surgery for histologically confirmed head and neck cancers. The required data were obtained from the Medical Records Department of Sri Aurobindo Hospital, which systematically archives details of all cancer patients receiving surgical treatment.

A total of 914 patient records were screened for eligibility. Patients aged above 90 years were excluded due to insufficient sample size ( $n < 10$ ), in accordance with institutional data-reporting policies. Furthermore, cases with incomplete or missing clinical information were excluded from analysis.

Eligible patients were stratified into three geriatric age groups: 65–69 years, 70–79 years, and 80–90 years. For comparative purposes, the population was also categorized as young (<65 years) and elderly (≥65 years). Surgical interventions were classified anatomically into specific sites, namely: oral cavity, thyroid, parathyroid, nose/paranasal sinuses, salivary glands or ducts, and pharynx/larynx. The primary outcomes assessed in this study included the incidence of postoperative complications, the requirement for perioperative blood transfusion, 30-day hospital readmission

rates, 30-day inpatient mortality, and length of hospital stay in days.

Data collection and compilation were done using Microsoft Excel, and all statistical analyses were performed using SPSS version 25.0. Categorical variables were expressed as frequencies and percentages, while continuous variables were summarized using mean and standard deviation or median with range, depending on the distribution. Comparative analyses for 30-day morbidity and mortality were adjusted using multivariable logistic regression models to account for potential confounders such as age, comorbidities, and the type of surgical procedure. The findings were presented in tabular format, with pie and bar charts constructed to visually represent categorical distributions.

**RESULTS**

A total of 914 patient records were evaluated in this study, out of which 122 patients (13.34%) were aged 65 years or older, reflecting the burden of head and neck cancers in the geriatric population. Among these elderly patients, oral cavity cancer was the most prevalent (64.75%), followed by malignancies of the paranasal sinuses and nose (10.65%). The male-to-female ratio in this age group was notably skewed, with males comprising 88.52% of cases. This indicates a higher incidence of head and neck cancers among elderly males and underscores the need for focused screening and intervention strategies in this demographic.

Regarding comorbidities, among the 122 elderly patients, 44 (36.07%) had no comorbid conditions, indicating good baseline health in a substantial proportion. The most common comorbidities were hypertension (21.31%) and diabetes (16.39%), which are typical age-related conditions influencing perioperative risk. Pulmonary diseases, thyroid disorders, cerebrovascular incidents, and cardiac history were less frequent but clinically relevant. [Table 1]

**Table 1: Clinical and Demographic Profile of Elderly Patients Undergoing Head and Neck Cancer Surgery (N = 122)**

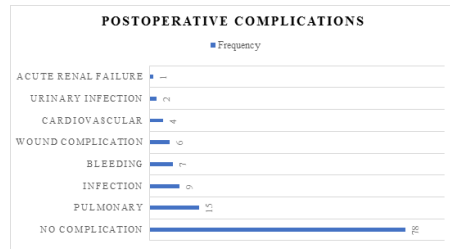
Parameter	Category	Frequency	Percent age (%)
Age Group (Years)	65–69	87	71.31
	70–79	27	22.13
	80–90	8	6.55
Gender	Male	108	88.52
	Female	14	11.47
Cancer Site	Oral Cavity	79	64.75
	Paranasal Sinuses and Nose	13	10.65
	Larynx/Pharynx	8	6.55
	Thyroid	8	6.55
	Salivary Gland	6	4.78
	Skin	5	4.09
	Parathyroid	3	2.45
Comorbidities	No Comorbidity	44	36.07
	Hypertension	26	21.31
	Diabetes	20	16.39
	Chronic Pulmonary Diseases	17	13.93
	Thyroid Disorders	6	4.91
	Cerebrovascular Diseases	5	4.10
	Myocardial Infarction	4	3.28
	Others (renal, vascular, etc.)	10	8.20

Postoperative complications were observed in 36% of elderly patients. Mortality within 30 days was low (2.45%), indicating acceptable risk when patients are appropriately selected. [Table 2]

**Table 2: Postoperative Outcomes**

Outcome	Number of Patients	Percentage (%)
Postoperative Complications	44	36.06
Blood Transfusion	17	13.93
Readmission Within 30 Days	8	6.55
Death Within 30 Days	3	2.45
Length of Stay (Mean, Days)	—	8 days

Among the postoperative complications observed in elderly patients, pulmonary complications were the most prevalent, affecting 15 patients (12.28%). These were followed by postoperative infections in 9 patients (7.37%) and significant bleeding events in 7 patients (5.73%). This distribution underscores the importance of vigilant perioperative respiratory management and infection control strategies in the geriatric population undergoing head and neck cancer surgeries.



