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Management of Squamous Cell Carcinoma of the Floor of the Mouth

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Abstract: ***Oral carcinoma (OC), a serious disease which causes great morbidity and mortality in the population. While OC has a lower incidence than other malignant tumors, the mortality and discomfort to the patient as a consequence of either the tumor itself or of the treatment itself is relatively higher. The oral squamous cell carcinoma is the most common malignant tumor of the lip, oral cavity and oropharynx (90% of the cases). In oral cavity, squamous cell carcinoma of floor of mouth begins in the anterior area as red or white spots, plaque or nodular, ulcerated lesions and indurated It is non tender at early stages although the mobility of tongue is impaired. It progresses from the surface to the underlying tissues, invading the floor of the mouth muscles, the sub mental, submaxillary and cervical nodes. 85% - 90% of patients affected with SCC of floor of the mouth were predominantly smokers and drinkers.***

Keywords: Oral squamous cell carcinoma, floor of mouth, submaxilla

1. Introduction

Oral carcinoma (OC), a serious disease which causes great morbidity and mortality in the population. While OC has a lower incidence than other malignant tumors, the mortality and discomfort to the patient as a consequence of either the tumor itself or of the treatment itself is relatively higher.[1] The oral squamous cell carcinoma is the most common malignant tumor of the lip, oral cavity and oropharynx (90% of the cases). In oral cavity, squamous cell carcinoma of floor of mouth begins in the anterior area as red or white spots, plaque or nodular, ulcerated lesions and indurated.[2]It is non tender at early stages although the mobility of tongue is impaired. It progresses from the surface to the underlying tissues, invading the floor of the mouth muscles, the sub mental, submaxillary and cervical nodes. 85% - 90% of patients affected with SCC of floor of the mouth were predominantly smokers and drinkers.[3]

2. TNM Classification and Staging

According to the literature, the first classification of malignant tumors is Pierre Denoix's (1994) Tumor Node Metastasis (TNM), based on the extend of primary tumor (T), involvement of regional lymph nodes (N) and metastasis at distance (M). This classification also applies to oral squamous cell carcinoma.[4]

TNM CLASSIFICATION:
T1 - Primary tumor less than 2cm;
T2 -Primary tumor 2 to 4 cm in diameter and up to 2cm thick;
T3 - Primary tumor greater than 4cm or fixed to the periosteum of the mandible;
T4 - Primary tumor with massive invasion of tongue or mandible.
N0 – No metastatic neck adenopathy palpable;
N1- Unilateral metastatic adenopathy and mobile nodes;
N2 – Bilateral or contralateral adenopathy and mobile nodes;
N3 – Unilateral or bilateral adenopathy and fixed nodes.
M0 – Absence of distant metastasis;
M1 – Presence of distant metastasis.
Based on TNM groupings, four stages of OSCC are obtained:
Stage I: T1-2 N0 M0 (Small primary tumors with no metastasis)
Stage II: T3-4 N0 M0 and T1-2 N1 M0 (Large primary tumors with no metastasis or small primary tumors with early metastasis to the cervical lymph nodes)
Stage III: T1-3 N1 M0 (Large primary tumor with involvement of nodes)
Stage IV: Any T, Any N and M1 (Large primary tumor with metastasis to cervical lymph nodes and to distant sites).

Proper classification and staging allows the physician to determine the treatment more appropriately, evaluate results of management more reliablyand compareWorldwide statistics reported from various institutions.[5]

3. Nodal Metastasis

Nodal metastasis frequently occurs with squamous cell carcinoma of the floor of the mouth (from 11 to 53%). It also considerably lowers the survival rate. Hence neck treatment has a prominent role in the management of SCC of floor of the mouth.[6] Despite the high incidence, poor prognosis and abundant literature, correct surgical management of these tumors is not still been adequately explored.

Lymph node involvement was evaluated by dividing the lymph nodes of the neck into seven regions. The cervical region I lymph nodes was most frequently involved in N+ patients and it also showed bilateral involvement preoperatively and contralateral occult metastases was found after surgery.

The treatment option for N+ patients is radical resection of the area involved. The extent of resection was determined by the extent of tumor; a margin of 1cm of non-involved tissue was usually considered to be safe practice.[7]

Predictive Value of Tumor Thickness

For the reason of occult metastasis, the assessment of the impact of tumor thickness using an optical micrometer to measure the thickness in millimeters of the excised tumors in routinely prepared paraffin sections was performed.. Disease-related death appears to be unusual when oral tumors are thin (2 mm or less), regardless of the tumor stage.[8]Multivariate analysis confirms that increasing tumor thick- ness, rather than tumor stage, had the best correlation with treatment failure and survival.

4. Management of Squamous Cell Carcinoma

Surgical Procedures

Surgery and radiation, alone or in combination are the most primary curative modalities of treatment for squamous cell carcinoma of the floor of the mouth. For disease limited to a small primary tumor, the treatment neither with surgery or radiation is enough but for more advanced disease, surgery or a combination of surgery and radiation appears to be more successful than radiation alone.[9,10]Surgical procedures vary with the stage of squamous cell carcinoma.

Stage Of Squamous Cell Carcinoma	*Surgical Procedure*
Stage I	Peroral Excision.
Stage II	Peroral Excision and Ipsilateral Supra hyoid neck dissection.
Stage III	Excision, Ipsilateral radical neck dissection and Contralateral SHD.
Stage IV	Excision and Bilateral Radical neck dissection.

Regardless of which treatment is used, the most common sites of treatment failure reported are the primary site or neck. According to the literature, 81% of treatment failure was identified within 24 months of treatment. In early stage disease, treatment failure was minimal when compared with advanced stage diseases.[11] Neck failure occurred simultaneously with failure at the primary site in 10% of patient with early stage disease and in 30% of patients with advanced disease. 50% of neck recurrences were contralateral to the primary tumor.[12]

5. Surgical Management Involving Neck

Tumors with nodal involvement (N+ lesions), a neck dissection should be performed. It should be a bilateral dissection because of the higher incidence of contralateral metastases and it should be extended when there are signs of extracapsular diffusion.[13]

According to the literature, in initially staged N0 patients who developed an N+ neck after surgical treatment of T, the cervical metastases in levels IV and V was observed. In case of lower jugular lymph nodes (region IV) and posterior triangle lymph nodes (region V) involvement, radical neck dissection is the most appropriate treatment.[14]

With N- lesions, management of neck dissection is controversial because of the high rate of occult metastases. Hence a prophylactic selective supraomohyoid neck dissection is suggested; the dissection should be unilateral in the case of lateral lesions and bilateral in the case of median lesions.[15]

6. Conclusion

Oral squamous cell carcinoma has a bad prognosis and survival time is short in spite of the technological advances applied to treatments. Most patients go to the consultation only in the advanced stages therefore the rate of early diagnosis of cancers is not improved over time.

Oral cavity cancers can be detected easily with a simple oral examination when compared to other cancers which require elaborate screening tests for their conformation.[16]

Squamous cell carcinoma is related to preventable risk factors. Therefore, doctors should strongly discourage all their patients from smoking and drinking excessively. Furthermore, intensive public promotion and educational campaigns are imperative to increase patient awareness.[17]

Dental professionals have an important role both in primary prevention of oral cancer by inducing healthy life styles and in secondary prevention by detecting oral cancer or its precursor lesions at early stages.

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