



ORIGINAL ARTICLE

Prognostic Significance of Nodal Metastasis in Advanced Tumours of the Larynx and Hypopharynx[☆]

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KEYWORDS

Extracapsular spread;
Squamous cell carcinoma of the larynx and hypopharynx;
Survival;
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Abstract

Objectives: To estimate the relevance of post-surgical neck nodal classification (pN) on the global survival of patients with advanced tumours of the larynx and hypopharynx, primarily treated with surgery including neck dissection (ND). To understand the prognostic significance of metastatic lymph nodes' extracapsular spread (ECS) and its impact on survival.

Materials and methods: A retrospective review of patients primarily submitted for total laryngectomy (TL) with either elective or therapeutic bilateral ND. Overall and disease-free survival was analysed according to post-operative histopathological ND results, concerning the presence or absence of nodal involvement, number of affected nodes and the existence of ECS.

Results: One hundred and twenty patients met the inclusion criteria of this study. Concerning nodal involvement, the histopathological evaluation demonstrated positive lymph nodes in 46.6% of the cN0 patients.

The rate of patients alive after 2 years of follow-up, based on pN analysis, was 88.1% for the pN0 group, 65.4% for the group N+ without ECS, 46.2% for the N+ ECS+ (1 node) and 15.4% for the N+ ECS+ (more than 1 node) group ($P < .001$).

Conclusions: This study demonstrates a high prevalence of occult neck disease in tumours of the larynx and hypopharynx. The involvement of metastatic cervical lymph nodes has a negative impact on survival. Patients with multinodal ECS have a poorer survival, reflected by a higher rate of loco-regional and distant metastases, when compared to ECS in one single lymph node.

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PALABRAS CLAVE

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Supervivencia;
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Significado pronóstico de las metástasis cervicales en tumores avanzados de laringe e hipofaringe**Resumen**

Objetivos: Valorar la relevancia de la estadificación pN posquirúrgica de los ganglios cervicales en la supervivencia global de los pacientes con tumores avanzados de laringe e hipofaringe, principalmente tratados con cirugía, incluyendo disección cervical (DC). Entender el significado pronóstico de la extensión extracapsular (EEC) de los ganglios linfáticos metastásicos y su impacto en la supervivencia.

Material y métodos: Se realizó un estudio retrospectivo de pacientes principalmente sometidos a una laringectomía total (LT) con DC bilateral electiva o terapéutica. Se analizaron las supervivencias global y libre de la enfermedad, de acuerdo con los resultados histopatológicos posquirúrgicos de la DC, concernientes a la presencia o no de la afectación ganglionar, número de ganglios afectados, y existencia de EEC.

Resultados: Ciento veinte pacientes cumplieron los criterios de inclusión del presente estudio. En cuanto a la afectación ganglionar, la evaluación histopatológica demostró positividad en el 46,6% de los pacientes cN0.

La tasa de pacientes vivos a los 2 años de seguimiento, basada en el análisis pN, fue del 88,1% para el grupo pN0, del 65,4% para el grupo N+ sin EEC, del 46,2% para el grupo N+ con EEC en un ganglio, y del 15,4% para el grupo N+ con EEC en más de un ganglio ($p < 0,001$).

Conclusiones: Este estudio demuestra una alta prevalencia de la enfermedad oculta en el cuello, en tumores de laringe e hipofaringe. La afectación metastásica de ganglios linfáticos tiene un impacto negativo en la supervivencia. Los pacientes con EEC multinodal tienen una peor supervivencia, lo cual se reflejó en una mayor tasa de metástasis locorregionales y a distancia, en comparación a los casos de EEC que afecta a un único ganglio linfático.

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Introduction

Squamous cell carcinoma (SCC) is the most frequent malignancy of the head and neck region.¹ Several aspects affect the outcome of patients with this kind of tumour. It is generally accepted that these aspects are related to the tumour itself (e.g. anatomical localization, extent of disease), the patient's general condition and co-morbidities, and treatment approach (treatment options and expertise).^{2,3} However, an accurate and precise staging of head and neck cancer is recognized as having a paramount importance, expressing the severity or extent of disease, thus facilitating estimation of prognosis and providing useful information for the choice of the best therapeutic options.^{4,5}

At the time of diagnosis, 50% of the patients with head and neck SCC present either clinical or subclinical regional lymph node metastasis.⁶ Several surveys report an incidence of subclinical metastasis varying between 20% and 50%.⁷⁻¹⁰ Furthermore, metastasis in the lymph nodes seems to be the most important prognostic factor in these patients and the presence of ECS has been proven to be a reliable prognostic indicator.^{3-7,11-15}

Based on this observation, some efforts have been made to deepen the knowledge of the ECS process and its relationship with worst outcomes, namely studies about the importance of different degrees of capsular involvement, the extent of extracapsular measured in millimetres or the microscopic vs macroscopic extracapsular involvement.^{8,16-18}

The aim of our study is to understand the relationship between the number of ECS metastatic cervical lymph nodes

and survival, according to post-operative findings in NDs, in a Portuguese population of patients with advanced tumours of the larynx and hypopharynx undergoing TL and ND as primary treatment.

Materials and Methods

The charts of all patients with SCC submitted to TL associated with bilateral either elective or therapeutic ND, in a Portuguese Oncology Hospital, between January 2003 and December 2008, were reviewed.

All treatments were defined in a multidisciplinary oncologic group decision taking into account the pre-therapeutic staging, performed according to procedures enunciated in the sixth AJCC/UICC classification of Tumours.¹⁹

Concerning ND, a selective ND of levels II-IV was the minimum applied, performing a radical ND when complete metastatic disease removal was unattainable without sacrificing either the cranial nerves, the internal jugular vein or the sternocleidomastoid muscle, involving levels I-V. Paratracheal nodes (level VI) were also dissected in glottic advanced tumours and in all subglottic tumours.

Adjuvant therapy was applied according to the following post-operative histopathological findings: size and grade of the tumour, depth of invasion, nerve or vascular invasion, status of surgical margins, status of cervical lymph nodes, ECS. Consequently, adjuvant radiotherapy (RT) alone or with chemotherapy (ChT) as an irradiation sensibilizing effect was delivered according to the following scheme:

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