Comparison between wait-and-see policy and elective neck dissection in clinically N0 cutaneous squamous cell carcinoma of head and neck

Yan Xiao, MD\(^a\), Shuai Yuan, MD\(^b\), Fei Liu, MD\(^a\), Bing Liu, MD\(^a\), Juanfang Zhu, MD\(^a\), Wei He, MD\(^a\), Wenlu Li, MD\(^a\), Quancheng Kan, MD\(^b,\)^∗

Abstract
To analyze the superiority of wait-and-see policy and elective neck dissection in treating cN0 patients with facial cutaneous cell carcinoma (cSCC).

Patients with clinically negative parotid and neck metastasis disease were prospectively enrolled. Three groups were divided based on whether the patient received an operation of superficial parotidectomy or/and elective dissection, and regional control and disease-specific survival rates were compared.

The occult parotid and neck metastasis rate was 20% and 16%, respectively. There was neck node metastasis without parotid metastasis in only 1 patient. All the node metastasis occurred in level II. Regional recurrence was noted in 16 (16%) patients, and 6 patients died of the disease. In the group undergoing superficial parotidectomy and elective neck dissection, 2 patients had neck node metastasis, and there was no disease-related death. Further survival analysis indicated it had better regional control and disease-specific survival rates compared with the other 2 groups.

Superficial parotidectomy and elective neck dissection are suggested for patients with T3–4 facial cutaneous squamous cell carcinoma.

Abbreviation: cSCC = facial cutaneous cell carcinoma.

Keywords: elective neck dissection, facial cutaneous squamous cell carcinoma, squamous cell carcinoma of head and neck, superficial parotidectomy

1. Introduction
Non-melanoma skin cancer represents one-third of all malignancies and its incidence is expected to rise until the year 2040.\(^{[1]}\) Cutaneous squamous cell carcinoma (cSCC) represents about 20% of all non-melanoma skin cancer and is a deadly threat owing to its ability to metastasize to any organ in the body.\(^{[1,2]}\) The true incidence of metastasis from cSCC is unknown but is felt to be in the region of 2% to 5%.\(^{[3]}\) Despite the low metastasis possibility, the survival rate is reduced by 50% when there is pathologic node disease. Risk factors for lymphatic metastasis are thoroughly evaluated including tumor size >2 cm, tumor depth >4 mm, location on the ear or lip, poor histological differentiation, perineural and lymphovascular invasion, and patient immunosuppression.\(^{[4–11]}\)

There is a consensus on the treatment of lymph node positive neck in the literature.\(^{[4,5]}\) Accurate treatment consists of superficial or total parotidectomy and selective or radical neck dissection. But in cN0 patients, the optimal management of parotid and neck remains unclear. Researchers that supporting wait-and-see policy reckon its low metastasis rate and it prevents unnecessary dissections and the patient’s morbidity.\(^{[12]}\) The authors who are not in favor with this policy describes that the cure rate of salvage surgery during follow-up period is low, and there is higher possibility of distant metastasis.\(^{[10,11]}\)

Therefore, in current study, we aimed to analyze the superiority of wait-and-see policy and elective neck dissection in treating cN0 patients with head and neck cSCC.

2. Patients and methods
The Zhengzhou University institutional research committee approved our study, and all participants signed an informed consent agreement. All methods were performed in accordance with the relevant guidelines and regulations.

From January 2008 to December 2015, patients with clinically negative parotid and neck metastasis disease were prospectively enrolled in Department of Oral Maxillofacial Surgery, The first affiliated hospital of Zhengzhou University. Detailed information and difference of wait-and-see policy and elective neck dissection including possible postoperative dysfunction and prognosis was informed to the patients before treatment, and they decided which procedure was accepted. Information including patient...
characteristics, TNM stage (UICC 2010), postoperative pathologic reports, follow up was reviewed and collected.

General data were analyzed by means of a Student t test or chi-squared test or Fisher exact test. Kaplan-Meier was used to compare the survival rates between different groups. All statistical analyses were performed using SPSS 13.0. A P < .05 was considered significant.

3. Results

The mean age was 67.5 (range, 42–88) years, there were 89 male and 22 female. Sixty-seven patients were staged as T1, 24 cases as T2, 20 cases as T3 or T4. Ninety-two patients had a high or middle differential degree disease, and the differential degree was unknown in 7 patients. Clear margin was achieved in all patients, but close margin was noted in 5 patients. In almost all (87.4%) the patients, the invasion depth was <4 mm. Perineural invasion and lymphovascular invasion was noted in 15 and 13 patients, respectively. Patients in group 3 tended to have a younger age (P = .088), no significant difference was found related to the aspects of tumor stage, differential degree, invasion depth, perineural invasion, lymphovascular invasion (all P > .05) (Table 1).

