

Oral Cancer: Initial Diagnosis Influences Final Prognosis

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Sir,

Cancer is the second most common cause of morbidity and mortality in the world today after cardiovascular problems. Six million people die due to cancer every year. It is estimated that by 2020 there will be 15 million new cases every year.[1] Cancer is a group of diseases characterized by the uncontrolled growth and spread of abnormal cells. If the spread is not controlled, it can result in death. Cancer is caused by external factors, such as tobacco, infectious organisms, and an unhealthy diet, and internal factors, such as inherited genetic mutations, hormones, and immune conditions. These factors may act together or in sequence to cause cancer. Most cancers of the oral cavity are oral squamous cell carcinomas (OSCC), and tobacco, alcohol and betel use the main risk factors for these and many potentially malignant lesions (PML). [2,3]

Oral cancer most commonly involves the tongue, floor of the mouth, buccal mucosa, gingiva and lips. In many Asian countries, especially India, chewing betel, paan and Areca are known to be risk factors for developing oral cancer. Several studies have been done in the past regarding the factors behind the diagnostic delay of Oral Squamous Cell Carcinoma (OSCC) but early detection of it still remains disappointingly constant over recent decades. OSCC can be a small problem in numerical terms, but it is considered as a highly lethal disease in world population.[4] These oral cancers are heterogeneous and arise from different parts of the oral cavity, with different predisposing factors, prevalence, and treatment outcomes. It is

the sixth most common cancer reported globally with an annual incidence of over 300,000 cases, of which 62% arise in developing countries. 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.[1]

With early detection and timely treatment, deaths from oral cancer could be dramatically reduced. The 5-year survival rate for those with localized disease at diagnosis is 83 percent compared with only 32 percent for those whose cancer has spread to other parts of the body. Early detection of oral cancer is often possible. Tissue changes in the mouth that might signal the beginnings of cancer often can be seen and felt easily.[5] An early detection of these cancers helps in better and faster treatment for improving the prognosis to some extent.[6]

Detecting oral cancer in its early stages dramatically affects survival rates compared with detecting it in later stages. With increased technological advances, the dental profession has developed an oral cancer screening device that aids in early detection. Screening for cancer involves looking for cancerous cells or pre-cancerous conditions before any symptoms are present and thereby help and prevent this deadly disease. An oral cancer screening device should be quick, easy and convenient.[7]

Conventional oral examination (COE) involves visual inspection of the oral cavity and tactile examination of head and neck lymph nodes by a medical or dental practitioner. However, even with meticulous follow up, early malignant changes are still overlooked using COE [8] as dysplasia may be found in clinically normal mucosa.[9, 10] While a recent meta-analysis reported 93% sensitivity for COE, specificity was poor at only 31%. Therefore, COE cannot reliably differentiate between benign and dysplastic lesions and this is most likely due to the fact that a number of benign conditions mimic oral malignancies.[9]

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Oral cancer screening through fluorescence technology is an easy and rapid approach for screening the patients visiting to dental office. Fluorescence technology is an optical (or light) based technology that facilitate the dentist to shine a blue light that can potentially identify oral cancer, pre-cancer, and other abnormal lesions at an earlier stage. Fluorescence is a unique property where a material produces a longer wavelength and lower energy light than the absorbed light. In particular, tissue autofluorescence has recently shown promise as an adjunctive diagnostic tool. Fluorophores within the oral epithelium and stroma absorb UV and visible light and can re-emit some of this light at longer wavelengths in the form of fluorescence. When the reflected illumination light is blocked with an absorbing filter, it is possible to visualize the longer wavelength fluorescence even with the naked eye. Autofluorescence originates from a variety of fluorophores in the oral cavity, and is sensitive to alterations in both tissue morphology and biochemistry associated with neoplasia.[11,12]

OralID is commercially available device to visualize loss of tissue autofluorescence associated with precancer and cancer in the oral cavity. OralID uses a proven, optically based technology called "fluorescence technology." OralID's fluorescence technology uses a blue light (435–460 nm) that allows a clinician to identify oral cancer, pre-cancer and other abnormal lesions at an earlier stage. OralID is a battery-operated, hand-held oral examination light used as an adjunctive device for oral mucosal screening. The device emits a visible blue light (435–460 nm) that one shines directly into the oral cavity. The incorporation of OralID in the first-line practice settings, such as dental offices and primary health care settings may be a boon to population for their regular check up for early detection of pre malignant lesions.[13]

With advances in the oral cancer scenario globally; it has become more challenging to suppress the deaths related to late detection of oral cancer. Regular screening of oral cancer in dental examination is more often over looked both by the patient due to inconvenience in the examination process and also the time span for its diagnosis. This problem is more serious in developing countries with huge population, where there is marked increase in number of oral cancer patients every year. In this scenario, the autofluorescence based oral cancer screening devices like OralID seems to be perfect fit. These screening devices are very convenient, economical and result oriented.

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