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# Squamous Cell Carcinoma of the Lip: Clinical Presentation and Management Outcome

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**Abstract** **Background:** Squamous cell carcinoma (SCC) is the second most common amongst skin cancers, following the basal cell carcinoma. SCC of the lip carries relatively better prognosis if detected early and treated adequately. Public awareness about the significance of early presentation would help to improve the outcome of management. **Objective:** The current study was conducted to determine the clinical presentation of lip SCC and management outcome with surgery as the primary treatment modality. **Methods:** This descriptive study was carried out at the National Institute of Rehabilitation Medicine, Islamabad over a period of seven years. All patients who presented with lip SCCs during the study period were prospectively included in the study. Non-consenting patients were excluded. The lesions were excised with 1-2-cm palpable macroscopic safety margins. **Results:** Out of 37 patients, there were 28 (75.67%) males and 9 (24.32%) females. The ages ranged between 47-79 years with a mean of 59.91±9.17 years. Lower lip was the most commonly affected site (n=30; 81.08%). The duration of the lesions at first presentation varied from 6-13 months with a mean of 7.32±1.79 months. Majority (n=31; 83.78%), of the patients had early stage (stage I and II disease) whereas 6(16.21%) patients had stage III disease. The margin clearance rate after initial excision of the lesions was 91.89%. Karapandzic flap was employed as reconstructive tool among 15(40.54%) patients. The 5-year overall survival rate was 62.16%. **Conclusion:** Lip SCCs were found more frequently among males aged over 50 years. Lower lip was the commonest seat of lip SCCs. Surgical excision with recommended safety margins was associated with tumor free margins in 91.89% cases. Karapandzic flap was the most useful reconstructive tool. The 5-year overall survival rate was 62.16%.

**Key Words** homocysteine, hyperhomocysteinemia, cardiovascular disease

## 1. Introduction

Skin cancers have been documented to be one of the commonest cancers. The incidence of SCC of the lip is estimated to be 0.4 in 100 000 people per year. The lip SCC accounts for 23.6-30 % of the entire oral cavity cancers. Generally the lip SCCs carry better prognosis as compared to other malignancies of the head and neck region. The 5-year survival rates exceed 80%. The age at the diagnosis, the anatomic locale of the lesion, the stage of the cancer and timely management are all important factors that contribute to the prognosis [1]–[3].

Several modalities are available to treat SCCs of the lip. These include surgery, radiotherapy, chemotherapy and various combinations of these modalities. The primary goals of treatment are complete removal of the tumor, prevention of recurrence and restoration of form and function of the critical anatomic locale of the face. Surgery constitutes the primary treatment modality for managing the lip SCCs. The reconstructive armamentarium ranges from wedge resection and direct closure to the use of local, regional and free flaps. Following surgical excision, the great majority of the resultant defects are amenable to reconstruction with local flaps. Neck dissection is a standard adjunct procedure for any associated regional nodal metastasis [4]–[6].

Given the visible anatomic locale, the lip SCCs are easily detectable. However, if neglected for long periods of time these tend to grow to large size, invade the underlying deep tissues and spread to the regional nodal basins. A variety of risk factor is known to predispose to the causation of lip SCCs. Among these, cumulative effect of exposure to the sunlight, smoking and alcohol consumption are thought to be the most significant ones. The SCCs of the lip have high survival rates. Several factors are recognized to contribute to the high survival rates. These include early detection of the cancer, access to healthcare facility and interventions

focusing on controlling the etiological factors such as the cessation of smoking and alcohol consumption [1], [3].

This study was conducted to document the clinical presentation of lip SCCs in our population and evaluate the outcome of surgical excision with recommended standard margins in terms of margin clearance rate after excision and survivorship at 5-years.

## 2. Materials and Methods

This descriptive case series was carried out at the National Institute of Rehabilitation Medicine (NIRM), Islamabad over a period of seven years. Written informed consent was taken from the patients. Being an observational study, it was performed in conformity to the Helsinki's declaration of 1975, as revised in 2008. Anonymity of the patients was guaranteed. Non-probability consecutive sampling was done. All patients who presented with lip SCCs during the study period were prospectively included in the study. The exclusion criteria included non-consenting patients.

