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Loss of Heterozygosity (LOH) on Chromosomes 2q, 3p and 21q in Indian Oral Squamous Cell Carcinoma

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Abstract: Around the world, 200,000 people a year are affected by oral cancer, and the incidence of this disease is 10 times higher in India than Japan, mainly due to the custom of chewing tobacco. Loss of heterozygosity (LOH) on the long arm of chromosome 2 (2q), the short arm of chromosome 3 (3p) and the long arm of chromosome 21 (21q) are observed in several human cancers. We identified novel tumor suppressor loci on these regions in primary oral squamous cell carcinomas (OSCCs) in Japanese. However, there has been no detailed analysis of LOH on these chromosomes in Indians. In the present study, we investigated LOH at 2q, 3p and 21q using 9 microsatellite markers in 26 Indian OSCCs. LOH was detected in 25 (96.2%) out of 26 informative samples at one or more of the loci examined. On the basis of the results, two commonly deleted regions were identified and a detailed deletion map was constructed. In the first region, a high frequency of LOH was observed at the D3S1007 locus (53.8%) on 3p25, which is located in the region neighboring the *VHL* (von Hippel-Lindau) gene. In the second region, LOH was concentrated at the D3S966 locus (50.0%) on 3p21.3, suggesting the presence of a putative tumor suppressor gene (TSG) associated with OSCCs. These results strongly suggest that there are at least two candidate TSGs located on chromosome 3p, and that alteration in them is associated with the tumorigenesis of OSCCs.

Key words: Oral squamous cell carcinoma, Loss of heterozygosity (LOH), Chromosome 2q, Chromosome 3p, Chromosome 21q

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