Oral Cancer

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Key points

- (OSCC) is the first and second most common cancer in males and females of Pakistan
- Risk factors include tobacco, areca nut, betel leaf, poor dental hygiene practices, oncogenic viral infections and genetics
- Biopsy for staging and grading

Every patient with oral cancer presents the treating clinician with a unique set of challenging, complex and multidisciplinary clinical problems, the solutions to which impact both their survival and quality of life.1

The management of cancers of the oral cavity is very complex due to the functional and aesthetic implications of treatment of tumors in this region. Several important functions such as breathing, speech, deglutition, sight, smell, taste, mastication and jaw function, can be impaired either temporarily or permanently by the tumor or its treatment. The management of cancers of the oral cavity is very complex due to the functional and aesthetic implications of treatment of tumors in this region. Our facial and dental aesthetics are important in determining our self-esteem and self-confidence. A tumor in the oral cavity or its treatment can severely affect the self-esteem of a person because of poor aesthetics.

Dentists play a vital role in the management of oral cancer, by detecting premalignant lesions, early detection of oral cancer, management of the oral cancer, surveillance of recurrent or new primary tumors, and rehabilitation of missing teeth or any other defect in that matter.

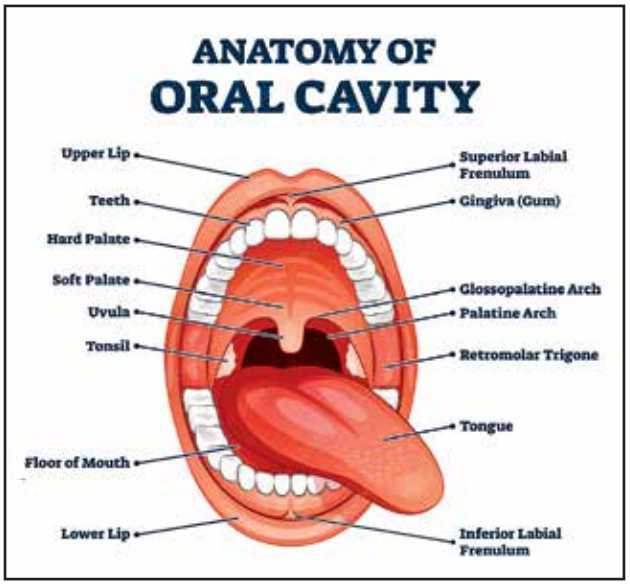

Figure 1; the seven subsites of the oral cavity. (onlinelibrary.wiley.com)

The oral cavity is defined as the anatomical space extending from the junction of the soft and hard palate and the circumvallate papillae of the tongue to the vermillion of the lips. There are seven oral cavity subsites that are used to classify the oral cavity cancer (lip, tongue, floor of mouth, buccal, hard palate, alveolar, retromolar trigone and soft palate).1

Epidemiology

Oral squamous cell carcinoma (OSCC) is the first and second most common cancer in males and females of Pakistan respectively.2 The incidence rate of oral cancer in Pakistan is more than 10 per 100,000 population, and 8-10% of cancers diagnosed in the country were attributed to oral cancer.3 The 'Oral Carcinoma Research Project' JPMC, gave a prevalence rate of 50/100,000 4. The commonest age group involved by carcinoma was the 50-54 years age group.4

Risk factors

The main risk factors in the Pakistani population include the usage of chewable and non-chewable tobacco, areca nut, betel leaf, poor dental hygiene practices, oncogenic viral infections, and genetic predispositions. Low socioeconomic status and the inadequate health resources have a negative impact on the management of oral cancer.3

Diagnosis and staging

The diagnosis of oral cancer is dependent on obtaining a sample of tissue from the lesion, a biopsy. Ideally, the biopsy should be done by an Oral & Maxillofacial Surgeon. Broadly speaking, there are two types of biopsies that can be employed, incisional and excisional. In almost all situations, an incisional biopsy is favored, at the margin of

the lesion with 'normal' tissue, at an adequate depth for the pathologist to assess invasion of the tumor (SCC) through the lamina propria. The diagnosis of other malignancies in the oral cavity (e.g. lymphoma) may require not just histopathological analysis (biopsy in formalin), but require fresh tissue to be sent for additional tests (e.g. flow cytometry).1

Tissue sample (biopsy) is sent to histopathology lab for the histopathological analysis done by an oral pathologist. All maxillofacial surgeons involved with oral cancer will have a close relationship with an oral pathologist. Re-biopsy is done if the clinical behavior of the lesion is not in accordance with the diagnosis from the initial biopsy.

Once the tissue diagnosis has been established, the treating surgeon will arrange appropriate radiologic scans to radiologically stage the tumor: i.e. to assess the primary tumor dimensions and invasion of adjacent structures, cervical node involvement, and whether there are distant metastases. The imaging modalities commonly used in oral cancer evaluation are computed tomography (CT), magnetic resonance imaging (MRI), ultrasound (US) and positron emission tomography (PET) to stage the cancer. An orthopantomogram (OPG) is useful for assessment of the dentition as well as evaluation of mandibular height in the event that part of the mandible will need to be removed due to involvement or close proximity to the cancer.

