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Professional paper

Treatment of Squamous Cell Carcinoma of the Lip

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A B S T R A C T

Tumors of the lip are squamous cell carcinomas in 95% of the cases. Also, in 95% of the cases they arise on a vermilion of the lower lip, because of greater exposure of the lower lip vermilion to direct, cumulative UV radiation which is main etiologic factor in development of squamous cell carcinoma. We have reviewed patients that have been treated for lower lip carcinoma at the Department for Maxillofacial surgery, University hospital »Dubrava«, from 1990 to 2007. Most common surgical procedure was V-shaped excision of the lip with or without vermilionectomy. For more extensive tumors we used some of the reconstruction methods with local or distant flaps (Webster-Bernard, Karapandžić, free flap). Neck dissection was performed only in patients with clinically evident metastasis or large carcinoma. Although regional metastasis is rare, it significantly lowers five-year survival. Also, we found worse outcome in patients that have been treated previously elsewhere and came for surgical therapy because of recurrent/residual tumor or neck metastasis in comparison to those that were initially treated at the Department of Maxillofacial surgery.

***Key words**: lip cancer, lip reconstruction, neck dissection*

Introduction

Lips have unique anatomy since between outer skin and inner intraoral mucosa there is transitional epithelium which is not keratinized and is called vermilion. Cancer that develops on the vermilion is considered by oncologic classification as lip cancer[1,2]. Cancers that arise on the skin surface of the lip or on the mucosal side of the lip are classified as skin or intraoral cancers, respectively.

Cumulative exposure to UV radiation, which comes mostly form the sun, has been clearly proved as main etiologic factor in development of lip cancer[3–6]. Population with blue eyes and fair skin complexion is especially affected. Other possible etiologic factors are imunosuppresion, chronic infection with HPV, chronic alcohol use[7–10]. Thermal injury with cigarette and pipe smoking[11] have been widely reported as factors leading to development of lip cancer but in our clinical practice we have never seen such lip cancer. People who develop lip cancer are mostly farmers, seamen, outdoor workers, and similar.

Equivalent to actinic keratosis on the skin is actinic cheilitis which is characterized by scaling and crusting and areas of dysplastic changes of the vermilion. Because lower lip is projected downward and outward it is much more exposed to UV radiation, and consecutively affected by dysplastic and neoplastic changes, then upper lip[12]. This is the reason why cancers develop in about 95% of the cases on the lower lip. Histopathology is predominantly squamous cell carcinoma.

For small cancers (T1-T2), surgical treatment is preferred because margins of the specimen can be pathohistologicaly analyzed and functional and esthetic result is superior to radiotherapy. Usually V-shaped excision, with or without vermilionectomy, and primary closure is done. More extensive lesions, that require resection more the half of the lower lip, have to be reconstructed with some of the local flaps available (Karapanžić, Webster-Bernard) or even with distant flaps.

In this paper we have stated importance of adequate initial treatment by reviewing our database and comparing outcome between the two groups of treated patients.

Patients and Methods

We have reviewed from our clinical database all patients that were treated surgically for squamous cell carcinoma of the lip on the Department of Maxillofacial Surgery, University hospital Dubrava, Zagreb, Croatia in the

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period from 1990–2007. There were 357 patients treated for lower lip carcinoma, 282 (79%) were men and 75 (21%) were females, average age was 65 years (range 33 to 92). Patients were divided into two groups, one group of patients that were initially treated at our Department and second group with patients that have previously been treated elsewhere and have been referred to our Department because of neck metastasis or local recurrence/residual tumor. We examined various lip reconstruction methods used, and the need for neck dissection in both groups. Finally the percentages of recurrence, both local and regional, are compared. Descriptive method of analysis of the data was used.

Results

Initially 304 patients were treated at our Department and 53 patients have been previously treated elsewhere. Usually, these latter patients had previous surgical excision alone or in combination with radiation (Table 1). Of these 53 patients, 26 (50%) had a local recurrence or residual disease, and we have performed re-excision of the lip and adequate reconstruction, in more than half of the patients requiring some kind of local or distant flap for reconstruction. For 37 (70%) patients with a positive neck, radical neck dissection was done (Table 2). In follow-up, 5 (10%) patients developed local and 11 (30%) patients developed regional recurrence (Table 3).

