

## Current Dental Approach to Oral Cavity Cancers

### Oral Kavite Kanserlerine Güncel Dental Yaklaşım

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#### ÖZET

Ağız kanserleri sık görülen malignitelerdendir. Tüm kanserler arasında %5 gibi bir oranı teşkil eder. Erken teşhis tedavide başarı oranını önemli ölçüde arttırabilir. Bu konuda diş hekimlerine önemli görevler düşmektedir. Tedavi cerrahi, radyoterapi, kemoterapi veya birkaçının kombinasyonu şeklinde olabilir. Ağız içi kanserlerinde tedaviye bağlı meydana gelen oral komplikasyonlar tedavi sırasında veya hemen sonrasında akut olarak gelişebilir. Hastalara oral hijyenin önemi, alacağı kanser tedavisine bağlı gelişebilecek komplikasyonlar detaylarıyla anlatılmalıdır. Ağız kanserleri ve tedavisi genel sağlık ve yaşam kalitesini olumsuz etkileyebilecek çok sayıda yan etkilere neden olabilir. Oluşabilecek yan etkileri minimum düzeye indirmek için tedavi öncesi, tedavi sırası ve sonrasında diş hekimine ve hastaya önemli görevler düşmektedir.

**Anahtar kelimeler:** Ağız kanserleri, komplikasyonlar, hijyen

#### ABSTRACT

Oral cancers are frequent types of malignities. They constitute %5 of all the cancer types. Early diagnosis increases the chances of success in the treatment. Dentists have the most important role in diagnosing the cancer in the early stage. Surgical, radiotherapy, chemotherapy or the combination of these options are the possible and probable treatments. In oral cancer types, treatment related oral complications may occur post-treatment or during the treatment acutely. Patients need to be informed on the importance of the oral hygiene and the possible complications caused by the cancer treatment chosen for them. Oral cancers and the treatments for them may cause various side effects which can affect the quality of the overall well-being and the lives of the patients in a bad way. Therefore, dentists have the greatest responsibility in minimizing the possible side effects of the chosen treatment.

**Key words:** Oral cencers, Complications, Hygiene

#### INTRODUCTION

##### Oral Cavity Cancers

##### Epidemiology

In the estimations made based on 20 different geographical regions in the world, in 2002. It has been reported that there are 10.9 million new cancer cases. 2/3 of them are found in males including oral cavity cancers of 274.000 (Parkin, 2005). Oral cavity cancers are considered as an important health problem in the world. They rank sixth among cancer-related deaths (Ferlay, 2010). World Health Organization (WHO) reported it as the eighth most common cancer type by the Oral cancers that are more common in men (Peterson 2005). In recent studies, the incidence, mortality and morbidity

rates reported to be noticeably higher in developing countries compared to developed countries (Ferlay, 2010; Krishna Rao, 2013).

Oral cancers have been frequent types of malignities. They form the most frequent subgroup of cancer that may occur in the areas close to the head and the neck (except for nonmelanoma skin cancer). Oral cavity consists of lips, buccal mucosa, palate, the tongue (some anterior part of the lip), the arcus of the upper and the lower teeth, retromolar trigon and the hard palate. Oral cancers constitute %5 of all the cancer types. According to the analysis of the GLOBOCAN database, 300.400 people were diagnosed lip-oral cavity cancer and 145.400 oral cavity tumors related deaths were recorded in 2012

(Torre, 2015). According to the analysis for the year 2018, it was recorded that the number of the patients suffering from the same disease rose up to 354.864 and the number of the deaths related to the very same disease rose up to 177.384 (Bray, 2018).

### Ethiology and Risk Factors

The etiology of oral cancers is multifactorial. Despite this, the strongest factors are excessive smoking and alcohol consumption. Also, specific to the southeast Asian region 'Betel leaf' chewing, is also an important factor (Lin, 2011). Smoking and alcohol use leads to cancerisation field of mucous membranes. Cancerization field ranging from premalignant formations to strong malignant changes includes epithelial changes. This situation can lead to cancer formation followed by multiple primary cancer. Cancer risk is directly proportional with the amount of cigarettes and alcohol consumed. Even the use of both together makes this rate increase even higher. It is reported that Tobacco contains more than fifty carcinogenic substances (Oztürk, 2009).

