



Case report

The treatment of neck and parotid gland in cutaneous squamous cell carcinoma of face and forehead and the review of literature[☆]

Mehmet Haksever^a, Davut Akduman^{a, *}, Mustafa Demir^a, Sündüs Aslan^a,
Muhammed Yanılmaz^b, Fevzi Solmaz^a

^a Bursa Sevket Yılmaz Training and Research Hospital, Department of Otorhinolaryngology, Yıldırım, 16800, Bursa, Turkey

^b Fatih University, Medical Faculty Hospital, Department of Otorhinolaryngology, Istanbul, Turkey

HIGHLIGHTS

- Elective node dissection should be performed in high-risk of lymphatic metastasis.
- Long-term follow-up of treated face and forehead skin cancers should not be ignored.
- Face skin cancer patients should be informed about possible future metastases.
- Atypical recurrences should be kept in mind in case of regional lymph node dissection.

ARTICLE INFO

Article history:

Received 16 July 2014

Received in revised form

6 January 2015

Accepted 27 January 2015

Keywords:

Face

Forehead

Skin cancer

Squamous cell carcinoma

Lymph node

Parotid gland

ABSTRACT

Introduction: The treatment of cervical lymph node metastases have a significant prognostic effect on the face and forehead skin cancers. We aimed to point out the importance of loco-regional treatment in cutaneous squamous cell carcinoma of face and forehead.

Presentation of case: We present our experience with four cases that had squamous cell carcinoma of face and forehead skin. All cases had regional recurrence following 1–3 years after the primary treatment, but did not have local recurrence.

Discussion: Loco-regional lymphatic treatment for face and forehead skin squamous carcinomas has vital importance especially in the cases with high-risk factors for lymph node metastasis.

Conclusion: Elective lymph node dissection of appropriate region(s) should be included in the treatment plan for cases which have one or more of high-risk factors for lymph node metastases and long-term follow-up should not be ignored.

© 2015 The Authors. Published by Elsevier Ltd on behalf of Surgical Associates Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Head and neck cutaneous squamous cell carcinoma (HNSCC) mostly occur on sun-exposed skin in older white men. Many squamous cell carcinomas (SCC) are small lesions that are readily managed with wide local excision and reconstruction. Although it can differ from one country to the other, various kinds of specialists (i.e. head-neck surgeon, plastic and reconstructive surgeon, general surgeon, dermatologist) may perform local surgical excision of a

tumor at face and forehead. A small but significant subset of HNSCC has a more aggressive behavior with a propensity to spread to the regional lymph nodes [1].

There has been many studies in the literature to identify which lesions have predisposition for regional metastasis at the time of initial treatment [2,3]. Some clinico-pathological factors have been proposed to have association with an increased risk of nodal metastasis. Elective lymph node therapy is the treatment of choice for the patients possessing one or more of factors listed in Table 1 [2]. Patients developing regional lymph node metastasis of HNSCC after a period from the treatment of primary lesion have relatively poor prognosis and fatal outcome because of uncontrolled loco-regional recurrence [4]. In spite of the vital importance of regional lymph node therapy in HNSCC, it may be regarded because of many reasons. Sometimes, exaggerated cosmetic

[☆] It was presented at 34th Turkish National Otorhinolaryngology and Head-Neck Congress, October 10–14 in 2012, Antalya, Turkey.

* Corresponding author. Tel.: +90 224 2955000, +90 505 5664173 (mobile); fax: +90 224 3660416.

E-mail address: dr.akduman@gmail.com (D. Akduman).

concerns may force the physician to neglect the neck lymph node treatment. Another cause is that, since there are no clearly defined rules about the discipline which should manage the surgical manipulations of those patients, the operating surgeon may have lack of enough knowledge about the importance of the treatment of neck and parotid gland. Surgical management of face and forehead non-melanoma skin cancer should be so conservative to have good esthetic results, but it should also be so extensive to control the local and regional tumor recurrence.

2. Presentation of cases

The presented four cases were evaluated in our clinic, between September 2011 and July 2012. The patient consent forms have been signed by patients or their legal heirs.

