



The Role of Dentists in Prevention and Early Detection of Oral Cancer

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ABSTRACT

Oral cancer is among the 10 most common cancers worldwide. It has a good prognosis when detected at an early stage yet half of the patients diagnosed with oral cancer have advanced stage disease, for which prognosis is poor. Although most oral tumors are preceded by pre-malignant lesions, the asymptomatic nature of oral cancer, diagnostic delay, and the possibility of hidden tumors, limit the ease at which oral cancer is detected early. This fact underlines the importance of a methodical approach in the examination mucosa of every patient seeking dental consultation as the reliable method for early detection of oral carcinoma. Therefore, Dentists have a pivotal role to play in contributing to the prevention and early detection of oral cancer thus helping to reduce the morbidity and mortality from this terrible disease.

KEYWORDS : Oral Cancer, Prevention, Screening.

INTRODUCTION:

Oral cancer has one of the lowest 5-year survival rates of the major cancers. For advanced cases, the 5-year oral cancer survival rate is 18%, compared with 76% for localized lesions. 'Oral Cancer' includes cancer of the lip, tongue, mouth, oropharynx, piriform sinus, hypopharynx and other ill-defined sites of the lips, oral cavity and pharynx. These oral cancers are heterogeneous and arise from different parts of the oral cavity, with different predisposing factors, prevalence, and treatment outcomes. The variation in incidence and pattern of oral cancer is due to regional differences in the prevalence of risk factors. But since oral cancer has well-defined risk factors; these may be modified giving real hope for primary prevention. Despite the fact that the oral cavity is accessible for visual examination and that oral cancer and premalignant lesions have well-defined clinical diagnostic features, oral cancers are typically detected in their advanced stages. Early detection would not only improve the cure rate, but it would also lower the cost and morbidity associated with treatment.

RISK FACTORS:

Anything that increases the chance of getting a disease is called a risk factor. Having a risk factor does not mean that patient will get cancer; not having risk factors doesn't mean that there is no chance for cancer. Risk factors for oral cancer include the following.

1. **Tobacco use:** Tobacco smoking is a recognized risk factor. Other forms of tobacco use such as cigar, pipe, shisha and smokeless tobacco chewing have been considered etiologic factors as well.
2. **Alcohol:** Heavy consumption of alcoholic products has been associated with increased risk of oral cancer. It is believed that alcohol potentiates the effect of other carcinogenic agents.
3. **Betel quid:** Betel quid is an important risk factor in some populations. Many people in Southeast Asia, South Asia, and others parts of the world chew betel quid, a leaf from the betel plant wrapped around areca nut and lime. Chewing gutka, a combination of betel quid and tobacco, is also common. Both of these substances are associated with an increased oral cancer risks.
4. **Pre-existing mucosal lesions:** While the majority of cases of oral cancer appear in the clinically normal mucosa. Some oral carcinomas are preceded by premalignant changes. Leukoplakia Erythroplakia has the potential for malignant transformation. A wide range of mucosal alternations falls within the rubric of leukoplakia. Proliferative verrucous leukoplakia represents a relatively new type of leukoplakia that is separate from the more common or less innocuous form of this condition. Erythroplakia is particularly relevant considering its almost certain relationship with dysplasia or invasive carcinoma.
5. **Infections:** Human papillomavirus (HPV) infection appears to be a risk factor for younger populations. HPV and Candida in-

fection have been suggested as etiologic factors of oral cancer, however, the role of these factors is still inconclusive

6. **Sunlight:** Ultra-violet light is an important etiologic factor in lip cancer particularly in fair skinned individuals.
7. **Genetic conditions:** People with certain syndromes caused by inherited changes (mutations) in particular genes have a high risk of mouth and throat cancer. These include
8. **Fanconi anemia** – a genetic disorder that can affect children and adults from any ethnic background. It is also called Fanconi's syndrome. People with Fanconi anemia are short, have bone changes, and are at risk of developing cancers, leukemia, and bone marrow failure (aplastic anemia)
9. **Dyskeratosis congenita** – a genetic syndrome that can cause aplastic anemia, skin rashes, and abnormally shaped fingernails and toenails. People with this syndrome have a high risk of developing cancer of the mouth and throat when they are young
10. **Nutritional deficiencies:** Nutritional deficiencies produce atrophy of oral mucosa and hence enhance the effect of carcinogens.

PREVENTION OF ORAL CANCER:

PRIMARY PREVENTION:

Primary prevention eliminates exposure to the risk factors or cancer causing agents. Dentists should identify those patients with a risk factor for oral cancer, and explain what they are doing and take the opportunity to provide information about oral cancer and its risk factors at routine dental visits. The real challenge lies in motivating children and young adults to quit the habit of chewing betel quid/gutka/tobacco. As gutka, chewing is the primary cause of Oral Submucous Fibrosis (OSF) a condition which is debilitating and potentially cancerous. The high malignant potential of OSF is well established. Smoking is one of the main causes of oral cancer so primary prevention is one of the best interventions to reduce the risk of oral cancers by minimizing the use of tobacco.

SECONDARY PREVENTION:

Secondary prevention consists of screening programmes to detect and treat precursors of oral cancer thus preventing or reducing the incidence of highly invasive cancers. Effective screening can detect invasive cancers very early and thus improve the likelihood that treatment will be successful. The precancerous lesions and conditions of oral cancer are a ray of hope in prevention. Squamous cell carcinoma will develop from antecedent dysplastic oral mucosal lesions if an early diagnosis has not been made and treatment given. Early diagnosis within stages I and II correspond to a vastly improved 5-year survival rate when compared with more advanced stage III and IV lesions. The cost effectiveness of secondary prevention depends on many factors including the costs of diagnostic tests, the prevalence of disease and the availability of effective treatments.