**Table 1:** Classification of oral cancers (Ord,200)

Oral Cancers	Sub-groups
Epidermoid Carcinoma	squamos cell carcinoma verrucous carcinoma spindle cell carcinoma basaloid carcinoma adenosquamous cell carcinoma basosquamous carcinoma
Salivary gland carcinoma	polymorphosis low grade adenocarcinoma mucoepidermoid carcinoma adenocystic carcinoma
Lymphoma	non-hodgkin lymphoma hodgkin lymphoma burkitt lymphoma
*Sarcomas	rhabdomyosarcoma, oesteosarcoma fibrosarcoma, chondrosarcoma lyposarcoma, neurofibrosarcoma fibrous histiocytoma Angiosarcoma kaposi's sarcoma
*Metastatic tumor	-----
*Melanomas	malignary melanomas
*Multiple myeloma	-----

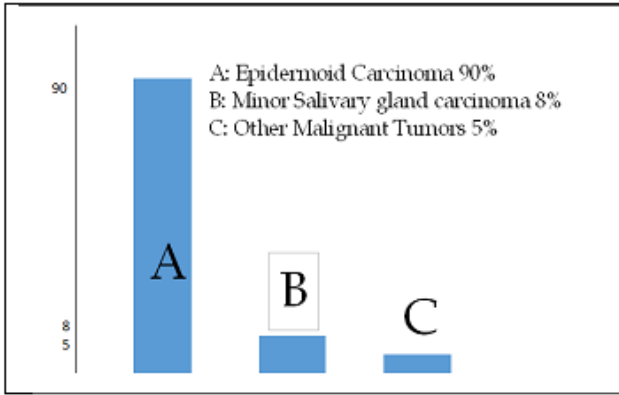
\*Rare Cancer of the oral cavity

Other factors that may play a role in oral cavity cancers are Human Papilloma, Virus (HPV), diet, chronic actinic exposure, Plummer-Vinson syndrome, Fankoni anemia (FA) and positive family history (Oztürk, 2009).

### Classification of Oral Cavity Cancers

The definition of oral cancers is described in lips, cheek mucosa, base of the mouth, gingiva, hard palate, soft palate, retromolar triangle and the 2/3 mobile part of the tongue(Baserer 2003). These carcinomas and variations constitutes about 90% of the oral cancer. %5-10 is created by the minor salivary carcinomas and the rest of it is created by tissue sarcomas, malignant melanoma, Non-Hodgkin lymphomas and other malignant tumors (Karadeniz, 2000; Cawson. 2002; Ord, 2000).

Classification of oral cancers are originated according to the tissue and it's shown schematic table 1 and the percentage of occurrence are shown according to their types in figure 1 (Ord 2000).



**Figure 1:** Distrubition of oral cavity by types (Ord, 2000)

### Diagnosis and treatment: current approaches

**Surgical treatment;** it is the oldest method in cancer treatments. In nowadays tumors are surgical removed as it's possible to maintain and function the normal structure of the normal cavity. This method still offers the chance to cure the best today, especially in cancers without distant metastases (The Oral cancer Foundation 2017).

**Radiotherapy;** is a method applied with ionizing radiation. This method is used in the treatment of solid tumors associated with its environment. Besides cancer cells, healthy cells can also be damaged during treatment. But healthy cells can continue on their functions by repairing themselves (The Oral cancer Foundation 2017).

**Chemotherapy;** It is a method using chemicals, and one of the most important technologies used in the treatment of cancers especially metastatic cancer (The Oral cancer Foundation 2017).

Although oral cancers have been developed new diagnosis and treatment methods It is one of the lowest cancers in an annual survival rate. The most important point to remember is early diagnosis of all cancer cases as it plays a major role in oral cancers as well. It's the early diagnosis result that shows that the incidence of morbidity and mortality is very low and the patient's postoperative comfort is greatly

improved (Bettendorf, 2004). There are three main forms of the treatment of oral cavity cancers: Surgical treatment, radiotherapy and chemotherapy. Besides the positive effects of these treatments it is a known fact that they can also damage healthy cells. For this reason, in recent years intensive studies are carried out on treatment methods that can be applied without harming healthy cells. This brings us to the other applications and treatment methods that have been applied in recent years including immunotherapy, biotherapy, biological response modifiers therapy, cancer vaccine, gene therapy, monoclonal antibody therapy, immunotherapy and tumor growth factors (The Oral cancer Foundation 2017).

A %18 increase in the number of the patients diagnosed the same disease in the past years, is so remarkable. It is commonly known and accepted that excessive use of tobacco and alcohol is primary cause of these cancers.