CT scans of the head/neck/chest are excellent investigations for the assessment of cortical destruction, potential cervical node metastases and pulmonary metastases.

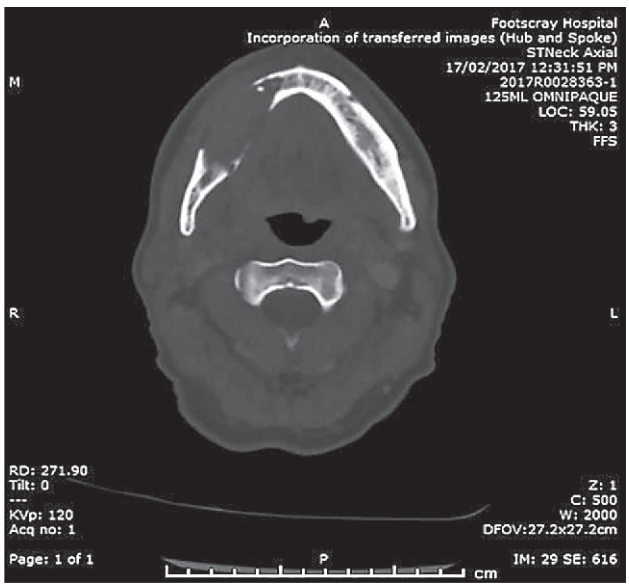

Figure 2; Axial CT of the mandible with bone windows showing cortical destruction of the right body of the mandible. (onlinelibrary.wiley.com)

Staging

Staging is done according to the American Joint Commission of Cancer (AJCC) Cancer Staging Manual .Staging of the oral cavity cancer follows the TNM classification: T = tumor, N = nodal status, M = metastases

Disease Category	Defining Characteristics
Primary Tumor of Oral Cavity	
Tx	Primary tumor cannot be assessed
T0	No evidence of primary tumor is seen
Tis	Primary tumor is carcinoma in situ
T1	Primary tumor has a maximal diameter of 2 cm or less
T2	Primary tumor has a maximal diameter of more than 2 cm but no more than 4 cm
T3	Primary tumor has a maximal diameter of more than 4 cm
T4a	
Lip	Primary tumor involves cortical bone, inferior alveolar nerve, floor of the mouth, skin
Oral cavity	Primary tumor involves cortical bone, intrinsic or extrinsic muscles of the tongue, maxillary sinus, skin
T4b	Primary tumor involves masticator space, pterygoid plates, skull base, internal carotid artery
Primary Tumor of Oropharynx	
Tx	Primary tumor cannot be assessed
T0	No evidence of primary tumor is seen
T1	Primary tumor has a maximal diameter of less than 2 cm
T2	Primary tumor has a maximal diameter of 2–4 cm
T3	Primary tumor has a maximal diameter of more than 4 cm
T4a	Primary tumor involves the larynx, intrinsic or extrinsic muscles of the tongue, medial pterygoid, hard palate, mandible
T4b	Primary tumor involves lateral pterygoid muscle, pterygoid plates, lateral nasopharynx, skull base, carotid artery
Regional Metastasis	
Nx	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis is evident
N1	Ipsilateral single enlarged node with a maximal diameter of less than 3 cm
N2a	Ipsilateral single enlarged node with a maximal diameter of 3–6 cm
N2b	Ipsilateral multiple enlarged nodes with a maximal diameter of less than 6 cm
N2c	Bilateral or contralateral enlarged nodes with a maximal diameter of less than 6 cm
N3	Enlarged node with a maximal diameter of more than 6 cm
Distant Metastasis	
M0	No distant metastasis is evident
M1	Distant metastasis is evident

Table 1; TNM staging for tumors of oral cavity and oropharyngeal squamous cell cancer.

Principles of management

1. Surgery: Resective surgeries are done to remove the primary tumor and then reconstructive surgeries are done to minimize the morbidity of resection.
2. Radiation therapy: It involves the use of ionizing radiation to destroy or damage cancer cells. Post-operative radiation therapy is often indicated but depends on the final histopathological result and stage.
3. Chemotherapy: It is done in addition to radiation therapy if extracapsular extension of the nodal disease is identified. Common drug protocols include cisplatin or Epidermal Growth Factor inhibitors such as cetuximab.1

Summary

Oral cancer is a challenging disease with high mortality rates. Dentists play a crucial role in the management of patients. Prevention through education about smoking cessation and safe alcohol consumption is critical, detection and early referral of premalignant lesions and oral cancers and ongoing surveillance, follow up and preservation of oral health are just a few of the many roles of the dental practitioner in the management of oral cancer. Each and every patient with oral cancer should be managed within a multidisciplinary team specialized in the management of head and neck tumors.1

References

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