



Is neck dissection necessary in early stage lower lip carcinomas necessary?

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Received 28 April 2016; Accepted 02 May 2016

Available online 2 May 2016 with doi: 10.5455/medscience.2016.05.8466

Abstract

Lower lip tumours are the most common of all oral cavity tumours. The purpose of this article was to analyse neck metastasis rates of early stage lower lip carcinomas and to evaluate possible correlations of histological parameters with neck metastasis. A retrospective review was made of 37 patients in respect of the dissection type, preoperative detection of lymphadenopathy by palpation or computed tomography (CT), tumour size and degree of histological differentiation. An experienced pathologist also re-evaluated the specimens and examined tumour depth and muscle invasion. Types of neck dissection were bilateral supraomohyoid in 20, unilateral supraomohyoid in 8, bilateral suprahyoid in 5 and unilateral suprahyoid in 1 patient. All the carcinomas were squamous cell carcinoma (SCC) and T stages were T1 in 32 and T2 in 5. Preoperatively, 4 patients had palpable lymph nodes and 9 patients had lymph nodes on CT scan, but none of these patients had histologically positive lymph node metastasis. Histological node metastasis was found in only 1 patient who had stage T1 tumour, no palpable or detected lymph node, no muscular invasion and very limited tumour depth. Tumour size, differentiation degree, tumour depth and muscle invasion do not seem to be sensitive indicators for the prediction of lymph node metastasis in early stage lower lip carcinomas. The necessity of neck dissection in early stage lower lip carcinomas should be reconsidered in a large series of patients.

Keywords: Lower lip carcinoma, neck dissection, squamous carcinoma, lymph node metastasis

Introduction

Lip cancers generally have low mortality rates and with surgical treatment methods it is possible to obtain good functional, cosmetic and oncological results [1].

Lip cancers comprise approximately 2% of all cancers and 30 % of oral cavity cancers. Of all lip cancers, 80% are seen on the lower lip, 5%-7% in the oral commissure and 7%-15% on the upper lip [2].

They are generally seen after the age of 50, particularly in the 60-70 years age group. Some authors have stated that lip cancers are seen more frequently in males but there are also studies which have found the male/female ratio to vary from 5.7:1 to 1:1 [3,4].

The etiological factor most often determined in patients is long exposure to sunlight. Leukoplakia, hyperkeratosis and actinic changes are usually associated with sunlight and are the preceding lesions of lip cancers [5]. The most frequently seen tumour type is squamous cell cancer. Basal

cell cancer, adenocarcinoma and malignant melanoma are seen very rarely [6,7].

Lip cancers are slow growing tumours and rates of lymph node metastasis vary between 3% and 29%. Regions of lymph node metastases in the neck are firstly submandibular and submental and then progress to other levels [8-10]. In early stage and small tumours, similarly good results can be obtained with surgery and radiotherapy [7,9]. In literature, regional metastasis rates have been reported as 0% -15% for T1 tumours and as 11%-35% for T2 tumours [11,12]. Therefore, in early stage lower lip cancers, the necessity for prophylactic neck dissection remains a matter of debate.

The aim of this study was to evaluate the necessity of neck dissection by retrospectively reviewing patients who had undergone surgery in our clinic for early stage lower lip squamous cell carcinoma and to evaluate pathological features which could be significant for neck metastasis.

Material and Methods

The study included 37 patients to whom neck dissection was applied and surgery for early stage (T1-T2) lower lip squamous cell carcinoma in our clinic between 2004 and 2012. As the study was retrospective, approval from the

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Ethics Committee was not required. The patient data were reviewed in respect of cigarette smoking, neck dissection type, tumour dimensions, degree of differentiation, and the presence of lymphadenopathy (LAP) at the first examination and on neck tomography. Biopsy materials were re-examined by an experienced pathologist and evaluated in respect of tumour depth and muscle invasion.

Results

The mean age of the patients was 62.35 years (range, 37-85 years) and the mean time since surgery was found to be 36.13 months (range, 4-110 months). Of the 37 patients, 12 were cigarette smokers (Table 1). Neck dissection was applied as bilateral supraomohyoid to 20 patients, unilateral supraomohyoid to 8, bilateral suprahyoid to 3, unilateral suprahyoid to 5 and unilateral supraomohyoid with contralateral suprahyoid in 1. All the patients were diagnosed with lower lip squamous cell carcinoma, at grade T1 in 32 and T2 in 5.

In 4 patients with preoperative palpable lymph node and 9 patient with positive lymph node on computed tomography (CT), no metastatic lymph node was determined histologically. Only 1 patient had neck metastasis and the tumour in this patient was T1, LAP was not determined in

the preoperative examination, the tumour depth was extremely limited (0.2cm) and there was no muscle invasion. Radiotherapy was applied to the patient postoperatively and no findings of recurrence were determined during the follow-up period. In 36 patients with no lymphatic metastasis, the mean tumour diameter was 1.47 cm and in 1 patient with metastasis the tumour diameter was 1.1 cm. The tumour depth was mean 0.49 cm in the 36 patients with no lymphatic metastasis. Muscle invasion was determined in 12 patients. In all patients the surgical border was negative. In the degree of tumour differentiation, the carcinoma was in situ in 1 patient, there was good differentiation in 15 patients and moderate differentiation in 21 (Table 2).