In patients that were initially treated at our Department, surgical excision was performed in all cases, in 236 (77%) cases V-shaped excision with or without vermilionectomy was performed. In other cases, more complex method of reconstruction had to be undertaken. Neck dissection was done in only 16 (5%) cases initially treated at our Department, always for a positive neck (Table 4). Local recurrence developed in 14 (4.6%) patients, and regional recurrence in 3 (18%) patients out of those having neck dissection. During regular follow-up, only 24 (8.3%) patients, that had just excision of the lip cancer as first treatment, developed neck metastasis which was treated with radical neck dissection (Table 3).

TABLE 1
PREVIOUS TREATMENT OF PATIENTS REFFERED FOR RESIDUAL CANCER OR NECK METASTASIS

Previous treatment	53
Surgery	31
Radiation therapy	12
Surgery + radiation therapy	10

TABLE 2
TREATMENT OF PATIENTS REFERRED FOR RESIDUAL CANCER OR NECK METASTASIS

Excision of residual/recurrent cancer	26/53 50%
Wedge excision/vermilionectomy	11
Flap:	
Local (Karapandžić, Webster-Bernard, etc.)	9
Regional	4
Free flap	2
Neck dissection	37/53 70%

TABLE 3
COMPARISON OF OUTCOME BETWEEN PATIENTS WITH PREVIOUS TREATMENT AND INITIALLY TREATED PATIENTS AT OUR DEPARTMENT

	Previously treated	Initially treated
Local recurrence	5/53 10%	14/304 4.6%
Regional recurrence	11/37 30%	3/16 18%
N0 → N+	0	24/288 8.3%
Contralateral metastasis	4	5

TABLE 4
PATIENTS TREATED INITIALLY AT MAXILLOFACIAL SURGERY DEPARTMENT

Resection of tumor	
Wedge excision/vermilionectomy	236/304 77%
Flap:	68/304 23%
Karapandžić	14
Webster-Bernard	31
Other local flap	17
Regional	5
Free	1
Neck dissection	16/304 5%

Discussion and Conclusion

Among cancers of the head and neck, lip cancer can be most easily diagnosed and treated, but still a proportion of this patients end up having local or regional recurrence or rarely disseminated disease[3,4]. Precancerous or very small and superficial lesions are treated with vermilionectomy and anterior advancement of the intraoral mucosa to reconstruct the vermilion. Treatment for larger lesions is V-shaped excision of the full thickness of the lip with or without vermilionectomy. Up to one third of the lower lip can be excised and primarily reconstructed. Reviewing our data we have found that this is the most common scenario, about ¾ of patients treated initially at our Department had localized disease and direct closure of the lip was possible. Probably because lip cancer is clearly visible and easy to diagnose patients come, or have been referred by their physician, in early stages of cancer. Despite all this, a relatively large proportion of patients come with locally advanced cancer so surgical therapy is more extensive and complex methods of reconstruction are necessary. Most commonly used methods of reconstruction are Karapandžić and Webster-Bernard's. Karapandžić in 1974 described method of

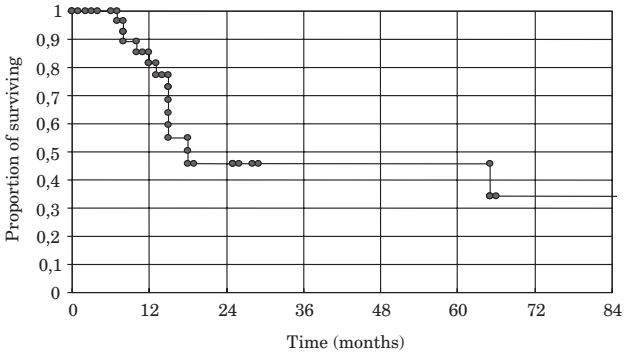

Fig. 1. Survival after neck dissection.

reconstruction which involves simultaneous, bilateral, full-thickness circumoral flaps with isolation and preservation of vascular and neural structures and therefore good motor and sensory function of the new lip[13–15]. Bernard in 19th century, and later Webster used medial advancement of the tissue from the cheeks with excision of the triangles of the skin to allow easier mobilization of flaps[16]. When total resection of the lower lip or resection of the mandible or skin of the chin is required, free or regional flaps can be used, but usually functional and esthetic result is not satisfying. Reconstruction with flap was required in 23% (68) of our patients.

