

Outcomes of Primary Concurrent Chemotherapy and Intensity Modulated Radiotherapy for Locally Advanced Laryngeal Squamous cell Carcinoma: Focus on T3 Larynx - a European Single Institution Analysis

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Abstract

Introduction Treating locally advanced laryngeal squamous cell carcinoma (LSCC) with primary chemoradiotherapy (CRT) can preserve the larynx without compromising survival. However, whether this is associated with good functional outcomes remains up for debate. The aim of this study was to evaluate survival and functional outcomes in patients with locally advanced LSCC treated with primary CRT. **Methods** We retrospectively analysed data from all consecutive patients with stage III-IV (M0) disease treated with primary CRT between April 2010 and December 2017. Study endpoints were overall survival (OS), disease free survival (DFS), laryngectomy free survival (LFS), laryngo-oesophageal dysfunction free survival (LEDFS) and functional preservation rates. Prognostic factors were assessed by univariate and multivariate analysis. **Results** 69 consecutive patients treated with primary CRT were analysed. All patients were treated with Intensity Modulated Radiotherapy (IMRT). 29 patients received induction chemotherapy prior to CRT. 60 patients (87%) received concomitant platinum-based chemotherapy, and 9 (13%) concomitant Cetuximab. The median follow-up was 57 months (range 4-96). The completion rate for prescribed RT was 98.5%. The 2- and 5 year OS rates were 81.1% and 52.1%. For patients with T3 disease, the 2- and 5 year OS rates were 82.4% and 61.6%. Positive nodal status, N2b-N3 nodal staging, or stage IV disease were associated with poor OS on univariate, but not multivariate, analysis. Functional preservation was 69.1% at 2 years in all patients alive (68.1% in T3 patients). The 2-year LEDFS rate was 52%. The 2- and 5-year LFS rates was 72.4% and 43.3% respectively. There was no significant difference in LFS rate between primary tumour localization, baseline laryngeal fixation or cartilage invasion. **Conclusion** Our study illustrates survival and functional outcomes in line with contemporary studies. The survival and function preservation rates suggest that carefully selected patients with locally advanced LSCC can successfully be treated with larynx-preserving primary CRT.

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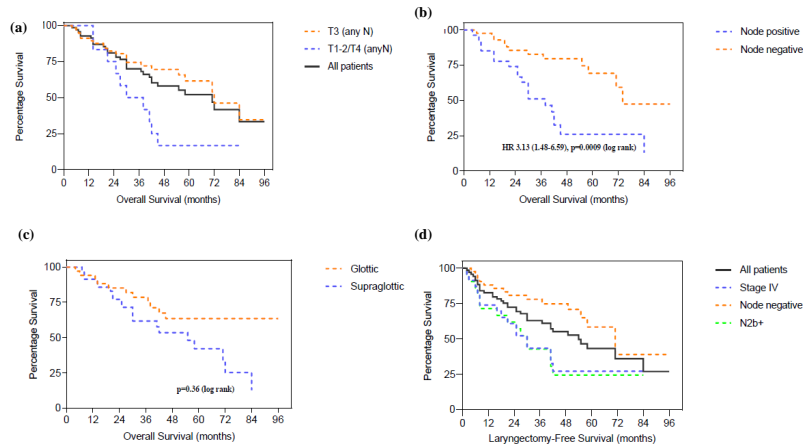
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Figure 1. Kaplan-Meier Survival curves of overall- and laryngectomy-free survival



(a) Overall Survival – all patients (n = 69), T3anyN (n=57), T1-2anyN/T4anyN (n=12); (b) Overall Survival by nodal status – node positive (n=28), node negative (41); (c) Overall Survival glottic (n=33) versus supraglottic (n=35); (d) Laryngectomy-free Survival – All patients (n = 69), Stage IV (n = 23), Node negative (n=41), N2b-N3 (n = 20).

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