

Management of Squamous Cell Carcinoma of Tongue – A Review

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Abstract:

Oral squamous cell carcinoma implies quite significant mortality and morbidity rates. Oral cancer located in the mouth, tongue or oropharynx is a significant health problem throughout the world. Squamous cell carcinoma is the most common malignant neoplasm of the Oral Cavity, usually affecting individuals over 50 years of age. Oral squamous cell carcinoma (OSCC) is a multifactorial disease. It has a remarkable incidence worldwide and has fairly burdensome prognosis, encouraging further research on factors that may modify disease outcome. Several factors may trigger the activity of the squamous cells and may cause cancerous growth. This review describes the management of squamous cell carcinoma of tongue. various recent advances have been introduced in the management.

Keywords: Carcinoma of tongue, lymph nodes, glossectomy commando's operation

INTRODUCTION:

Oral squamous cell carcinoma (OSCC) is a multifactorial disease. It has a remarkable incidence worldwide and has fairly burdensome prognosis, encouraging further research on factors that may modify disease outcome [1]. It may occur in the buccal mucosa, tongue and oro pharynx in the oral cavity. The optimum structural and functional integrity of this muscular organ of the Human body is vital for the life of the suffering patients. The speech, swallowing and breathing is associated with integrity of the reconstructed tongue muscles after surgical resection [2]. The anatomical and physiological milking muscle action predispose to an early invasion and metastasis of tongue carcinoma [3]. The tongue remains the most common intraoral site for oral cancer worldwide. In contrast to other sites of oral cancer the incidence of the tongue carcinoma increasing in especially younger age group [4].

ETIOLOGY:

Some of the factors proved to be causative agents like tobacco, alcohol and human papilloma virus, the prognosis of disease is also determined by many other factors. These factors range from simple demographic factors to molecular markers, encompassing the clinical and histopathological factors.

DESMOGRAPHIC FACTORS:

The various desmographic factors include 1) Age

- 2) Gender
- 3) Race
- 4) Habits

AGE:

Increase in incidence of tongue cancer in young adults as compared to older adults of more than 40 years of age was found. Genetic susceptibility to environmental carcinogens may influence the risk for OSCC in young adults. While the correlation of prognosis with age seemed controversial, many others were able to demonstrate, a far worse prognosis in older individuals. It is generally held view that OSCC in young people are less aggressive and have a good prognosis [5].

GENDER:

The squamous cell carcinoma of the tongue is seen more commonly in males when compared to the females. The survival rates are more decreased in females than the males.

RACE:

The carcinoma of the tongue is more common in blacks than the white people. Most probably race does not interfere with the increase in the risk of the tongue carcinoma. Thus it does not play a major role.

HABITS:

The most common cause for the carcinoma of tongue is due to the adverse habits of the individuals. The important ones are betel quid chewing and keeping it in the buccal mucosa, smoking and use of smokeless tobacco products. Betel quid causes chronic irritation to the tissue present, then cause non healing ulcers in that region which develops as a ulceroproliferative growth or carcinomas [6].

These are the desmographic factors responsible for the carcinoma of the tongue. Other factors include 1) general medical conditions

2) Nutrition and life style changes

Improper dieting may lead to carcinoma of tongue. Prolonged consumption of foods rich in nitrites and nitrosamines such as preserved meats and fish increased a lifetime risk for the development of oral cancer. Consumption of fried or broiled foods and employment of microwave cooking increased the risks of oral cancer owing to the formation of heterocyclic amines [7].

Fruits and vegetables contain Vitamin C, carotene and other carotenoids which act as efficient antioxidants, prevent damage to chromosomes, enzymes, and cell membranes caused by the per oxidation of free radicals. The strongest protective effects were reported from citrus fruits and in vegetables those available as in raw form, such as fresh tomatoes, green peppers, carrots and thus pointed to a mechanical cleansing effect of raw fruits and vegetables on the oral cavity [8].

PATHOGENESIS:

- 1) Hyperplasia of the cells occur at the site
- 2) Which leads to the dysplasia if the cells
- 3) Differentiation of the cells takes place
- 4) Invasion occurs
- 5) Metastasis occurs in the cells
- 6) Formation of the ulceroproliferative growth

CLINICAL FEATURES:

Squamous cell carcinoma of the tongue tends to present as a non-healing ulcer, or as an outgrowth of tissue. Due to movement of the tongue during speech and mastication, pain is a common presenting symptom. The symptoms may be early and late.