2.1. Case 1

A 65-years-old male patient presented to our clinic with a mass at his left upper cervical region, invading the tail of parotid gland and overlying skin. It was ulcerated and 6 x 5 cm in size (Fig. 1). Patient's medical history revealed that, he had noticed the mass 1.5 year ago and it had a rapid growth during last month, accompanying with ulcer and pain. Otorhinolaryngological examination including endoscopy showed no signs for a primary of tumor. Punch biopsy of ulcerated mass was reported as mucoepidermoid carcinoma. Then, the patient was evaluated as parotid mucoepidermoid carcinoma with regional lymph node involvement and skin invasion. Patient underwent left superficial parotidectomy, left neck dissection and excision of invaded skin with the preservation of facial nerve (Fig. 1). The skin defect was reconstructed with local skin flaps. The histopathological report of the surgical specimen indicated a metastatic SCC. Then the patient was re-evaluated carefully. A small vague incision scar (that patient did not care about) was noted on his nasal dorsum. The detailed medical history revealed that he had been operated 3 years ago for a lesion at nasal dorsum by a plastic and reconstructive surgeon. The histopathological report of that operation was SCC. The final diagnosis was nasal dorsum skin SCC metastasized to the parotid gland and regional lymph node. Then, the patient received adjuvant radiotherapy, and has been followed with no local and regional recurrence for more than 2 years.

2.2. Case 2

A 73-years-old male patient presented to our clinic with a mass at his right submandibular area. It was 7 x 13 cm in size, ulcerated and fixed to mandible (Fig. 2). The incisional biopsy of the mass from another center has been reported as SCC. The radiographic analysis with computed tomography presented that the tumor was invading mandible with bone destruction. Patient's medical history revealed that he had been operated 8 months ago because of the lesions (SCC) on his nasal dorsum by a plastic and reconstructive surgeon. The histopathological report of the surgical specimens indicated SCC. The incision scar was evident. Patient was evaluated as subsequent regional lymph node metastasis of HNSCC. Neck dissection plus mandibulectomy and reconstruction of the defect with osteo-myocutaneous flap in a single operation was suggested to the patient. But he rejected the operation. The patient died of disease after nine months.

2.3. Case 3

A 84-years-old male patient presented to our clinic with 3 different masses at the level of his left parotid and bilateral upper

Table 1
^aHigh-risk factors for lymph node metastases [2].

| Risk factor | Metastatic likelihood |
|--|-----------------------|
| Size >2 cm | 20–30% |
| Invasion into subcutaneous fat (depth >5 mm) | 16–45% |
| Poorly differentiated/metatypical/morpheophorm phenotype | 12–32% |
| High grade or desmoplasia | 12% |
| Perineural invasion | 40–47% |
| Lymphovascular invasion | 40% |
| Location near parotid (ear, temple, forehead, anterior scalp) or lip | 10–30% |
| Local recurrence | 25–62% |
| SCC in preexisting scar (burn or trauma) | 38% |
| Immunosuppression | 13–20% |

^a Adapted from the study of D'Souza J, Clark J by permission.

cervical regions (Fig. 3a–b). Fine needle aspiration biopsies from all masses (left parotid, left upper cervical and right upper cervical) were reported as SCC. Patient's medical history revealed that he had been operated for a lesion (SCC) at his forehead by a plastic and reconstructive surgeon 1.5 years ago. The incision scar was visible at the midline of his forehead. He was evaluated as forehead skin SCC metastasized to left parotid and bilateral upper cervical lymph nodes. A left superficial parotidectomy plus bilateral supra-omohyoid neck dissection in a single operation was suggested to the patient, but it could not be performed due to high cardiovascular risks of general anesthesia. The patient lost to follow-up during the study design.

