

Townsley, R., Tan, J. Y., Edy, E., [Lim, A.](#) and [McMahon, J.](#) (2024) A case series of interventions and outcomes in patients with laryngeal squamous cell cancer. *Journal of Laryngology and Otology*, 138(9), pp. 961-964. (doi: [10.1017/S0022215124000707](https://doi.org/10.1017/S0022215124000707))

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<https://doi.org/10.1017/S0022215124000707>

<https://eprints.gla.ac.uk/325749/>

Deposited on 31 July 2024

A case series of interventions and outcomes in patients with laryngeal squamous cell cancer

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Conflict of Interest:

None

Financial Support:

None

Acknowledgments:

Ms Moira Brook and Ms Eva Carson MDT Coordinators South Glasgow MDT

Abstract

Objectives: The larynx is the second most prevalent subsite for head and neck cancer (HNC). Over half of HNC patients present with advanced disease. We report our regional practices for palliative intent laryngeal squamous cell cancer (SCC).

Methods: Retrospective analysis of patients with laryngeal SCC treated with palliative intent, discussed at the Regional Head and Neck MDT from July 2010 to June 2016.

Results: 65 patients were included. 45% of patients had potentially curable disease but not fit for curative treatment. 9(14%) patients underwent tracheostomy, with mean survival and hospital stay 278 days and 48 days. 4(6%) patients underwent de-bulking surgery with mean survival and hospital stay 214 days and 1 day.

Conclusion: All palliative treatment measures offered to patients can have an impact on survival and quality of life. Patients should be at the centre of the decision making process and counselled on the potential impact of interventions.

Key words: head and neck neoplasms; palliative care; tracheostomy; laryngeal neoplasms; quality of life

Introduction

Head and neck squamous cell carcinoma (HNSCC) is the sixth most common cancer in the world¹.

The larynx is the second most common subsite for HNSCC². Approximately half of the patient present with advanced stage disease, with around 60% receiving palliative intent from the outset^{3,4}.

Half of all HNSCC patients die from their disease and will require palliative input in some form¹. Of the variable sub-sites of HNSCC, laryngeal cancer has been reported as having the best 5 year survival rate.⁶

Predicting outcomes in patients with HNSCC treated with palliative intent is fraught with difficulty due to the variable nature of why the decision to embark on the palliative pathway has been taken. Often reported outcomes are for patients with HNSCC as a single group^{3,4} this therefore needs to be interpreted with a degree of caution as head and neck cancers can include a range of sub-site primaries and cancer pathologies. Reported survival has been reported to range from days to years^{3,4,7}

There are a number of palliative interventions available to patients with laryngeal cancer, including open and trans-oral surgery, radiotherapy, chemotherapy and multi-modal interventions. Also a wide range of supportive measures to maintain and facilitate nutrition and communication and manage symptom control. Any intervention will have risks which can negatively impact the patients quality of life, including prolonged hospital stay or surgical complication. It is key to ensure a patient centred plan is adopted and to ensure the patient's perspective and wishes are at the centre of the decision making process.

This paper aims to elucidate our local practice and outcomes with regard to patients with laryngeal SCC managed with palliative intent from the outset. Our hope is this will better equip clinicians to communicate with patients with regard to the palliative management of laryngeal SCC.

Methods

A retrospective analysis of all patients with a new diagnosis of laryngeal SCC presented between July 2010 and June 2016 at the South Glasgow and Clyde Head and Neck Cancer Multidisciplinary team (MDT) was undertaken. Patients whose treatment outcome was recorded as palliative intent were identified and their electronic case records and case notes were reviewed. Clinical and demographic data was recorded. Patients who had undergone initial curative intent treatment but had subsequently been found to have residual disease on re-presentation to the MDT were excluded. STROBE reporting guidelines were followed for the study.

Participants

A total of 406 patients with laryngeal SCC were referred to the South Glasgow and Clyde Head and Neck Cancer MDT over the study period. 65 patients had outcomes recorded indicating palliative intent treatment following initial MDT discussion and were included.

Results

The demographic data for patients was collected and displayed in Table 1. 80% (53) of patients were male with a mean age of 72. 46% (30) were current smokers and 32% (21) drank more than 14 units per week. The majority of patients had cardiovascular co-morbidities (34, 52%) and has a performance status of 2 or more (42, 65%). 77% (50) patients had advanced disease, stage III or IV, at MDT presentation.

