

Neck dissection in the treatment of squamous cell carcinoma of the lip

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Summary

Squamous cell carcinoma of the lip is usually early diagnosed and shows low incidence of neck metastases. Aim: The study aimed at assessing the incidence and location of lymph node metastases in squamous cell carcinoma of the lip. Study Design: Retrospective case-series study. Material and Method: A review of 78 case records of patients treated between 1990 and 2001. The relation between primary tumor size, histological grading and commissure involvement with presence and location of lymph node metastases was evaluated. Results: Lymph node metastases were detected in 7% of lesions \leq 3 cm and in 41% of tumors $>$ 3 cm ($p=0.002$). Ten patients had metastases, out of which 8 were level I, and only 2 were of other levels. After elective treatment of the neck, only level I metastases were found. Conclusion: Metastases are not commonly found in lesions \leq 3 cm. If present, they are usually level I and, in this case, suprahyoid neck dissection can be indicated for elective treatment.

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INTRODUCTION

Lip cancer is the most frequent tumor of the mouth and is related to sun exposure, particularly in Caucasians. In the city of Sao Paulo, lip cancer accounts for 2.4/100.000 and 0.6/100.000 incidence among men and women, respectively, corresponding to 0.6% and 0.2% of all malignant lesions diagnosed¹.

The most common histological type is squamous cell carcinoma, which frequently affects the lower lip. During treatment, regional lymph node involvement should always be investigated. Although nodal metastases are not so frequent in initial tumors, they are related to significantly poorer diagnosis, especially in cases of neck recurrence of non-treated neck². The specialist must assess the risk of occult metastases and the indication of elective neck dissection (as a prophylactic procedure); also, extensive dissection should be performed if palpable lymph nodes are present. Suprahyoid dissection (levels I, II and III) is considered adequate for elective treatment of mouth tumors, but it may not be sufficient in the presence of metastases or it may be too aggressive when elective treatment involves both sides of neck in an elderly patient^{3,4}.

The present study assessed the incidence and location of metastases of squamous cell carcinoma of the lip taking neck treatment into consideration.

MATERIAL AND METHOD

The medical charts of 78 patients with squamous cell carcinoma of the lip, with no previous treatment, admitted to the Head and Neck Surgery and Otorhinolaryngology Department of Hospital Heliópolis, between January 1990 and December 2001, were analyzed. There were 62 men and 16 women. The average age was 60 years (20 to 93 years) and the mean age was 61 years (Q25%-75%= 53 to 71 years). The primary site was the lower lip, presented by 75 patients, whereas tumors of the upper lip were found in 3. Relative to T staging, 40 were staged T1, 23 T2, 10 T3 and 5 T4. The average time of complaint was 12 months (1 to 84 months). Surgery was performed in 67 cases, among which 6 received complementary radiotherapy. Neck dissection was initially carried out in 18 patients, out of which 9 underwent bilateral dissection (27 dissections). Concerning the type of dissection, 5 were radical modified (levels I to V), 18 were supraomohyoid (levels I, II and III) and 4 were suprahyoid (level I) dissections. Radiotherapy alone was employed in 3 cases and 8 patients were lost for follow-up after the initial evaluation. Post-treatment follow-up lasted on average 17 months (0 to 143 months).

The incidence of lymph node metastases was assessed in accordance with primary tumor size, histological grading and lip commissure involvement. Moreover, metastases' locations were evaluated taking into account 8 nodal levels,

according to the American Head and Neck Society classification³. Only histologically-confirmed metastases (pN) and cervical recurrences were considered in this analysis; untreated patients were excluded. Patients were restaged in accordance with 2002 UICC TNM Classification. The statistical analysis employed Fisher test and Mann-Whitney test.

RESULTS

Palpable lymph nodes were found in 14 patients, among which 8 underwent cervical dissection and 6 did not return for follow-up. Out of 64 patients without palpable lymph nodes, 10 were submitted to elective neck dissection. The histological results confirmed the presence of metastases in 4/8 patients who underwent therapeutic dissection, and in 6/10 patients submitted to elective dissection.

Out of 10 subjects with postoperative histological confirmation of disease dissemination, all presented level I metastases – 5/10 level Ia and 6/10 level Ib. One patient presented levels I, II and IV, and 1 had levels I and III metastases. Patients submitted to elective neck dissection presented level I metastases only. There were 5 cases of cervical recurrence, out of which 4 underwent previous cervical dissection. A patient with untreated neck was rescued with neck dissection, whose metastasis was identified as of level Ib. Incidence of lymph nodes metastases was 7% for ≤ 3 cm tumors and 41% for > 3 cm tumors, $p=0.002$, suggesting close relation between primary tumor size and risk of metastases (Table 1).

