

## A Comparative Analysis of Human Papillomavirus Infection in Tonsillar, Glottic and Tongue Cancers

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**Background** : Human papillomavirus (HPV) infection is controversial as a causative factor in head and neck cancers despite the relatively high frequency of HPV infection in extragenital organ cancers. We aimed to examine the prevalence and physical status of HPV in 182 cases of head and neck cancers.

**Methods** : In order to clarify whether HPV directly affects the oncogenesis and biologic behavior of head and neck cancers, 52 palatine tonsillar cancers (PTCs), 94 glottic cancers (GCs), and 36 tongue cancers (TCs) were analyzed using an HPV genotyping chip, real-time PCR, and comparative analysis for tumorigenesis of HPV with phenotypes.

**Results** : We observed a significant difference in HPV prevalence among the cancers examined. HPV was detected in 73.1% (38/52), 7.4% (7/95), and 36.1% (13/36) of PTC, GC,

and TC patients, respectively. Of the HPV-positive tumors in head and neck cancers, HPV-16 is the single most common type. The remaining tumors were infected by non-16 high-risk types, such as HPV-18, 33, 35, and 58. GC and TC were occasionally associated with low risk types 6 or 11, but none of the PTC patients were infected with a low-risk type of HPV. HPV-16 was most consistently integrated in PTC samples, while it was mostly episomal in GC. TC with HPV infection resulted in less stromal invasion and more favorable outcome.

**Conclusion** : HPV-16 integration may be directly related to PTC carcinogenesis, which initiates in the tonsillar crypts, and to early-onset TC, while HPV appears to be coincidentally associated with GC.