



CHRONIC IRRITANT DUE TO SHARP TOOTH AND DENTAL PROSTHESIS CAN CAUSE ORAL-CANCER- AN UNTOLD FACT

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ABSTRACT

Background: Oral mucosa could host many lesions originated by chronic mechanical irritation (CMI) from sharp teeth or dentures, and it has been proposed as risk factor for oral cancer. Nevertheless, the features of CMI factors in oral cancer and other lesions are not assessed. the aim of this study is to describe CMI features regarding type (dental, prosthetic, and/or functional), localization as a cause of oral cancer.

Material and methods: a case-control study was carried out from 2016 to 2018. Study group were squamous cell carcinoma cases; control group was patients seeking dental treatment in the same institution.

Results: 100 patients diagnosed with oral cancer were studied. Groups were divided into two groups. Group 1 as tobacco users and Group 2 as a non-tobacco users

Conclusions: CMI could be regarded as a risk factor for oral cancer. In individuals with other OC risk factors, proper treatment of the mechanical injuring factors (dental, prosthetic and functional) could be an important measure to reduce the risk of oral cancer.

KEYWORDS : Oral Cancer, Sharp Tooth, Risk Factors, Chronic Mechanical Irritation, Case-control Study.

Introduction –

Oral cancer is a significant world health problem: it is the sixth most common cause of cancer-related death worldwide.^{1,2}

The aetiology of oral cancer is primarily linked to tobacco use, alcohol consumption and betel use and combinations of these habits.³⁻⁴

Human papillomavirus (HPV) infection is implicated in oropharyngeal cancer, and ultraviolet light is implicated in lip cancer. Oral cancer is almost always preceded by some potentially malignant disorders (PMDs).⁵ These PMDs can be detected for up to 15 years before their change to an invasive carcinoma. It usually affects between the ages of 15 and 40 years. India alone accounts for 1/3rd of the world's oral cancer and has a high rate of PMD.^{6,7}

It has been estimated that around 43% of cancer deaths are due to predisposing factors such as smoking, smokeless tobacco, betel nut in quid form (pan), alcohol, spicy food. these are some very well known causative agents to cause the oral cancer, but on data research on the internet, very few studies have been done on focusing the sharp tooth and the constant mucosal irritation (CMI) from the dental prosthesis as a causative factor for the occurrence of oral cancer specially in the patients with no history of tobacco or alcohol use.

So, the Aim of this study is to describe CMI features regarding type (dental, prosthetic, and/or functional), localization as a cause of oral cancer.

Materials and Methods

The cross-sectional study was done in the department of oral pathology department of IGGDC, Jammu. About 100 patients diagnosed with the oral cancer of different grade by the oral pathologists of the same department were clinically examined and detail questioning were done regarding the tobacco and alcohol habits.

Clinical data were registered in a specific clinical form (sociocultural, genetic, environmental, anthropometric, medical, and dental). Oral cavity inspection was performed by previously calibrated dentists, through visual inspection and palpation of oral mucosa, teeth, and prosthetics devices (removable/ixed). Dysfunctional and parafunctional habits were also registered.

Results

A total of 100 patients were examined, of which 100 (21 females, 79

males) with a mean age of 52.7 years. Out of 100 patients, 12 (12%) gave no history of any bad habit of smoking or chewing tobacco or alcohol use. they told that they never use these type of substance in their entire life. But on oral examination we found, three (3%) patients out of 100 were having sharp tooth, mostly the molars, for which they were no aware of.

Out of 100 patients, 9 patients were having some kind of dental prosthesis in the oral cavity which was the reason of constant irritation to the mucosa. we also found that the tongue and the buccal mucosa are the most common two sites in our study.

Discussion

Concerning gender, BIML and CTU groups had more females, in contrast with a slight prevalence of males in OC group. his could be because women usually seek professional attention more often than men, besides the historical predominance of males in oral cancer.⁸

Regardless of smoker and/or drinker conditions, CMI was found in significant statistical relation with OC, in both the bivariate and the multivariate analysis.

When the causative factor of a CMI lesion is addressed it typically heals, disrupting microenvironment inflammation conditions that foster carcinogenesis. If cancer develops from a CMI lesion, likely the original traumatic lesion would tumor growth. This situation is not uncommon due to delay that arises in oral cancer diagnosis.^{9,10}

Our results are in accordance with the study done by Piemonte et al. Who indicated CMI as an oral cancer independent risk factor, taking into account dental, prosthetic and also functional factors. This last one promotes mucosal damage increasing contact and strength of a mechanical cause, e.g. sharp teeth. Hence, it may be needed more than a defective tooth/denture to produce a mechanical irritative lesion, but also a functional alteration (swallowing disorders, tongue biting, etc.) that increases contact. This could explain why defective teeth, a rather common feature in populations with limited access to dental services, has not been associated with oral cancer in epidemiological studies.^{11,12}

In the present study, we also support the fact that defective teeth itself was not in relation to CMI. This fact further supports the notion that more than defective teeth or denture is needed to generate CMI, emphasizing the importance of functional factors. Therefore, it is important to note that defective teeth/dentures itself is an insufficient criteria to assess mechanical irritation because the sole

The constant mucosal specially the tongue and buccal mucosal area initially cause the ulceration to the specific area and if the patients will ignore this constant irritant either due to sharp tooth, dental prosthesis, or sharp edge of orthodontic wires, this further lead to the non-healing ulcer and can turn into a oral-cancer.

Conclusion

CMI associated lesions are produced by dental or prosthetic factors, typically in association with functional factors: among them, tongue interposition is the most common.

CMI affects mainly tongue and buccal mucosa, although it could generate lesions in virtually any oral localization. Even so, evidence of the association between OC and CMI is still scarce. Thus, more epidemiological and bio- molecular studies that delve into CMI and oral carcinogenesis are needed.

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