Research Article

Resection Margins in Squamous Cell Lip Carcinoma According to the Tumor Site and Size

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Abstract

Introduction: Lip cancer is the most frequent malignant tumors of the oral cavity. Lip carcinoma could appear on precancerous lesions (such as radiodermitis, chronic cheilitis, xeroderma pigmentosum etc.) and is related with other risk factors like smoking, chronic alcohol consumption, immunosuppression, HPV infection etc. Materials and Methods: This study was conducted on a representative sample made of 164 patients diagnosed with squamous cell carcinoma and 62 patients with squamous cell lip carcinoma from 2010 to 2018 at the Plastic Surgery Compartment at the Emergency County Hospital of Braila. The incidence of squamous cell lip carcinoma increase in the last years from 20% in 2010 to 26% in 2018. This study analyses clinical characteristics and histopathological types of lip carcinoma, frequency of the squamous cell lip carcinoma, the relation between the resection margins and tumor size, types of local flaps used in the reconstruction of consecutive defects, local evolution and possible metastatic spread to the lymph node of the neck. Squamous cell lip carcinoma was located to the lower lip at 40 patients, to the comissure at 14 patients and to the upper lip at 8 patients. The youngest patient with squamous cell lip carcinoma was 22 years old. Results and Discussion: Lesions smaller than 1 cm were more frequent (62%) compared to the lesions which involved more than half of the lip (8%). For small tumors, under 1 cm, the resection margins was made at 4 mm, for tumors with sizes between 1-2 cm the tumor resection was performed 6 mm from the tumor margins and for large tumors, more than 2 cm, the resection margins increase to 1 cm. Early stage tumors were treated by direct suture with a very good prognosis. For advanced lesions we used a variety of flaps for lip reconstruction: Gillies flap, Abbé flap, Karapandzic flap, Mc Gregor flap, Estlander flap, nasolabial flaps (Fujimori and Ombredane) etc. Two patients return for commissuroplasty. We used a Converse flap and a Zisser flap. Conclusions: The successful reconstruction depends on preoperative planning according to the tumor site and size. Lymph node metastases significantly reduce long term survival. For a plastic surgeon the aesthetic appearance has the same importance like the functional results.

Keywords: Squamous Cell Lip Carcinoma; Incidence; Risk Factors; Resection Margins; Surgical Reconstruction; Survival Rate.

Introduction

Lip cancer is the most frequent malignant tumors of the oral cavity [1]. The squamous cell carcinoma is the most frequent tumor in the lower lip, on the red part, whereas the basal cell carcinoma usually involves the white upper lip. The lesion caused by squamous cell lip carcinoma is often asymptomatic and the clinical appearance is highly variable from a reddish skin plaque to an ulcerated lesion with hard raised edges. Squamous cell lip carcinoma are slow-growing, but occasionally, these cancers can have a behaviour more aggressively, spreading to regional lymph nodes at a relatively early stage [2]. The incidence in rural patients is higher compare to urban patients because of their outdoors activities. Long term exposure to sun radiation is directly involved in the pathogeny of facial cutaneous carcinoma [3]. Lip carcinoma
could appear on pre-cancerous lesions, such as radiodermatitis, chronic cheilitis, xeroderma pigmentosum etc. Most skin cancers are not caused by an inherited faulty gene that can be passed on to the next generation, but members of families have the same skin type, which may increase their risk of developing a skin cancer. Lip carcinoma is related with other risk factors like smoking, chronic alcohol consumption, immunosuppression, HPV infection etc [4]. Another possible risk factors are represented by over exposure to some chemicals such as coal tar, soot, pitch, asphalt, petroleum derivatives, paraffin waxes, arsenic etc [5].

Excision is undertaken with 4 mm margins for low risk and more than 6 mm for high risk lesions [6]. There is no randomised controlled study to show that Mohs technique is superior to conventional surgery [7]. Regarding the choice for lip reconstruction after wide excision, several issues should be considered including contour, texture, color, aesthetic units, donor site and the wishes of the patients. Early stage tumors treated by direct suture have a very good prognosis. For advanced lesions a variety of flaps could be used, according to the preoperative plan [8]. The percentage of patients with lymph node metastases increases considerably in advanced stage tumor. Lymph node metastases significantly reduce long term survival [9].