2.4. Case 4

A 68-years-old male patient presented to our clinic with the complaint of an unhealed ulcer at his anterior neck (Fig. 3 c–d). He had a suppurative infection and a 3 x 4 cm sized cavity under the skin ulcer. The treatment with multiple antibiotics had been given to the patient before his application to our clinic. Patient's medical history revealed that, he had an operation for a mass on his right cheek by a plastic and reconstructive surgeon 3 years ago. The operation note confirmed that a skin tumor at right temporozygomatic area had been excised and the defect had been reconstructed with split thickness skin grafts. A right neck dissection and parotidectomy had been performed in the same operation. Patient had an ipsilateral facial paralysis (H–B grade-VI). Patient has also received postoperative adjuvant radiotherapy. The histopathological evaluation of incisional biopsy from the edge of ulcerative lesion was reported as SCC in our institute. He was evaluated as face skin SCC with regional recurrence at the anterior neck. A wide excision of tumor and reconstruction with a myocutaneous flap was planned, but patient rejected the operation. The patient lost to follow-up during the study design.

3. Discussion

SCC of face and forehead skin is known to have a risk of loco-regional involvement [4]. Therefore, it should be treated locally and also if necessary loco-regionally. Many HNSCCs are small lesions and can be easily treated with local excision and primary reconstruction. The cure rate exceeds 95% when the primary lesion is completely excised. In a recent systematic analysis, the risk of regional metastasis for HNSCC is reported about 5% [5]. Regional lymph node treatment has crucial importance for this group of patients. According to the classical knowledge, when the risk of



Fig. 1. The patient with a diagnosis of squamous cell carcinoma of skin at nasal dorsum, a: Yellow arrow shows the scar of prior excision, b: the metastasis of neck and parotid gland with ulceration, c: surgical specimen of neck dissection and parotidectomy, d: post-operative 9th day of the surgery, skin defect was reconstructed with loco-regional skin flaps.

occult regional lymph node metastasis for head-neck carcinomas is about 20%, an elective neck dissection, based on the primary tumor site is indicated [6]. Since the rate of regional lymph node involvement is lower in HNSCC, the neck dissection may not be apart of treatment, compared to the other otolaryngologic cancers (e.g oral cavity, oropharynx, larynx). Recently, some clinical and

pathological factors have been defined to estimate the patients who have higher risk for regional involvement (Table 1) [2]. Elective lymph node dissection should be included in the treatment plan for the cases which have one or more of these risk factors.

There are various studies focused on the management of neck and parotid gland in metastatic HNSCC in the literature [2,3,7]. With this study we demonstrated dramatic regional metastasis of four cases, so that we aimed to draw attention to the importance of regional treatment and investigate the causes of omission of lymph node treatment.

Most of the lesions on face and forehead skin are benign, and locally cured with good esthetic results. Of the malignant lesions of face and forehead skin, basal cell carcinomas compromise about 80%, which can be treated by local excision with a high cure rate [3]. The remaining malignant lesions are SCC (20–25%), and 5% of those have potential risk for regional metastasis [2,5]. That means, only less than 1% of face skin lesions (pathologic diagnosis not specified) have a risk of regional metastasis. The surgeons who are unfamiliar to the behavior of SCC may not think of elective regional lymph node treatment due to this relatively low rate of metastasis.

High risk factors for lymph node metastasis in HNSCC were defined by the study of D'Souza and Clark [2] in order to determine the patients who are real candidate for regional treatment (Table 1). In the presented 4 cases, due to our retrospective analysis from the pathologic reports of first surgical excision materials, all cases had 2 or more of those high risk factors for regional lymph node metastasis. Three cases did not have loco-regional lymph node treatment, and the regional recurrence was not a surprise for these patients.

Since the neck metastasis may occur after a period of time (1–2 years) from the excision of primary skin lesion, sometimes neither



Fig. 2. The patient with a diagnosis of squamous cell carcinoma of nasal skin, blue arrow shows the scar of prior excision, yellow arrow shows the metastatic mass that was fixed to the mandible with skin ulceration.



