Treatment outcomes of T3 laryngeal carcinomas – surgical versus non-surgical management: a 10-year multicentre audit in the northeast of England.

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Introduction

Larynx preservation remains an important treatment goal for T3 laryngeal carcinomas. Treatment options involving chemoradiotherapy (CRT) are often preferred over laryngectomy. However, treatment-related toxicity from non-surgical options may result in a dysfunctional larynx requiring salvage laryngectomy. We aim to compare three institutional treatment outcomes for patients with T3 laryngeal carcinomas to ascertain the optimal management strategies.

Methods

A retrospective audit on the management of pre-treatment diagnosed T3 laryngeal carcinomas. Patient cases were selected from three institutions between the years 2007-2016. Case note review was performed using electronic medical records and descriptive statistics obtained. Locoregional control and overall survival (OS) rates were compared between the treatment regimens using Pearson chi-square test and Kaplan-Meier survival curves, respectively.

Figure 1. Descriptive statistics and patient demographics

- 179 patients, 133 male and 46 female
- Mean age = 65.65

Table 1. Locoregional recurrences by treatment regimen

Recurrences	Number of patients	Number of recurrences	%	Local	Distant
Laryngectomy	68	15	22.1	9	6
CRT	57	10	17.5	7	3
RT	32	16	50.0	11	5

Pearson-Chi squared comparison of recurrence:

- Laryngectomy vs CRT: $p = 0.53$
- Laryngectomy vs RT: $p = 0.005$
- CRT vs RT: $p = 0.001$

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Results

There were 179 T3 laryngeal carcinomas (68 laryngectomies, 57 CRT, 32 radiotherapy). No significant 5-year survival difference between laryngectomy (20.6%) and CRT (29.8%), $p=0.184$. Five-year OS for RT (9.4%); significantly inferior compared to laryngectomy and CRT ($p=0.003$, $p<0.001$), respectively. Recurrence rates: 22.1% laryngectomy, 17.5% CRT and 50% radiotherapy, significantly different comparing laryngectomy ($p=0.005$) and CRT ($p=0.001$) to radiotherapy.

Conclusions

Laryngectomy and CRT had significantly higher 5-year OS and lower recurrence rates compared with radiotherapy alone. It is important to consider laryngectomy in patients who are unsuitable for chemotherapy since it may convey a significant survival advantage over radiotherapy alone.

Figure 2. Kaplan-Meier survival curves: 5-yr overall survival

Table 2. Salvage laryngectomy rates

Salvage rates – Progression to Total laryngectomy			
Primary Treatment	Non functional	Recurrence	Total Number
Partial Laryngectomy (n= 8)	2	1	3
CRT (n=57)	2	5	7
RT (n=32)	1	4	5

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