Since the oral cavity and the tissue around it are at an anatomical area where can be examined easily, dentists have tremendous roles in early diagnosis. However, as most of the patients can not notice the symptoms, most of the cases can only be diagnosed at the late stages which unfortunately make the treatment harder. Early diagnose considerably increases the chances of recovery.

In the treatment of oral cavity tumors, the primer approach is the surgery. In the case of the existence of risk factors in the advanced stage diseases, Radiotherapy is used for the definitive treatment when adjuvant radiotherapy and surgery are not possible options in the early stage diseases. In cases of existence of high-risk factors, chemotherapy can be compounded with adjuvant radiotherapy as part of the treatment (Özkaya 2019). The patients with mouth cancers, who get chemotherapy and radiotherapy, may experience various oral complications related to the treatment. The most common complications are; pain, mouth dryness, difficulty while talking and gulping or

chewing, trismus and esthetics problems (Balık, 2019).

It is essential to inform the patients and their relatives on the possible problems and complications during the period of treatment. Even though quality of life is multi-factoral and subjective, being aware of the possible problems and keeping them under control at all times, increases the living standards of the patients during the treatment (Beech, 2014). The possible oral complications that may be experienced by the patients in this period, are individual and the severity of the problems depend on the stage of the disease however in any scenario, the efforts on keeping the functions of the teeth and the mouth at a certain level, effects the period of treatment in a good way and makes it easier for patients to adopt to the social life and to increase the quality of life.

#### **Dental evaluation for oral cavity cancers prior to treatment**

Just like in all cases, the very first thing that has to be done in the treatment of the oral cavity cancers, is to learn about the patient's medical and dental history which must be followed by an extensive dental and periodontal evaluation to take out the irritated and sensitized areas. All the teeth must be examined extensively, and periapical radiographies must be had afterwards. The patient must be educated on the importance of the mouth hygiene and informed on the complications that may occur due to the cancer treatment. Before the dentists start the cancer treatment, they must scale the calculus extensively and make sure that there is no plaque or inflammation left on the gingival or on the teeth. Patients can start to use %0.2 chlorhexidylglukonat mouthwash twice a day for one week before Radiotherapy and Chemotherapy (Joyston-Bechal 1992). Because the radiotherapy and chemotherapy treatments sensitize and weaken the soft tissue, all the sharp dentures and the teeth which have the potential to cause problem, must be

reformed moreover decayed teeth must be restored. All the teeth with periodontal pocked over 5mm depth and with an open furcation area must be extracted. By the way in the endodontic evaluation also the teeth with periapical lesions should be extracted.

Tooth extraction and the rest of the treatment types should be carried out as atraumatic as possible and before starting a radiotherapy treatment, the period needed for recovery after the tooth extraction should be taken into consideration. This period of recovery time is mostly between 10 days and 3 weeks. After all types of dental treatments, local flour practices should be applied for prophylactic purposes (Rothstein, 2005).

#### **Dental evaluation for oral cavity cancers during and post treatment**

In oral cancer treatments, oral complications related to the treatment may occur acutely during or after the treatment. Face defects caused by muscles extracted through surgical therapy, spaces related to the bone extraction, irregularity in talking and swallowing, difficulty with breathing and the use of the prosthesis may be experienced.

In chemotherapy and radiotherapy treatments, decline in the quality of the saliva caused by salivary gland damage, deformity in mucositis and palate related to the epithelial damage, oral inflammations caused by the flour changes, dental cavities, reduce in the mouth opening and osteoradionecrosis in the chin may be observed (Jham, 2008).

The hygiene of the mouth is crucial for these patients. The patients should be informed on the importance of the hygiene and should be advised to carry out their Daily care twice as much. They can preferably use soft-bristled brush. In some cases, brushing may be too painful therefore in case of a need, patients can use clean with a dampened gauze patch or chlorhexidine mouthwash that doesn't contain alcohol to clean the teeth and the soft tissue.