Table 1. Patient demographics

Demographics		Number of patients (%)
Gender	<i>Male</i>	52 (80%)
	<i>Female</i>	13 (20%)
Mean age		72
Smokers	<i>Current smoker</i>	30 (46%)
	<i>Ex-smoker</i>	22 (34%)
	<i>Non-smoker</i>	6 (4%)
	<i>Unrecorded</i>	7 (11%)
Alcohol	<i>Abstinent</i>	18 (28%)
	<i>Less than 14 units per week</i>	7 (11%)
	<i>More than 14 units per week</i>	21 (32%)
	<i>Previous alcohol dependence</i>	8 (12%)
	<i>Unrecorded</i>	11 (17%)

Mean BMI		21
Comorbidity	<i>Cardiovascular disease</i>	34 (52%)
	<i>COPD</i>	20 (31%)
	<i>Liver disease</i>	3 (5%)
	<i>Kidney disease</i>	7 (11%)
	<i>Diabetes</i>	5 (8%)
	<i>Neurological disease</i>	20 (31%)
	<i>Psychiatric disease</i>	7 (11%)
Performance status	<i>0</i>	6 (9%)
	<i>1</i>	13 (20%)
	<i>2</i>	19 (29%)
	<i>3</i>	18 (29%)
	<i>4</i>	5 (8%)
	<i>Unrecorded</i>	4 (6%)
Previous malignancy	<i>Lung</i>	3 (5%)
	<i>Bladder</i>	1 (2%)
	<i>Gastric</i>	1 (2%)
	<i>Prostate</i>	1 (2%)
	<i>Oesophagus</i>	1 (2%)

	<i>Leukaemia</i>	2 (3%)
	<i>Melanoma</i>	1 (2%)
	<i>Renal</i>	1 (2%)
	<i>Hepatocellular</i>	1 (2%)
	<i>Nasopharynx</i>	1 (2%)
	<i>Previous Head and Neck SCC (treatment completed over 5 years previously)</i>	5 (8%)
Stage	<i>I</i>	5 (8%)
	<i>II</i>	8 (12%)
	<i>III</i>	15 (23%)
	<i>IV</i>	35 (54%)
	<i>Unrecorded</i>	2 (3%)
Subsite	<i>Supraglottic</i>	32 (49%)
	<i>Glottic</i>	19 (29%)
	<i>Trans-glottic</i>	12 (18%)
	<i>Subglottic</i>	2 (3%)

Survival

At the time of the data collection 1 patient was still alive, the status of 1 patient was unknown. Mean survival time from presentation at the head and neck MDT was 211 days (SD=279; range 1 – 1609).

With the removal of outliers mean survival time was 143 days (SD = 148.2, range 1-566).

Palliative management

All patients received best supportive care. 9 (14%) patients were offered curative intent treatment, however following discussion with the patient, they declined curative intent treatment. 17 (26%) patients had cancer which was deemed incurable, 10 (15%) patients had a potentially curable cancer however due to the presence of a second incurable malignancy were deemed palliative. 29 (45%) patients had potentially curable disease however due to medical co-morbidities were not a candidate for curative intent treatment.

Table 2 outlines the best supportive care treatments that were used for these patients. 9 (14%) patients underwent tracheostomy and 3 (5%) patients required their tracheostomy prior to discussion at the MDT. The mean time from tracheostomy to discharge was 48 days (range 11-90). The mean time from tracheostomy insertion to death was 201 days (range 42-232). The overall survival time from MDT for patients who underwent tracheostomy was a mean of 278 days (range 63-1031). 4 (6%) patients underwent de-bulking surgery with mean survival of 214 days and mean hospital stay of 1 day.

Table 2. Best supportive care treatment

Best supportive care	Number of patients (%)
Tracheostomy	9 (14%)
Chemotherapy	3 (5%)
Radiotherapy	2 (3%)

De-bulking	4 (6%)
Enteral feeding tubes	11 (17%)

Discussion

Over the course of the study period, 16% of patients referred to the MDT with laryngeal SCC embarked on a palliative pathway from the outset. This is comparable to other studies reporting rates of 20.8% for oral cancer, 25% for hypopharyngeal cancer and 21.5% for head and neck cancer^{3,8,9}. The patients co-morbidities had an impact on the decision making process. 60% (39) patients had potentially curative disease, but ultimately had palliative treatment due to significant co-morbidities or synchronous malignancies.