TERTIARY PREVENTION:

Dentists in primary care also have a role in tertiary prevention, working as part of an oral cancer management team to prevent recurrence and further primary cancers in patients already treated for oral cancer. Treated patients will still have dental needs which dentists will monitor to maintain life quality. There may be special needs as well prevention of caries by topical fluoride application, dietary advice, help with managing a dry mouth, and prosthetic rehabilitation following surgery and radiation therapy, for example. It can be a great convenience for patients to have an easily-accessible source of dental advice and help, to reduce the need for visits to a possibly remote specialist centre, but if patients are to be helped in this way there must first be good working relationships with the specialists concerned.

ORAL CANCER SCREENING AND EARLY DETECTION:

The aim of preventive screening for early detection of oral cancer is to screen individuals for pre-cancerous conditions which are lesions such as leukoplakia. Screening tests are given when patient has no cancer symptoms. Screening for oral cancer should include a thorough history and physical examination done during routine dental visit. When abnormal tissue or cancer is found early, it may be easier to treat. By the time symptoms appear, cancer may have begun to spread.

SIGNS AND SYMPTOMS OF ORAL CANCER:

Possible signs and symptoms of these cancers can include:

- A persistent sore in the mouth that does not heal (most common symptom)
- Persistent pain in the mouth that doesn't go away (also very common)
- A lump or thickening in the cheek
- A white or red patch on the gums, tongue, tonsil, or lining of the mouth
- A sore throat or a feeling that something is caught in the throat that doesn't go away
- Trouble chewing or swallowing
- Trouble moving the jaw or tongue
- Numbness of the tongue or other area of the mouth
- Swelling of the jaw that causes dentures to fit poorly or become uncomfortable
- Loosening of the teeth or pain around the teeth or jaw
- Voice changes
- A lump or mass in the neck
- Weight loss

If lesions are seen in the mouth, the following procedures may be used to find abnormal tissue that might develop into oral cancer:

1. *Toluidine blue stain:* A procedure in which lesions in the mouth are coated with a blue dye. Areas that stain darker are more likely to be cancer or become cancer.
2. *Fluorescence staining:* A procedure in which lesions in the mouth are viewed using a special light. After the patient uses a fluorescent mouth rinse, normal tissue looks different from abnormal tissue when seen under the light.
3. *Exfoliative cytology:* A procedure to collect cells from the lip or oral cavity. A piece of cotton, a brush, or a small wooden stick is used to gently scrape cells from the lips, tongue, mouth, or throat. The cells are viewed under a microscope to find out if they are abnormal.
4. *Brush biopsy:* The removal of cells using a brush that is designed to collect cells from all layers of a lesion. The cells are viewed under a microscope to find out if they are abnormal.

Referral of these lesions to a specialist will result in an early definitive diagnosis and treatment if indicated. Even though accurately predicting malignant transformation for precancerous lesions displaying dysplasia is not currently possible, these lesions require special attention and particular management strategies depending on the site, grade of dysplasia and patient risk. The value of screening programs may not be solely limited to the detection of oral cancer. Screening opportunities should also be utilized to improve patient awareness about the relationship between risk factors and their role in prevention. Patients with complaints lasting longer than 2-4 weeks should be referred promptly to an appropriate specialist to obtain a definitive diagnosis. If the specialist detects a persistent oral lesion, a biopsy should be performed without delay.

CONCLUSION:

In conclusion improving prognosis of patients with oral carcinoma can only be achieved by careful examination of oral mucosa by dentists to achieve early detection of malignant and premalignant lesions, prompt performance of biopsy to reach final diagnosis. Dentists should be active in the primary prevention of the disease, and to raise awareness of oral cancer among patients. Five-year survival rates have not improved over past decades and this has mainly been attributed to delays in detection. Early detection, diagnosis and treatment significantly enhance survival rates and reduce morbidity.

REFERENCES

- 1) S. El-Mofty, Early detection of oral cancer, Egypt. J. Oral Maxillofac. Surg. 2010;1:25- 31 (ISSN: 2090-097X) | 2) Sankaranarayanan R. Screening for cervical and oral cancers in India is feasible and effective. Natl Med J India 2005;18: 281-284. | 3) Wright JM. Oral precancerous lesions and conditions. Semin Dermatol 1994;13:125-131. | 4) C Scully, JV Bagan, C Hopper, JB Epstein Oral cancer: current and future diagnostic techniques - Am J Dent, 2008 - amjdent.com | 5) L. M. Carter1 & G. R. Ogden2 , Oral cancer awareness of general medical and general dental practitioners. British Dental Journal 203, E10 (2007) Published online: 13 July 2007 | doi:10.1038/bdj.2007.630 | | 6) Khan Z. An Overview of Oral Cancer in Indian Subcontinent and Recommendations to Decrease its Incidence.. WebmedCentral CANCER 2012;3(8):WMC003626 doi:10.9754/journal.wmc.2012.003626 | 7) B. Dave, Why do GPs fail to recognise oral cancer? The argument for an oral cancer checklist. British Dental Journal 214, 223 - 225 (2013) Published online: 8 March 2013 | doi:10.1038/sj.bdj.2013.214