%80 of the patients who get radiotherapy treatments experience oral mucositis after 7-10 days of treatments and the effects last for months. Cell deaths and no renewability of mucosa may be observed due to the same effect. The most common problems that oral mucositis may cause are; difficulty with eating, drinking, talking and feeling severe pain. In this stage, patients need to be careful and cautious about what they eat and drink and keep their mouths clean at all times. They need to stay away from hard, acidic and spicy food and prefer warm, cold and soft food. The use of alcohol and tobacco must be prohibited. Benzzydamine which is an anti-inflammation, non-steroidal and an anesthetic mouthwash should be prescribed and started to be used by the patients 2-3 weeks prior to the radiotherapy treatment and keep the continuity during and after the therapy treatment. Mouthwash can be used 4-8 times a day. For cases of severe pain, Lidocaine Viscose can be prescribed in order to be used before meals (Sonis, 2004; Kielbassa, 2006).

For the patients who get chemotherapy and radiotherapy, the probability of oral candida inflammation related to the decline in the amount of saliva and immunosuppression increases. They generally appear as white lesions in erythematous and atrophic area. This may cause difficulty with gulping, bad breath smell and burning sensation. As soon as a patient is diagnosed with oral candida, the patient must be prescribed antifungal medications. Nystatin, Fluconazole, oral suspension or Itraconazole can be applied topically. These can also be applied on the surfaces of the prosthesis (Soysa, 2004).

Mouth dryness and decline in amount of saliva caused by cell deaths in salivary glands observed a couple of weeks after radiotherapy treatment is started and it may not improve even after the treatment finishes. Mouth dryness affects the ability to talk, taste, chew and swallow in a bad way. Moreover, the risk of developing tooth decay and oral infections such as fungal infection and gingivitis

increases (Porter, 2010). These patients should be recommended to sip cold water, sugar and acid free drinks. Sugar-free gum can be chewed for the stimulant effect on the saliva production. Artificial saliva can be prescribed for the patients with teeth in order to prevent acid erosion.

The fibrosis that occurs around the muscles that enable us to chew may cause trismus after the radiotherapy treatment that targets oral cavity. Therefore, as soon as the radiotherapy treatment is started, patients must be given exercises to do on daily basis that help them keep their mouth opening and the mobility of the jaw in order to prevent trismus or must be directed to a physiotherapist.

Osteoradionecrosis (ORN) simply means the bone's loss of complete functionality in recovering irreversibly and fast related to the stricture in the vascular system, decline in the speed of blood flow and in the number of osteocytes. It is mostly common in mandibular. It occurs a few years after the radiotherapy treatment. It has been recorded that the prevalence of ORN is between %4 and %44. The dose of radiotherapy the speed of the dose and the area where the treatment is applied to, are the contributing factors of the possibility to develop ORN.

Patients who get exposed to less than 4500-5000 cGY in radiotherapy treatment, have less risk. The lack of oral hygiene, the use of alcohol and tobacco are the factors that affect the progression of the disease. The clinical findings are; pain, orofacial fistula, exposed necrotic bone, suppuration and pathologic fractures. In most cases, we can achieve recovery through conservative treatment in 6 months which is to use anti-biotics, debridement. In cases which need further operation, the conservative treatment is combined with resective surgery and hyperbaric oxygen therapy (Harrison, 2003).



## CONCLUSION

Mouth cancers and their treatments may cause a lot of various side effects which can affect health of the patients in a negative way. Dentists and the patients have the biggest responsibilities minimizing the side effects that may appear before, during and after the chosen treatment. This exceptional and difficult period can be got over with minimum damage through cooperation with patient and the doctor which help patients keep their wellbeing at the highest level. Therefore, patients and their families need to be informed and educated on the stages and the complications which may be experienced, before the treatment is started. Another important point is to make it more common to diagnose the diseases at early stages by encouraging the society to get regular controls which will make it possible to have a high percentage of success. Besides resolving dental problems, dentists have big responsibilities diagnosing the mouth cancers along with the

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cancers that occur around head and neck area and managing the process of treatment.

Good anamnesis and effective clinical and radiographic examination with the cases being diagnosed in an early period is the only way to reach the results that could draw a smile on your face. And for this reason it's a very important task for dentists to diagnose the cases seen in the oral cavity before it increases. Early diagnosis and accurate inventions would seriously affect the success of the treatment. Prognosis can be good in these cases like oral cancer before the tumor growth and especially before it spreads to the neck lymph. Dentists can do classic examinations like palpation and with any suspicious situation they can get help from methods like toluidine blue, exfoliative cytology, fluorescence and chemiluminescence imaging to get a definitive diagnosis (Leston, 2010; Sadık, 2012).

Another important issue is to inform patients about oral cancers, and with this condition taking steps towards early diagnosis by creating awareness in the society.

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