Materials and Methods

This study was conducted on a representative sample made of 164 patients diagnosed with squamous cell carcinoma and 62 patients with squamous cell lip carcinoma from 2010 to 2018 in the Plastic Surgery Compartiment at the Emergency County Hospital of Braila. This study analyses clinical characteristics and histopathological types of lip carcinoma, frequency, the relation between the resection margins and tumor size, types of local flaps used in the reconstruction of consecutive defects, functional results, local evolution and possible metastatic spread to the lymph node of the neck. We quantified the characteristic parameters represented by age, sex, residence, types of carcinoma, anatomical areas. The incidence in rural patients is high compare to the urban patients. The incidence in male patients is higher (58%) than female (42%). Squamous cell lip carcinoma was located to the lower lip at 40 patients (64.5%), to the comissure at 14 patients (22.5%) and to the upper lip at 8 patients (13%). The youngest patient with squamous cell lip carcinoma was 22 years old. Eight patients developed two types of cutaneous carcinoma at the same time in different areas.

Lesions smaller than 1 cm were more frequent (62%), compare to the lesions which involved more than half of the lip (8%). 96% of squamous cell lip carcinoma involve the vermilion. The successful of reconstruction depends on preoperative planning according to the tumor site and size. For small tumors, under 1 cm, the resection margins was made at 4 mm, for tumors with diameter between 1-2 cm the tumor resection is performed 6 mm from the tumor margins and for large tumors, more than 2 cm, the resection margins increase to 1 cm. Numerous techniques have been developed for lip reconstruction. The choice depend on the position of tumor and its extension level. Early stage tumors was treated by direct suture after V-shaped excision, with a very good prognoses. For advanced lesions we used a variety of flaps for lip reconstruction: Gillies flap, McGregor flap, Karapandzic flap, Abbé flap, Estlander flap, nasolabial flap (Fujimori and Ombredane) etc. Two patients return for commissuroplasty. We used a Converse flap and a Zisser flap. Suture must consider all anatomical planes, using separate absorbable threads for mucosa and muscular plane and nonabsorbable threads for skin. Lymph node metastases significantly reduce long term survival.

Results and Discussion

The distribution of patients with squamous cell carcinoma has revealed that the highest incidence of this type of cancer is recorded in person aged over 50 years. The incidence of squamous cell lip carcinoma increase in the last years from 20% in 2010 to 26% in 2018. Local flaps was the first option for the most patients with large tumors which requiring postoperative reconstructions. The reconstruction of postoperative defects depend on the position of the lesion and its extension level. The patients with early stage tumors recovered within 3 weeks after surgery with good long term aesthetic and functional results. Smaller lesions with diameter under 1 cm were most frequent (62%). In a few cases (8%) the lesions involved more than two-thirds of the lip. In 78% of cases a direct suture was performed, after V-shaped excision (Figure 1, 2).

Figure 1: 74 Year Old Woman with Lower Lip Carcinoma
In 14% of cases the lip reconstruction required the use of a single flap (Figure 3, 4). For near total lip defects (8% of cases) it was necessary to combine several flaps.

These flaps contained innervated muscle, have a good blood supply and motor function. The main disadvantage is the loss of saliva. The cross lip operation (Abbé flap) has an important role in improving the appearance of the lips by reducing tension and restoring lip balance, having the advantage of early sectioning of the pedicle and great flexibility, this flap can be used in combination with other flaps (Figure 7, 8, 9).
For tumors located in the central lower lip the Karapandzic flap, consisting in perioral advancement, remains a good option (Figure 10, 11).

The reconstruction of the commissure could be performed using a Brusari flap (Figure 12, 13, 14). Numerous technique have been developed for lip reconstruction, the choice depend on the position of tumor and its extension level. Early stage tumors treated by direct suture have a good prognostic, compare with advanced lesions who need for reconstruction complex technique under general anesthesia altering the appearance and the oral functionality.

Figure 10: Central Lower Lip Carcinoma in a 55 Year Old Man

Figure 11: Karapandzic Flap for Central Lip Reconstruction

Figure 12: Invasive Carcinoma at the Level of the Commissure in a 67 Year Old Patient

Figure 13: Intraoperative Aspect
The incomplete excision, young patients, presence of other comorbidities and local recurrences are associated with poor prognosis. Increasing the resection margins according to the tumor size, decreases the risk of recurrence. Radiotherapy is indicated after the tumor resection. Lymph node neck metastases significantly reduces long term survival [14]. The diagnosis of these tumors is facilitated by a direct view of lesions and the local invasion should be avoided. For a plastic surgeon the aesthetic appearance has the same importance like the functional results.

**Conflicts of interest statement:** The authors declare no conflicts of interests.

**References**