Fig. 3. The patient with a previous diagnosis of squamous cell carcinoma of forehead skin at midline, a: Yellow arrow shows prior scar of excision, b: yellow arrow shows the metastasis to left parotid gland, c: The patient has been operated for the skin squamous cell carcinoma of temporal region (primary lesion excision, reconstruction with skin graft, neck dissection, parotidectomy), d: the recurrence of primary tumor at atypical site (anterior to trachea, superior to the sternal notch), note that recurrent tumor has infection, ulceration and cavitation.

the patient nor the physician may not associate the secondary neck masses with the primary lesion as in our *case-1*. If the patient was informed about his disease accurately, he might give importance to any mass on his neck and would have come to the hospital in early stage of metastasis. Initially, old skin incisions were not visible on first sight and no information about old lesion could be obtained from patient's medical history. This was a cause of under-evaluation of patient who was first diagnosed as parotid mucoepidermoid carcinoma after the evaluation of punch biopsy, and finally diagnosed as the metastasis of SCC in histopathological evaluation of the surgical specimen. It should be underlined that a patient having mass at the neck with unknown primary must be examined carefully for any possible old skin and scalp lesions.

There is a consensus on the treatment of lymph node positive (N+) neck in the literature [1,2]. Accurate treatment for the regional lymph nodes and its timing may be lifesaving in a case of HNCSCCs with clinically negative neck (N0). 'Wait-and-see policy' (in which, for N0 case, primary lesion are excised, neck is followed until it becomes N+, then neck treatment is performed) is another issue for the treatment of N0 neck in Head Neck Carcinomas. The advocates of this approach (in decreasing number) support that it prevents unnecessary dissections and the patient's morbidity [8,9]. But, most of other authors are not in favor with this policy due to some reasons as: a-The cure rate of salvage surgery during follow-up period is not satisfactory. b- If loco-regional involvement is developed during follow-up period; it is also possible to develop distant metastasis. c- The morbidity of dissection in N+ neck is higher [10]. For example; the neck dissection could be adequate treatment option for *case-2* in the present study at the time of first application. The patient developed a metastasis fixed to the mandible and skin, 8 months after primary excision of the skin lesion. Therefore the morbidity of planned surgery was increased.

The most common sites of nodal metastases are upper cervical nodes and external jugular lymph nodes [2]. Selective neck dissection including level I-II-III (supraomohyoid neck dissection)

may be the elective treatment of choice for N0 neck [3]. National Institute for Clinical Excellence Guidance on Cancer Services, Improving Outcomes in Head and Neck Cancers(2004) suggests that patients whose cancers were detected later require more extensive treatment and experience poorer outcomes [11].

Evaluation of the parotid gland in a patient with HNCSCC has a particular importance. Superficial parotidectomy along with supraomohyoid neck dissection is suggested by many authors for the tumors those are in the proximity of parotid gland or when the lymphatic mapping demonstrates significant drainage to the parotid lymph nodes [1,7]. In the present study, the involvement of parotid gland with tumor was bilateral in *case-3*. Midline location of primary tumor (forehead) might be the cause of bilateral metastases in this case. We believe that ipsilateral parotidectomy (bilateral for midline tumors) along with neck dissection should be kept in mind when the primary lesion is close or upper to the parotid gland. The treatment approach of cancer is not completed in spite of the surgery or chemo-radiotherapy. Close follow-up is essential. In a case that primary tumor is excised and no loco-regional lymph node dissection is performed, late metastases may be possible at lymphatic drainage pathways of the tumor (as *case-1*, 2, and 3). On the other hand, in a case that primary tumor is excised and also loco-regional lymphatic dissection is performed, since the lymphatic drainage pathways are changed, recurrence may occur at atypical locations (as *case-4*). Physicians should be aware of such "atypical recurrences" and take biopsy on time.

The skin covering face and forehead has very important effects on esthetic concept of human beings. Cosmetic expectations of surgeon and patient may sometimes overshadow the essential approach when making the decision on the treatment plan. Many authors of various disciplines (such as head-neck surgeon, plastic and reconstructive surgeon, general surgeon, dermatologist) may have interest on the skin lesions of face and forehead. The primary excision of a tumor from skin is quite easy, but loco-regional lymphatic treatment needs more operation time and experience.

Actually it is very difficult to make a universal consensus between all those disciplines for an algorithmic approach to the skin cancer. With this study, we aimed to create awareness about the importance of regional treatment in the patients with HNCSCC.

