

Evaluation of Incidence of Premalignant and Malignant Lesions by Mirror Image Biopsy in Oral Squamous Cell Carcinoma

Rahman QB1* and Bajgai DP2

Chairman, Department of Oral and Maxillofacial Surgery, Bangabandhu Sheikh Mujib Medical University, Shahbag, Dhaka, Bangladesh

Email: billuromfs@gmail.com

Oral cancer in early stages is often ignored by society mainly due to its asymptomatic nature. Usually, such cancer gets discovered when it has metastasized to other locations, especially to the lymph nodes. The prevalence of above cancer is increasing worldwide and throughout the world, oral cancer ranks 6th among the malignant diseases. Oral cancer among of the head and neck malignancies constitutes 85% prevalence. It is more prevalent in western countries and Southeast Asian countries. The 5-year survival rate of such disease is 75% if diagnosed early, but in cases where metastasis has already taken place it comes to 35%, with an average 5-year survival rate of 50%. Alcohol, tobacco chewing, smoking, betel quid chewing, trauma and HPV viruses are implicated as the predisposing factors of OSCC. These agents on repeated infliction bring about DNA mutation promoting proto-oncogenes to oncogenes and interfere tumor suppressor genes which result in uncontrolled cell growth and proliferation signaling mechanisms. Even after complete primary tumor excision up to histopathologically negative margins and subjecting to multimodality treatment therapy such as radiotherapy and chemotherapy, it may recur or manifest as second primary tumors within months to years. As Slaughter discovered satellites of epithelial dysplasia near the primary tumor, he proposed the concept of field cancerization. The hypothesis of metacentric neoplasia is explained by this concept. Oral cavity including the upper aerodigestive tract is described as the preferential site for occurrence of multiple primary tumors. Second primary tumors are identified by Warren and Gates criteria which describe them as arising topographically separate lesion, must be malignant and of the same histopathological type as that of index tumor and probability of being a metastasis should be ruled out. The cancer field may not be progressing in a concentric fashion, but it can

develop into one or more of the three processes; the sub mucosal spread of initially formed clone, implantation of the cancer cells via saliva and development of a new clone independently. The presence of second primary tumor lowers the survival rate of cancer patients, and loco regional management of primary also does not prevent the risk of appearance of second synchronous and metachronous tumors. The data was taken only from the patients who were later surgically treated in the department. After the patients were anesthetized for the surgical procedure, an incisional biopsy was taken from two sites maintaining all aseptic precautions. The first site was from the primary tumor and second from the healthy appearing mirror image contralateral site, and both the biopsies harvested by the same operator. Biopsy samples were standardized in terms of size and orientation. The biopsy samples from the both sites were fixed in 10% buffered neutral formalin in separate hard glass test tubes, labeled and sent for histopathological evaluation to the department of pathology BSMMU. Findings from the primary lesion were tabulated as well differentiated, moderately differentiated, poorly differentiated and anaplastic. The findings from mirror image site were recorded for dysplasia, carcinoma in situ and frank malignancy. The morphological features like erythroplakia, leukoplakia were also recorded, however dysplasia, carcinoma in situ and frank malignancy were considered as primary study variables. Our study included 44 patients of ages from 28 to 76 years with single, unilateral, histopathologically confirmed oral squamous cell cancer. The mean age range of all patients was 55 ± 10.71 years. Out of total patients, 20 (45.5%) were males and 24 (54.5%) were females; with the male female ratio of 0.8:1.28 (63.6%) of the total patients were older than 50 years whereas 16 (36.6%) were equal or below 50 years of

age. Our present study has quantified the incidence and the type of field change that occurred in the clinically normal-looking oral mucosa of patients presenting with single primary oral squamous cell carcinoma with the help of histological evaluation of 'mirror image' biopsies taken from the contralateral anatomical site. Head and neck cancer is not the regional mucosal disease, can affect any part of aero digestive tract with different predilection rates for different sub sites and one site involvement rate independent of other. Hough the incidence of second field tumors is at the rate of 3.6% per year in aero digestive tract), neither precise nature of genetic alterations nor the structural changes leading to the development of carcinoma are until well established [1,8]. Our present study goes in favor with the study done by Tabor, et al. in 2001 who demonstrated loss of heterozygosis in non-contiguous mucosa biopsies by microsatellite markers on chromosomes 9p, 3p and 17p. He study group consisted of 44 unilateral, single, histologically confirmed primary oral squamous cell carcinoma patients, out of which 45.5% were males and 54.5% were females with the male to female ratio being 0.8:1. His M: F ratio is not consistent with the Rahman, et al. (2014) who demonstrated the ratio to be 1.5:1 in oral SCC patients attending a tertiary hospital in Bangladesh, and 3.4:1 by Maria, et al. in 2001 in oropharyngeal cancer in American population. Our finding that M:F ratio of 0.8:1 is unique because that study did not account for betel nut chewing habits of oral cancer patients

From our study, it can be concluded that clinically normal appeared mirror image oral mucosa in oral cancer patients may already have developed dysplasia which has the potential to turn to malignancy due course of time. Mirror image biopsy could be valuable and cost effective diagnostic tool to detect these changes at the earliest, which can be helpful for taking necessary measures to digress the malignant transformation. Hose patients were presented with dysplasia, recommended to avoid the predisposing factors and be remaining under regular follow up.