Early

- Any white, red or speckled patch
- A non-healing ulcer or sore
- Any lump or thickening
- Persistent soreness or discomfort

Later

- Ulceration of the oral mucosa
- Swelling of any part of the mouth which may cause dentures to fit poorly or become uncomfortable
- Difficulty moving the tongue or jaw
- Difficulty chewing or swallowing
- Numbness of the tongue or other part of the mouth
- A lump under the lower jaw or in the neck
- Presence of palpable lymph nodes

SURVIVAL RATE:

“Survival rates have shown the percentage of people who live for a particular length of time after learning that they have cancer.” It included people at different stages like people who were free of disease, or who had few or no signs or symptoms of cancer, or people were receiving treatment for cancer [9]. The survival rate of females is less when compared to the males.

MANAGEMENT:

The various treatment options for the carcinoma of the tongue are

- 1) Surgical management
- 2) Radiotherapy
- 3) Chemotherapy
- 4) Targeted drug therapy

SURGICAL MANAGEMENT:

The surgical management differs from with involvement or without involvement of lymph nodes. The common lymph nodes involved are sublingual, submandibular and deep cervical.

WITHOUT LYMPH NODE INVOLVEMENT:

GLOSSECTOMY: The glossectomy is classified into 1) Hemi
2) Partial
3) Total

HEMI GLOSSECTOMY:

Only the tip of the tongue or 25% of the tongue will be removed. This is done in case of small lesions [10]. This is an operation to remove part of the tongue and adjacent tissues. At the same time, reconstructive surgery is performed to restore normal appearance and speech. A tracheostomy may be performed to assist breathing postoperatively, and a skin graft may be needed to replace removed tissue. Carried out under general anesthesia, the procedure may take several hours.

PARTIAL GLOSSECTOMY:

The whole half of the tongue or 50% is removed. This is done if the carcinoma does not cross the midline [10]. A partial glossectomy is an operation to remove part of the tongue. This operation is carried out in the mouth, under general anaesthetic, in the operating theatre. When you look inside the mouth after the operation you will notice that a portion of the tongue where the tumour was is missing. The tongue edge may be repaired by stitching it with dissolvable stitches, or it may left open to heal naturally.

TOTAL GLOSSECTOMY:

The whole tongue is removed it is done in severe cases of carcinoma which tends to cross the midline [10]. This is the removal of the entire tongue, including the base of the tongue. This results in severe dysfunction with swallowing and resultant aspiration (food and liquids falling into the lungs). A total glossectomy is performed along with a total laryngotomy in order to prevent aspiration and pneumonia. A total glossectomy will require a major reconstructive surgery.

WITH LYMPH NODE INVOLVEMENT:

COMMANDO'S OPERATION:

This involves hemi glossectomy, hemi mandibulectomy, floor of the mouth and radical neck dissection. Radical neck dissection involves removal of the lymph nodes [11]

RADIOTHERAPY:

Radiation therapy is administered to cancerous tissues of the tongue, using a high dose with pinpoint accuracy, sparing healthy tissue and shortening procedure times [12].

CHEMOTHERAPY:

Often combined with radiation therapy, chemotherapy uses anticancer drugs to destroy cancer cells throughout the body. It may be an option if the cancer has spread to nearby lymph nodes. Different chemotherapy drugs can be combined to attack cancer cells at varying stages of their growth cycles and decrease the chance of drug resistance [13].

TARGETED DRUG DELIVERY:

Targeted drug therapy targets cancerous cells to interfere with cell growth on a molecular level. It is often combined with chemotherapy and/or radiation therapy as part of a tongue cancer treatment plan [14].

CONCLUSION:

This review tells about the squamous cell carcinoma of tongue, it involves etiology, pathogenesis, clinical features and management. The management of tongue carcinoma has improved vastly when compared to the previous treatment methodologies. Advances like radiotherapy, chemotherapy plays a major role in the treatment. Even though recent advances are present surgical method of removal is very important in the treatment. This concludes the management of squamous cell carcinoma of tongue.

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