A total of 56 patients (group 1) underwent a wait-and-see policy in which patients just received an operation of tumor excision, 30 patients (group 2) received superficial parotidectomy, and 25 patients (group 3) received superficial parotidectomy and elective neck dissection (region I–III), and patients in group 2 and 3 also underwent primary tumor excision. Patients with pathologic metastatic nodes were suggested for postoperative radiotherapy. No patients received chemotherapy.

During postoperative specimen analysis, 6 (20%) patients had parotid node metastasis in group 2, and there was only 1 positive node in every patient. In group 3, 5 (20%) patients had parotid node metastasis, and all the patients had external cervical node metastasis, and 3 of the 5 cases had cervical node metastasis, moreover, there was neck node metastasis without parotid metastasis in only 1 patient. In furthermore analysis, in the 3 patients with neck disease, there was only 1 positive neck node in every patient, and all the node metastasis occurred in level II.

In our follow-up, 11 patients were lost. Regional recurrence was noted in 16 (16%) patients, and 15 (93.8%) of the patients had T3/T4 disease, there was no local recurrence, 6 patients died of the disease. In group 1, 4 patients had just parotid node metastasis and 6 patients had both parotid and neck metastasis, 5 of the 10 patients died of the disease. In group 2, 4 patients had neck node metastasis, and 1 of the 4 patients died of the disease. In group 3, 2 patients had neck node metastasis, and there was no disease-related death. Patients in group 3 had better regional control and disease-specific survival rate compared with the other 2 groups (Figs. 1 and 2).

4. Discussion

The optimal treatment of parotid and neck in head neck cSCC without clinically positive node disease remained unclear. Previous author had pointed the high-risk cutaneous SCC node in every patient. In group 3, 5 (20%) patients had parotid node metastasis, and all the patients had external cervical node metastasis, and 3 of the 5 cases had cervical node metastasis, moreover, there was neck node metastasis without parotid metastasis in only 1 patient. In furthermore analysis, in the 3 patients with neck disease, there was only 1 positive neck node in every patient, and all the node metastasis occurred in level II.

In our follow-up, 11 patients were lost. Regional recurrence was noted in 16 (16%) patients, and 15 (93.8%) of the patients had T3/T4 disease, there was no local recurrence, 6 patients died of the disease. In group 1, 4 patients had just parotid node metastasis and 6 patients had both parotid and neck metastasis, 5 of the 10 patients died of the disease. In group 2, 4 patients had neck node metastasis, and 1 of the 4 patients died of the disease. In group 3, 2 patients had neck node metastasis, and there was no disease-related death. Patients in group 3 had better regional control and disease-specific survival rate compared with the other 2 groups (Figs. 1 and 2).
patient group was defined by patient-related, tumor-related, and previous treatment-related risk factors by retrospective studies, but in most cases, risk factors including differential degree, invasion depth, perineural invasion, lymphovascular invasion only could be learned by postoperative pathology analysis, which remained unknown during frozen section. Therefore, the exact risk for possible lymphatic metastasis was unclear until postoperative pathology species were evaluated, and a second operation might be required in some patients, which was associated with unnecessary pain and increased hospitalization expenses. It was urgent to accurately find out whether parotidectomy or elective dissection was suitable for the patient before operation, we were the first to analyze the possible best treatment procedure for cN0 patients with head neck cSCC by prospective design.

The most important finding in current study was that superficial parotidectomy associated with elective dissection increased regional control rate and DSS rate especially in patients with T3/T4 tumors regardless of the status of perineural or lymphovascular invasion or tumor thickness. This finding provided us with more clear preoperative plan. No similar literature was available for comparing, but there was accurate retrospective evidence suggesting that tumor size >2 cm was an risk factor for lymphatic metastasis. In other subsites of head and neck, previous authors had compared wait-and-see policy and elective neck dissection in early stage tongue cancer. Orabona et al reported in their research 66 patients received postoperative pathology species were evaluated, and a second operation might be required in some patients, which was associated with unnecessary pain and increased hospitalization expenses. It was urgent to accurately find out whether parotidectomy or elective dissection was suitable for the patient before operation, we were the first to analyze the possible best treatment procedure for cN0 patients with head neck cSCC by prospective design.