Preliminary assessment of the patients were done with thorough history, physical examination and baseline investigations. The initial presumptive diagnosis of the lip SCC was made on the basis of the clinical characteristics of the lesions. Tissue diagnosis was made through incisional biopsies. The local extent of the tumor and nodal basin involvement were assessed with imaging studies such as magnetic resonance imaging (MRI) or computed tomography (CT) scan. The lesions were excised with 1-2-cm palpable macroscopic safety margins. Neck dissection was performed for any associated regional nodal metastasis.

The excision specimens were subjected to histological examination. Biopsies were also taken from the residual tumor bed and margins of the defect after excision of the tumors. Re-resections of the residual defects were performed later on if margins of the specimen were reported positive or if the excision biopsies from the tumor bed or margins showed the presence of tumor cells. As the study followed the protocol of excision with standard margins, initially the excisional defects were temporized with bolster dressings until the complete histology reports were available. Subsequently, reconstructions of the resultant defects were performed with direct closure or various flaps. Follow up of five years was ensured to document survivorship.

The demographic profile of the patients, history of sunlight exposure, history of using tobacco and alcohol, site of SCCs on the lip, duration of the lesion, clinical stage (TNM: I-II and III-IV), duration of hospital stay among the hospitalized patients, margin clearance rate at initial excision, type of reconstructive procedure undertaken, complications encountered and 5-years survivorship were all recorded. Figure 1 A-F shows an illustrative case of lip reconstruction.

The tumors were staged on the basis of the American Joint Committee on Cancer (AJCC)'s classification [7]. The T stage was based on the extent of the disease. Tumors were staged as T1 for size <2 cm; T2 for size >2 and <4cm; T3 for size >4 cm; T4a for invasion of the mandible or the maxilla; and T4b for invasion of the masticator space, pterygoid plates, or base of the skull and/or encasement of the carotid artery.


Figure 1: A-F showing an illustrative case of lip SCC. The resultant defect was reconstructed with Karapandzic flap

### A. Statistical Analysis

The data were analysed through statistical package for social sciences (SPSS) version 22. Various descriptive statistics were used to calculate frequencies, percentages, means and standard deviation. The numerical data such as age of the patient, duration of the lesion and duration of hospitalization were expressed as Mean ± Standard deviation. The categorical data such as the anatomic locales of the lip affected, flaps instituted and complications encountered were expressed as frequency and percentages.

## 3. Results

Out of 37 patients, there were 28 (75.67%) males and 9 (24.32%) females. Their ages ranged between 47-79 years with a mean of 59.91±9.17 years. 17(45.94%) patients had history of Huqqa smoking whereas none of the patients gave history of alcohol intake. Majority (n=29; 78.37%) of the patients were farmers or field workers by occupation with exposure to sunlight.

The anatomic locales of the lip affected included the lower lip (n=30; 81.08%), commissure (n=5; 13.51%) and upper lip (n=2; 5.40%).

The duration of the lesions at first presentation varied from 6-13 months. The mean duration of the lesion was 7.32±1.79 months. Majority (n=31; 83.78%), of the patients had early stage (stage I and II disease) whereas 6(16.21%) patients had stage III disease.

Over half of the patients (n=21; 56.75%) were admitted indoor for the surgical management. The duration of hospitalization ranged between 5-8 days with a mean of 6.80±1.12 days.

The margin clearance rate after initial excision of the lesions was 91.89%. Those with positive margins underwent re-resections of the affected margins before undergoing definitive reconstruction of the resultant defects.

Karapandzic flap was the reconstructive workhorse employed in the majority of patients (n=15; 40'54%). The other reconstructive procedures undertaken included direct closure of the barrel shaped excision (n=6; 16.21%), direct closure of the wedge defects (n=5; 13.51%), coverage with Abbe flap/ Estlander flap (n=5; 13.51%), Webster-Bernard operation (n=2; 5.40%), and miscellaneous regional flaps (n=4; 10.81%).

The share of postoperative complications observed were wound infection (n=3; 8.1%) and partial wound dehiscence (n=2; 5.40%). The 5-year overall survival rate was 62.16%.

## 4. Discussion

The exact incidence and prevalence data regarding lip SCCs are not available in our country as we have no tumor registry in Pakistan. However such data are regularly published in the developed countries [1].

In the current study the age range of the affected patients was 47-79 years. The published studies have reported variable age groups in this regard. Louredo BV from Brazil reported the age range between 22-104 years with a mean of 65.0 ± 13.5 years. Similar age group affliction has been reported from several other countries including the United States [2], [8], [9].