Table 1. Clinical characteristics of patients with early stage lower lip cancers

	patients with early stage lower lip cancers
Age (mean)	62.35 years (range, 37-85 years)
Mean time since surgery	36.13 months (range, 4-110 months)
Cigarette smoker	12 patients
Non-smoker	25 patients
T grade 1	32 patients
T grade 2	5 patients

T: Tumour

Table 2. Comparison of the patient with lymphatic metastasis and patients with no lymphatic metastasis in respect of preoperative LAP positivity and postoperative tumour histopathological characteristics

	Patients with no lymphatic metastasis (n:36)	Patient with lymphatic metastasis (n:1)
LAP positivity on palpation (n)	4 patients	-
CT LAP positivity (n)	9 patients	-
Tumour diameter (mean-cm)	1.47 cm	1.1 cm
Tumour depth (mean-cm)	0.49 cm	0.2 cm
Muscle invasion positivity (n)	12 patients	-
Surgical border positivity (n)	-	-
Carcinoma in situ	1	-
Good differentiation	14	1
Moderate differentiation	21	-

N: number , cm: centimetre, CT: computed tomography, LAP: lymphadenopathy

The patients were followed up for a period of mean 36 months and 24 patients were able to be contacted. No local or regional recurrence developed in any patient. In only 1 patient lung metastasis developed with no neck metastasis and it was learned that this patient was exitus for that reason.

Discussion

Squamous cell carcinoma is the most frequently seen cancer of the lower lip and constitutes more than 95% of lower lip cancers [13]. The current study only included patients to whom neck dissection was applied and patients with basal cell carcinoma were not included in the study.

The disease is seen at the highest levels in the 70-80 years age group [14]. The mean age of the patients in the current study was 62.3 years, which is consistent with literature.

Lip cancers have a good prognosis because of early diagnosis associated with the localisation of the tumour and low rates of metastasis [15,16]. However, in patients where lymph node metastasis develops, there is a severe decrease in survival rates [16,17]. Lymph node metastases occur firstly in the neck in the submandibular and submental lymph nodes. For patients with lymph nodes on palpation, supraomohyoid or functional neck dissection is generally recommended [18]. However, all lymph nodes that can be clinically palpated may not be malignant. This is particularly valid for level 1 lymph nodes. Many patients have nodal widening related to inflammatory and hyperplastic changes [7,19]. In a study by Güney et al, supraomohyoid neck dissection was applied to 36 patients with T1-T2 lip cancer and it was determined that only 22% of the lymph nodes which could be clinically palpated were metastasis [12]. In a study by Hoşal et al, no relationship was determined between primary tumour

diameter and nodal metastasis [20]. Similarly in the current study, as no neck metastasis was determined in any patient with clinically palpable lymph node, no relationship was determined between tumour diameter and metastasis.

Metastasis rates in lower lip tumours are generally accepted as 15% [21,22]. In T1 tumours, metastasis rates have been reported as 0%-15% and in T2 tumours as 11%-35% and in the current study, neck metastasis was determined in 1 (2.7%) patient with a T1 tumour [5].

In addition to two-dimensional T staging, tumour depth has been evaluated 3-dimensionally in oral carcinomas and has been reported to be associated with a poor prognosis. Önerci et al recommended a threshold value of <5mm of tumour depth for poor prognosis [25]. Frierson et al determined lymph node metastasis of 75% in tumours with 6mm invasion and of 4% in tumours of 5mm or thinner [26]. In the current study, tumour depth was determined as 0.2cm in the patient who developed metastasis. In patients who did not develop metastasis, evaluation was made as mean 0.49 cm ranging between 0.2-1.1 cm. In 21 patients in the current study with tumour depth of 5mm or more, no metastasis was seen to develop. Tumour depth is still not used routinely in treatment planning. As standard sampling and measurement techniques and limit values have not yet been defined, comparison with values in literature and treatment recommendations seem to be difficult. It has been reported in literature that factors such as a reduction in p27Kip1 protein expression, recurrent tumours and oral commissure location affect neck metastasis [27,28].

Risk factors which affect the prognosis in lower lip carcinomas have been generally reported as tumour size, tumour differentiation, perineural invasion, cervical metastasis and locoregional recurrence. In several studies, patients developing neck metastasis have been reported to have histologically advanced stage tumours [29,30]. However, in the current study, the patient who developed metastasis had a well differentiated carcinoma.

As in all cancers, early diagnosis and appropriate treatment are factors directly affecting prognosis. In early stage lesions, 5-year disease-free survival has been reported as over 90% [11,31]. In patients with neck metastasis, 5-year survival rates have been reported as varying from 29% to 68% [11]. Surgical treatment of lip cancer is based on obtaining a negative surgical border and a positive surgical border will worsen prognosis [32]. Resection with a healthy tissue margin of 5-10mm is the generally accepted form of treatment in lip cancers [33,34]. It has also been reported that high simple wedge excisions made directly from the tumour borders leads to local recurrence [35,36]. In the current study, a negative surgical border was obtained in all patients and no local recurrence was observed in any patient in a follow-up period of mean 36 months.

Conclusion

In the current study of early stage cancers, it was observed that tumour diameter, degree of differentiation, tumour depth and muscle invasion made no additional contribution to the prediction of the likelihood of neck metastasis. However, when it is considered that the number of cases was low and metastasis developed in only one patient, there can be seen to be a need for further studies of larger series to be made on the necessity of neck dissection in early stage lower lip cancers.

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