54% (34) of patients presented with AJCC stage IV disease. This is lower than the reported rates for head and neck cancer as a whole^{3,10}. This may be due to the fact that whilst in HNC the presenting symptoms can be non-specific, in laryngeal cancers, many patients present with voice change. There has been significant efforts to educate referring physicians of the potential for voice change to be a symptom of sinister pathology. Data from the English National Cancer audit has shown that hoarseness as a sole presenting symptom in laryngeal cancer reflected around 70% of stage I-III disease¹¹, therefore early referral of patients with persistent hoarseness may identify laryngeal cancer at a less advanced stage.

Risk factors for laryngeal cancer include smoking and alcohol consumption, these are also risk factors for respiratory and cardiovascular disease. 80% (52) of patients in this study were current or ex-smokers and the majority of patients had cardiovascular co-morbidities (34, 52%). The treatment modalities for laryngeal SCC carry significant consequences and risk of complication. It is paramount that prior to embarking on a curative treatment pathway, the possible survival benefits must be weighed up against the potentially negative impact on quality of life for the patient. Interruption to radiotherapy has been shown to be associated with a poorer prognosis in the treatment of head and neck cancer, as it is thought that cancer cells may initially have accelerated regrowth after the start of radiotherapy¹².

Synchronous primaries were identified in 17% of patients, with the most common being lung malignancy. This is consistent with other published data¹³. This is perhaps expected with the common risk factors between laryngeal cancer and lung cancer.

Mean survival was 210 days. This is slightly longer than the mean survival times published for head and neck cancers as a whole^{3,10}. There was a wide range of survival times, this is most likely due to the heterogeneity of the reasons behind embarking on a palliative route. This illustrates the need for well established support systems to be in place to help these patients through their journey.

Tracheostomy is an intervention which can secure the airway and provide symptomatic relief in airway obstruction. Our data shows a longer mean survival in patients who had a tracheostomy, but also a mean hospital stay of 48 day following tracheostomy with the associated long term care consequences. In some of the non-tracheostomy cases, it was deemed either inappropriate or the patient had refused tracheostomy. A common reason for patients to refuse tracheostomy, was the concern that they may not be able to return home and would require either a care placement or to remain in hospital. In this case series 8 (89%) of the patients were discharged home or to a relative following their tracheostomy placement.

Debulking surgery had a mean hospital stay of 1 day and has been shown to negate the need for tracheostomy with a low complication rate^{14,15}. This can be considered in patients with palliative laryngeal cancer who wish to minimise their hospital stay. It must be emphasized to the patient that this is a temporary measure due to tumour re-growth. In patients suitable for de-bulking, it is important to carry out careful decision making and a shared airway plan with anaesthetic colleagues.

Keypoints:

- A proportion of patients with laryngeal SCC are treated with palliative intent from the outset. In our study 16% of patients in the study period were in this category.
- HNC patients often present with advanced disease. 54% of patients in our study population presented with AJCC stage IV disease.
- The most significant factor in the decision to embark on palliative intent treatment was the patient's general health. 45% of patients in our study group treated with palliative intent had potentially curable disease.
- Tracheostomy extended mean survival in our patient group however necessitated a mean hospital stay of 42 days following tracheostomy insertion.
- All potential interventions have an impact on a patient's quality of life and the patient must be at the centre of the decision making process.

Conclusion

Realistic medicine is the principle of putting the patient at the centre of the decision making process. Patients should be involved in the decision making process where able, all efforts should be taken to provide them with all the information to make informed decisions. This can be difficult as there is a lack of consensus on how best to manage patients with laryngeal cancer with palliative intent and there is a lack of research in this area. This, coupled with the fact that conversations about end of life and palliative care can be challenging and complex, means that the management of patients with palliative laryngeal cancer can be difficult. This case series demonstrates the management of laryngeal SCC in our centre, and can help inform clinicians and patients when making challenging decisions in the palliative setting.

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