**Graph 1: Types of Postoperative Complications**

**DISCUSSION**

With the continuous increase in life expectancy, there has been a notable rise in the number of elderly patients presenting for surgical interventions, including for head and neck cancers (HNC). By 2030, nearly one-fifth of the global population is expected to be aged 65 years or older, highlighting the importance of evaluating surgical outcomes in this age group. In our retrospective cohort from a tertiary care center in Central India, 13.34% of 914 head and neck cancer patients who underwent surgery were aged ≥65 years. This reflects both the growing incidence of HNC in the elderly and increased clinical confidence in managing this demographic surgically.

Oral cavity cancer was the most commonly encountered malignancy in our cohort (64.75%), which aligns with regional epidemiological trends driven by high rates of smokeless tobacco and betel nut use. The striking male predominance (88.52%) further reinforces the behavioral and occupational disparities contributing to the disease burden in this population.

Comorbidity profiling revealed hypertension (21.31%) and diabetes (16.39%) as the most prevalent conditions, consistent with the findings of Rubin et al. [15], Siddiqui et al. [16], and Reid et al. [17], who emphasize the impact of systemic illness on surgical risk and recovery in the elderly. Interestingly, 36% of patients had no comorbidities, indicating a subgroup of relatively healthy older adults who can be considered good surgical candidates.

The postoperative complication rate of 36.06% in our study is within the range reported in global literature (30–45%) [3,18]. Pulmonary complications were the most frequent (12.28%), followed by infections (7.37%) and bleeding (5.73%). These complications underscore the need for vigilant perioperative respiratory care, especially considering reduced physiological reserves in aging individuals. Cramer et al. similarly reported pulmonary morbidity as a key concern in older HNC patients [19].

Our 30-day mortality rate was 2.45%, comparable to international standards. In comparison, Cramer JD et al. documented adjusted odds ratios for mortality in elderly

patients undergoing upper aerodigestive tract or salivary/endocrine gland surgeries at 2.52 and 3.73, respectively, indicating that while age increases surgical risk, mortality remains low in well-selected cases [19].

Notably, despite concerns about undertreatment in the elderly due to frailty or reduced life expectancy, our findings reaffirm that with thorough preoperative assessment, optimized comorbidity management, and multidisciplinary perioperative planning, elderly patients can undergo major head and neck surgeries with acceptable morbidity and mortality. Moreover, contemporary literature supports the assertion that overall survival in elderly patients is not necessarily inferior when appropriate treatments are administered, even if the toxicity profile is more pronounced.

This study has certain limitations. It reports only short-term (30-day) mortality and does not account for long-term oncologic or functional outcomes. Furthermore, the study exclusively includes patients who underwent surgical intervention, excluding those managed with nonsurgical modalities, thereby potentially introducing a selection bias toward fitter patients.

## CONCLUSION

This study highlights the growing representation of elderly patients (13.34%) in head and neck cancer surgical cohorts, indicating a shift toward inclusive, curative treatment approaches in geriatric oncology. Despite their elevated risk of complications and comorbidities, favorable short-term outcomes can be achieved through individualized assessment, careful risk stratification, and multidisciplinary perioperative management. Emphasis should be placed on functional capacity and comorbidity burden rather than chronological age when determining surgical candidacy.

## Contribution To Existing Knowledge

Conducted in a resource-constrained tertiary care setting, this study provides real-world evidence supporting the feasibility and safety of head and neck cancer surgery in elderly patients. It offers practical guidance for clinicians in tailoring perioperative strategies and facilitates informed counseling of older adults regarding surgical risks and benefits, contributing meaningfully to geriatric surgical oncology literature.

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