In summary, superficial parotidectomy and elective neck dissection are suggested for patients with T3–4 facial cutaneous squamous cell carcinoma without taking other risk factors including invasion depth and perineural invasion into consideration.

Author contributions

Data curation: Yan Xiao.
Funding acquisition: Yan Xiao.
Visualization: Yan Xiao.
Writing – original draft: Yan Xiao.
Writing – review & editing: Shuai Yuan, Fei Liu, Bing Liu, Wei He, Wenlu Li, Quancheng Kan.
Methodology: Juanfang Zhu, Quancheng Kan.
Resources: Juanfang Zhu.
Supervision: Wei He, Quancheng Kan.
Formal analysis: Quancheng Kan.

References

[1] Burton KA, Ashack KA, Khachemoune A. Cutaneous squamous cell carcinoma: a review of high-risk and metastatic disease. Am J Clin Dermatol 2016;17:491–508.
[2] Aslam AM, Patel AN. Facial cutaneous squamous cell carcinoma. BMJ 2016;352:i1513.
[3] O’Hara J, Ferlito A, Takes RP, et al. Cutaneous squamous cell carcinoma of the head and neck metastasizing to the parotid gland—a review of current recommendations. Head Neck 2011;33:1789–95.
[4] Koise A, Svetina L, Lukic I. Significance of clinical stage, extent of surgery and outcome in cutaneous squamous cell carcinoma of the head and neck. Int J Oral Maxillofac Surg 2015;44:82–8.
[5] Yilmaz M, Eskizzur G, Friedman O. Cutaneous squamous cell carcinoma of the head and neck: management of the parotid and neck. Facial Plast Surg Clin North Am 2012;20:473–81.
[6] Connolly KL., Nehal KS, Dua J. Evidence-based medicine: cutaneous facial malignancies: nonmelanoma skin cancer. Plast Reconstr Surg 2017;139:181e–90e.
[7] Wray J, Amidor RJ, Morris CG, et al. Efficacy of elective nodal irradiation in skin squamous cell carcinoma of the face, ears, and scalp. Radiat Oncol 2015;10:199.
[8] Ebrahim A, Moncrieff MD, Clark JR, et al. Predicting the pattern of regional metastases from cutaneous squamous cell carcinoma of the head and neck based on location of the primary. Head Neck 2010;32: 1288–94.
[9] Sweeney L, Zimmerman T, Carroll WR, et al. Head and neck cutaneous squamous cell carcinoma requiring parotidectomy: prognostic indicators and treatment selection. Otolaryngol Head Neck Surg 2014;150:610–7.
[10] Shao A, Wong DK, McIvor NP, et al. Parotid metastatic disease from cutaneous squamous cell carcinoma: prognostic role of facial nerve sacrifice, lateral temporal bone resection, immune status and P-stage. Head Neck 2014;36:545–50.
[11] Haks ve M, Akduman D, Demir M, et al. The treatment of neck and parotid gland in cutaneous squamous cell carcinoma of face and forehead and the review of literature. Ann Med Surg (Lond) 2015;4:48–52.
[12] Fang QG, Shi S, Zhang X, et al. Upper extremity morbidity after radial forearm flap harvest: a prospective study. J Int Med Res 2014;42:231–5.

[13] Orabona GD, Bonavolontà P, Maglitto F, et al. Neck dissection versus “watchful-waiting” in early squamous cell carcinoma of the tongue: our experience on 127 cases. Surg Oncol 2016;25:401–4.

[14] Moore BA, Weber RS, Prieto V, et al. Lymph node metastases from cutaneous squamous cell carcinoma of the head and neck. Laryngoscope 2005;115:1561–7.

[15] Veness MJ, Morgan GJ, Palme CE, et al. 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;115:870–5.

[16] Vauterin TJ, Veness MJ, Morgan GJ, et al. Patterns of lymph node spread of cutaneous squamous cell carcinoma of the head and neck. Head Neck 2006;28:785–91.

[17] Fang QG, Shi S, Zhang X, et al. Total lower lip reconstruction with a double mental neurovascular V-Y island advancement flap. J Oral Maxillofac Surg 2014;72:834.e1–6.

[18] Fang QG, Shi S, Li M, et al. Free flap reconstruction versus non-free flap reconstruction in treating elderly patients with advanced oral cancer. J Oral Maxillofac Surg 2014;72:1420–4.

[19] Fang QG, Shi S, Zhang X, et al. Assessment of the quality of life of patients with oral cancer after pectoralis major myocutaneous flap reconstruction with a focus on speech. J Oral Maxillofac Surg 2013;71:2004.e1–5.