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## Original article

# What is the role of elective neck dissection in patients with squamous cell carcinoma of the upper jaw?

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### ABSTRACT

**Background:** Surgical treatment of clinically negative neck in maxillary squamous cell carcinoma (SCC) of the upper jaw is controversial. The purpose of this study was to define the incidence of cervical metastasis and to assess if elective neck dissection is justified when the neck is not primarily affected.

**Methods:** We retrospectively reviewed 20 patients treated of SCC of the maxillary alveolus and hard palate between 2005 and 2012.

**Results:** Six (30%) patients presented with cervical lymph metastasis at initial diagnosis. Two of the 14 patients who initially had no signs of metastasis in the neck developed cervical metastasis during follow-up and another patient with cervical metastasis at diagnosis developed contralateral cervical metastasis. All the patients with cervical metastasis (45%) were pT3/T4 SCC. Cervical metastasis developed at a mean of 11.6 months.

**Conclusions:** Despite this study being limited by its retrospective nature and the sample size, based on our findings and on an extensive review of the literature, we may conclude that cervical metastasis from maxillary alveolus and hard palate SCC appears most frequently in pT3/T4 tumors. Therefore, we find elective neck dissection appropriate for patients with pT3/T4 SCC of the upper jaw.

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## ¿Cuál es el papel de la disección cervical electiva en el carcinoma escamoso del maxilar superior?

### R E S U M E N

**Introducción:** El tratamiento quirúrgico del cuello clínicamente negativo en el carcinoma de células escamosas (CCE) del maxilar superior es controvertido. El objetivo de este estudio es

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Carcinoma de células escamosas  
 Maxilar superior  
 Tratamiento quirúrgico  
 Metástasis cervical linfática

mostrar la incidencia de metástasis cervical y analizar si la disección cervical electiva está justificada cuando el cuello no está afectado de inicio.

**Métodos:** Revisamos retrospectivamente 20 pacientes tratados por CCE de paladar duro y reborde alveolar superior entre 2005 y 2012.

**Resultados:** Seis (30%) pacientes presentaron metástasis cervical de inicio. Dos de los 14 pacientes que inicialmente no tuvieron signos de metástasis cervical la desarrollaron durante el seguimiento, y otro paciente con metástasis cervical al inicio desarrolló una metástasis cervical contralateral. Todos los pacientes con metástasis cervical (45%) fueron pT3/T4 CCE. El tiempo medio de aparición de metástasis cervical fue de 11,6 meses.

**Conclusiones:** A pesar de las limitaciones de este estudio (naturaleza retrospectiva, limitado número de pacientes), y tras analizar los resultados obtenidos y revisar la literatura, podemos concluir que la metástasis cervical de CCE de maxilar superior aparece con mayor incidencia en tumores pT3/T4. Por lo tanto, creemos conveniente realizar disección cervical electiva en pacientes con CCE T3/T4 de maxilar superior.

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## Introduction

Squamous cell carcinoma (SCC) is the most common malignant type of carcinoma within the oral cavity. Maxillary and mandibular gingivae are filled with lymph systems that cross the midline. In the same way, mucosa of the hard and soft palate is streaked by a dense superficial system of lymph vessels. It is well documented that SCC with a mucosal element has potential risk to metastasize to cervical lymph nodes, especially in cervical levels I and II. The involvement of regional lymph nodes depends on factors such as site, tumor size and several histological features of the primary tumor, as previously reported.<sup>1-3</sup>

Maxillary SCC is less frequent than SCC from other oral sites such as tongue, floor of mouth or retromolar region. Many studies have evaluated the need for elective neck dissection for these intraoral common sites when there is no clinical or radiological suspicious of lymphadenopathy. Controversies remain regarding the strategy of treatment for patients with maxillary SCC, including indications for unilateral or bilateral elective neck dissection and postoperative adjuvant treatment. Only a few authors<sup>4-13</sup> have focused on the management of the neck in SCC of the maxillary gingiva, maxillary alveolus and hard palate.

In general, tumors with cervical lymph node metastasis are associated with increased risk of treatment failures and recurrences. In recent studies,<sup>5,10</sup> it has been proven that a high rate of occult cervical metastasis in SCC of the maxilla has been found and elective neck dissection in these patients was recommended in order to reduce recurrences.

The aim of this retrospective study was to determine the rate of cervical lymph node metastasis from the upper maxillary alveolus and hard palate SCC. We also wondered if elective neck dissection should be considered for SCC of the maxillary alveolus and hard palate when the neck is not primarily affected.

## Materials and methods

A retrospective study of medical records was carried out using database of oncological patients of the Department of oral

and maxillofacial surgery. Twenty patients treated of maxillary SCC involving the alveolus and hard palate between 2005 and 2012 were included in this study. All of these patients received a complete clinical head and neck examination, including fiberoptic examination. A biopsy of the surgical specimen was performed before surgery for diagnostic purposes. Magnetic resonance imaging (MRI) and/or computed tomography (CT) scan was performed before surgery, in order to assess tumor radiologic features, tumor extension and also involvement of neighboring structures, if present.

### Inclusion criteria

Twenty patients presenting SCC of the maxilla met the following inclusion criteria:

1. Tumors diagnosed as SCC at the examination of pathological features of the surgical specimens obtained by biopsy.
2. Tumors located at maxillary gingiva, maxillary alveolus and hard palate.
3. Tumors that were not originated in paranasal sinuses or the nasal cavity shown by the examination from radiologic tests. Tumors involving these sites and other malignancies of the maxilla were excluded from this study.

### Treatment considerations

Surgery consisted on resection of the primary tumor with at least a 1-cm margin around the lesion. All patients with possible lymph neck node metastasis from the physical and radiologic examination were considered clinically positive neck (cN+), and were subsequently submitted for a modified type III radical neck dissection of the involved side. If no positive cervical lymph nodes were pre-operatively demonstrated, cervical dissection was not performed. Patients with tumors that cross the midline were operated, performing cervical neck dissection when neck was clinically or radiologically positive.

Local-regional post-operative RT was also administered if at least one of the following criteria was present: close (1-5 mm) or involved (<1 mm) surgical margins, vascular invasion, perineural infiltration, bone or cartilage involvement

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