In the current study predominant involvement of males was observed. Our finding conforms to most of the published studies. They have also reported predominant affliction of the males with the lip SCC [3], [6], [8], [10]. More frequent involvement of males in outdoor activities and hence their exposure to intense sunlight may be one possible explanation for this higher incidence of the cancer among males.

The majority of our patients had the SCCs on the lower lip. This conforms to the findings of several published studies where the lower lip has been reported to account for over 80% of these cancers [2], [8]–[11].

In this study majority of the patients presented with over six months history of the lesions. This delayed presentation could be due to a number of factors. For instance, lack of awareness on part of the patients, lack of access to healthcare facilities, economic constraints in receiving health care, problems with public transport, social and cultural factors. Delay in case presentation or management, results in advanced disease and hence lower survival rates. Early presentation would lead to treatment at an earlier stage thus increasing the survival rates and reducing the associated morbidity [12], [13].

In this study majority of the patients were farmers or field workers by occupation and a great percentage of them were Huqqa smokers. A variety of risk factors have been reported in the published literature. Chronic exposure to the sun has been highlighted as major risk factor by several studies. . The time needed for sun-induced changes of the lip to evolve into cancer varies from 20 to 30 years, but such evolution can occur faster in some individuals. For instance, certain occupations that involve prolonged sun exposure to the face, such as farmers and fishermen. In the developed countries such as the US, smoking and alcohol consumption have been consistently identified as the risk factors. In the United States, where aggressive tobacco control programs have resulted in reduced tobacco use, a marked decline in the incidence rates of larynx cancer, hypopharynx cancer, and oral cavity cancer has been observed over the past 3 decades. Actinic or solar cheilosis has also been reported by some studies as a premalignant ulcerative lesion of the lip [14]–[16]. Several other risk factors have been reported to be associated with lip SCCs. These include male gender, advancing age, fair skin and cumulative effect of sun exposure.

In this study majority of the patients were in stage I and II disease. Louredo BVR et al8 from Brazil also reported that the majority of their lip SCC cases (83.3%) were at an early stage (I–II) on first presentation to the hospital. Studies from other countries such as the US and Serbia have also reported that majority of their lip SCC patients presented early with stage I-II disease [2], [8], [11].

In this study majority of the patients were managed with surgical excision of the tumors followed by reconstruction of the defects. Several published studies have reported similar surgical resection with wide local excision as the main treatment modality for addressing the lip SCCs [2], [8], [11]. Louredo BV et al reported that majority (72%) of their lip SCCs were managed with surgery alone, followed by radiotherapy alone in 7.1% cases and a combination of surgery and radiotherapy among 7% patients. The remaining patients didn't receive any specific therapeutic treatment [8].

Karapandzic flap was employed as the reconstructive workhorse in the majority our patients. The goals in dealing with such tumors include complete resection of the malignancy and restoration of form and function of the lip. As the competent and intact lip is crucial for the functions of speech, facial expression and eating, the lip reconstruction poses several challenges to the surgeon. The reconstructive options depend on the size and site of the defect, laxity of the remaining lip tissue and adjacent cheek and specific needs of individual patients.

In this study the 5-year overall survival rate was 62.16%. The overall 5-year survival rate reported from the US, Germany and Brazil were 69.9, 86.5% and 66.3% respectively [2], [8], [17]. In some studies the 5-year survival rate is reported to be nearly 90% [18]. The possible explanation for

this is that the lip SCC is usually diagnosed at an early stage and typically has a slow growth pattern. However, when the tumor has spread to the regional lymph nodes, the survorship falls to 50% [19].

## 5. Conclusion

Lip SCCs were found more frequently among males aged over 50 years. Lower lip was the commonest seat of lip SCCs. Surgical excision with recommended safety margins was associated with tumor free margins in 91.89% cases. Karapandzic flap was the most useful reconstructive tool. The 5-year overall survival rate was 62.16%. There is need for creating public awareness regarding the importance of early presentation to plastic surgeon and hence improved outcome of management.

## Patients' Consent

Informed consents were taken from the patients for inclusion of their photographs in the study.

## Conflict of Interest

None declared. The author has no financial and personal relationships with any organization that could create a conflict of interest with any material presented in the manuscript.

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