4. Conclusion

A small but significant subset of patients with HNCSCC has propensity for spread into the regional lymphatic. Loco-regional treatment and close follow-up have vital importance for those cases. Elective lymph node dissection of appropriate region(s) should be included in treatment plan for the cases which have one or more of high-risk factors for lymph node metastases. Also, long-term close follow-up of the patients who were treated for face and forehead skin cancers should not be ignored.

Conflict of interest

None.

Funding

None.

Consent

The consent form has been signed by patient or legal heirs.

Author contribution

Mehmet Haksever, MD, author, study design, data collections, data analysis, writing.

Davut Akduman, MD, author, study design, data collections, data analysis, writing.

Mustafa Demir, MD, co-author, data collections, writing.

Sündüs Aslan, MD, co-author, data collections, writing.

Muhammed Yanılmaz, MD, co-author, data collections, referring the patients.

Fevzi Solmaz, MD, co-author data collections, writing, referring the patients.

References

- [1] Bumpous J. Metastatic cutaneous squamous cell carcinoma to the parotid and cervical lymph nodes: treatment and outcomes. *Curr Opin Otolaryngol Head Neck Surg* 2009 Apr;17(2):122–5.
- [2] D'Souza J, Clark J. Management of the neck in metastatic cutaneous squamous cell carcinoma of the head and neck. *Curr Opin Otolaryngol Head Neck Surg* 2011 Apr;19(2):99–105.
- [3] Moore BA, Weber RS, Prieto V, El-Naggar A, Holsinger FC, Zhou X, et al. Lymph node metastases from cutaneous squamous cell carcinoma of the head and neck. *Laryngoscope* 2005 Sep;115(9):1561–7.
- [4] Veness MJ, Morgan GJ, Palme CE, Gebbski V. Surgery and adjuvant radiotherapy in patients with cutaneous head and neck squamous cell carcinoma metastatic to lymph nodes: combined treatment should be considered best practice. *Laryngoscope* 2005 May;115(5):870–5.
- [5] Jambusaria-Pahlajani A, Miller CJ, Quon H, Smith N, Klein RQ, Schmults CD. Surgical monotherapy versus surgery plus adjuvant radiotherapy in high-risk cutaneous squamous cell carcinoma: a systematic review of outcomes. *Dermatol Surg* 2009 Apr;35(4):574–85.
- [6] Haksever M, Inançlı HM, Tunçel U, Kürkçüoğlu SS, Uyar M, Genç O, et al. The effects of tumor size, degree of differentiation, and depth of invasion on the risk of neck node metastasis in squamous cell carcinoma of the oral cavity. *Ear Nose Throat J* 2012 Mar;91(3):130–5.
- [7] Hinerman RW, Indelicato DJ, Amdur RJ, Morris CG, Werning JW, Vaysberg M, et al. Cutaneous squamous cell carcinoma metastatic to parotid-area lymph nodes. *Laryngoscope* 2008 Nov;118(11):1989–96. <http://dx.doi.org/10.1097/MLG.0b013e318180642b>.
- [8] Van den Brekel MW, Castelijns JA, Reitsma LC. Outcome of observing the N0 neck using ultrasonographic-guided cytology for follow-up. *Arch Otolaryngol Head Neck Surg* 1999 Feb;125(2):153–6.
- [9] Nieuwenhuis EJ, Castelijns JA, Pijpers R. Wait-and-see policy for the N0 neck in early-stage oral and oropharyngeal squamous cell carcinoma using ultrasonography-guided cytology: is there a role for identification of the sentinel node? *Head Neck* 2002 Mar;24(3):282–9.
- [10] Yuen AP, Wei WI, Wong YM. Elective neck dissection versus observation in the treatment of early oral tongue carcinoma. *Head Neck* 1997 Oct;19(7):583–8.
- [11] NICE Guidance on Cancer Services, Improving Outcomes in Head and Neck Cancers (2004) Available from: <http://www.nice.org.uk/guidance/csgnhn/resources/improving-outcomes-in-head-and-neck-cancers-the-manual2>.