Lip commissure was involved in 12 (15%) of the patients, and this involvement was related to 11-fold higher risk of lymph node metastases (CI 95%=2.4 to 54 and $p=0.003$). Tumors that reached lip commissure had average diameter of 5.8 cm, while other tumors were on average 2.2 cm ($p=0.000004$). Differentiation grade was identified in 70 cases. Metastases were found in 8/50 patients with grade I tumors, 2/18 grade II and 1/2 grade III.

Table 1. Size of primary tumor and post-treatment lymph node metastases.

| Primary tumor | Metastases | | Total |
|---------------|------------|---------|-------|
| | es (%) | No (%) | |
| ≤ 2 cm | 2 (5) | 36 (95) | 38 |
| 2.1–3,0 cm | 2 (13) | 13 (87) | 15 |
| 3.1–4,0 cm | 2 (25) | 4 (75) | 6 |
| > 4 cm | 5 (45) | 6 (55) | 11 |
| Total | 11 (15) | 59 (85) | 70 |

DISCUSSION

Incomplete follow-up of patients limited the study results, once most of them were at an initial stage of disease and were not submitted to neck dissection. Considering that regional recurrences of lip carcinomas may appear within 2-3 years after treatment of primary tumor, the incidence of metastases may be underestimated. Squamous cell lip carcinoma presents low incidence of lymph node metastases in lesions smaller than 3 cm, thus not justifying elective neck prophylactic dissection.

Tumor extension and thickness should strongly be considered. Infiltrating lesions greater than 6 mm, as well as those less differentiated, are liable to disseminate⁵. Therefore, elective dissection may be chosen for lesions \leq 3 cm, taking into account tumor thickness or differentiation, particularly when patients' follow-up is difficult. Patients with local recurrences have greater risks of lymph node metastases, for which neck treatment is indicated³. Although involvement of the lip commissure is related to higher probability of metastases, this factor tends to be related rather to tumor size than to its location. Only 1.2%-1.5% of the tumors originate from the commissure, whose involvement usually occurs due to tumor growth^{6,7}. In this study, involvement of lip commissure was observed in 15% of the cases and was related to larger primary tumor. Sample size was not enough for multivariate analysis and, consequently, this is a questionable issue. However, other authors suggested that lip commissure involvement was not associated with presence of lymph nodes⁶.

In general, metastases occur in level I cases, while levels III, IV and V are rarely affected; thus, less extensive neck dissection is feasible^{3,8}. The central region usually drains to submental lymph nodes (Ia), while the side thirds drain to submandibular lymph nodes (Ib)⁹. In N0 cases, neck dissection should be considered only at level I (suprahyoid dissection)¹⁰. Taking into account that submandibular lymph nodes are located on the lower border of mandible, the gland could be preserved during dissection. Among patients with clinically palpable lymph nodes, the false-positive rate is 50%. Even though intraoperative evaluation with frozen section examination of suspected lymph nodes is inaccurate, this method may help identifying the cases in which neck dissection should extend to levels II and III¹¹. Investigation of sentinel lymph node allows better intraoperative evaluation, which is frequently found as level I in lip tumors¹². Despite the presence of confirmed metastases, supraomohyoid dissection (levels I, II and III) is indicated for neck treatment, once metastases in other levels are not common⁸. Although most cases show good evolution, lymph node metastases identify a subgroup of patients with poorer prognosis, particularly concerning neck recurrences. Thus,

elective neck treatment should always be considered when the risk of metastases is significant. Nearly 25% of patients were older than 70 years, for whom benefits and risks from elective dissection should be carefully considered, especially when bilateral dissection is required. The suprahyoid dissection is strongly indicated in those cases due to its lower morbidity.

CONCLUSIONS

Lymph node metastases seldom occur in tumors \leq 3 cm. Level I dissection (suprahyoid) is indicated for elective neck treatment of lip squamous cell carcinomas. This type of dissection should be extensive to levels II and III (supraomohyoid) for patients presenting positive level I lymph nodes. For levels IV or V, neck dissection should be performed when there is evidence of metastases beyond level I.

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