Regional metastasis of squamous cell carcinoma of the lip appear in 5–15%[3,4,17–19]. The issue whether to perform an elective neck dissection and to which extent is still debated in the literature. Bucur and Stefanescu believe that a neck dissection should be done in all patients, according to their results, as much as 64% of patients develop neck metastasis[20]. Some authors suggest that selective neck dissection of levels I–III, becuase of the lymphatic drainage pattern from the lip, is enough in patients with clinically positive neck[21]. We consider that in patients with clinically evident metastasis (palpation, CT or ultrasound) a radical neck dissection has to be performed. According to our results, conversion of the neck from N0 to N+ has been in only 8.3% of the cases, suggesting that elective neck dissection is not indicated for lip cancer. Contralateral metastasis is extremely rare, but it is also managed with neck dissection. Following neck dissection the patients are usually referred to postoperative radiation therapy, depending on the pathohistological nodal status of the neck.

Local recurrence after initial therapy at our Department was 4.6%, and is comparable to literature reports of 5–15% of local recurrences[3,22,23]. It is managed by surgical re-excision, some of the patients requiring one of the flaps for reconstruction. Also the rate of regional recurrence (18%) among our patients is comparable to the one reported in the literature[3,19]. Regional recurrence cannot be adequately managed surgically; palliative radiotherapy is usually indicated in these rare cases. Perineural spread of squamous cell carcinoma of the lip has been documented in the literature and is responsible for rare cases of local recurrences[24,25]. We had three patients with local recurrence caused by perineural spread; unfortunately all patients have died of uncontrolled disease.

In our study we have separated patients that have been previously treated elsewhere from those that have been initially treated at our Department. The purpose was to examine whether there is any difference in local and regional recurrence and their outcome. Most of these patients had initially inadequate surgical resection. The percentage of local and regional recurrence among this group of patients was significantly higher, with 10% and 30% respectively. It could be explained by higher stage of the disease at the time of treatment at our Department, which of course decreases success of treatment. Furthermore, neck metastasis is negative predictive factor and it decreases survival about 50% (Figure 1).

In conclusion, preventive measures for lip cancer should be the same as for skin cancer, avoidance of UV radiation and use of protective sun creams. When lip cancer still develops, the key to successful treatment is early recognition and wide surgical resection with clear margins. Initial treatment is of most importance for local and regional control of the disease and prognosis. Although lip cancer is easy to diagnose, relatively large proportion of patients develop large infiltrative tumors with nodal involvement all of which decreases success of treatment. Lifetime follow-up is mandatory because of possible nodal metastasis or new primary skin cancers.

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LIJEČENJE PLANOCELULARNOG KARCINOMA USNE

S A Ž E T A K

Tumori usne su u 95% slučajeva planocelularni karcinomi. Nastaju u 95% slučajeva na vermilionu donje usne zbog veće izloženosti vermiliona donje usne direktnom, kumulativnom UV zračenju koje je glavni etiološki čimbenik u razvoju planocelularnog karcinoma usne. Napravili smo pregled svih pacijenata koji su liječeni zbog planocelularnog karcinoma usne na Odjelu za maksilofacijalnu kirurgiju, Kliničke bolnice »Dubrava«, od 1990 do 2007. Najčešći kirurški postupak je bila klinasta ekscizije usne sa ili bez vermilionektomije. Za ekstenzivnije tumore, nakon resekcije napravljena je neka od metoda rekonstrukcije sa lokalnim ili vrlo rijetko udaljenim režnjevima (Webster-Bernard, Karapandžić, slobodni režanj). Disekcija vrata je rađena samo u slučaju klinički evidentne metastaze. Iako su regionalne metastaze rijetke, kada se pojave značajno smanjuju petogodišnje preživljenje. Također smo utvrdili lošiju prognozu kod pacijenata koji su bili već ranije liječeni negdje drugdje, a došli su zbog kirurškog liječenja recidiva/rezidualnog tumora ili metastaze na vratu, u odnosu na pacijente koji su inicijalno bili liječeni na Odjelu za maksilofacijalnu kirurgiju.