

Prevalence of antibodies against herpes simplex and adenovirus in oral and cervical cancer patients—a preliminary report

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A total of 277 serum samples from oral cancer patients (111), cervical cancer patients (66), and healthy controls (100) were investigated for the presence of antibodies against herpes simplex virus (HSV) and adenoviruses by means of micro-complement fixation test (CFT). HSV antibodies were found in 56.5 per cent of oral cancer patients, 69 per cent of cervical cancer patients and 38.4 per cent of healthy controls. The present study indicates the high prevalence of HSV antibodies in oral and cervical cancer patients and failed to reveal any correlation between adenoviruses and human cancer.

The association between herpes simplex virus (HSV) and cervical cancer is well known¹⁻³. The presence of HSV antibodies in some other human cancers *viz.*, lip, prostate, urinary bladder, kidney and nasopharynx has also been reported^{2,4}. Though an association of adenoviruses with the genesis of tumours in animals has been reported^{5,6}, reports showing an association with human cancers are scanty⁷. Singh and co-workers⁷ found no differences in neutralising adenovirus antibody titres between oral cancer patients and healthy controls.

In this study are presented our preliminary findings on the presence of antibodies against HSV and adenoviruses, in oral and cervical cancer patients.

Material and Methods

A total of 111 serum samples from oral cancer cases and 66 from cervical cancer patients attending the Regional Cancer Centre, Trivandrum, and 100 serum samples from voluntary blood donors (healthy controls) from Sri Chitra Tirunal Medical Centre, Trivandrum, were collected for the present study. All sera were kept at -20°C , without any preservatives, until tested. Viral antibody detection was done by complement fixation test as per Grist and co-workers⁸, using HSV and adenoviral antigen supplied by World Health Organisation, Geneva. Sera showing an antibody titre of 32 and above were taken as positive as most of the sera of patients and

normal controls showed positivity with 1:8 and 1:16 dilutions. Also, the anti-complementary activity was more in these dilutions.

Results and Discussion

Viruses are shown to be associated with human cancers like Burkitt's lymphoma, nasopharyngeal and cervical carcinoma. Several workers have observed a close relationship between HSV-2 and cancer of cervix¹⁻³. Few reports have also shown raised HSV antibody titres in oral cancer². 56.5 per cent of oral cancer patients, 69 per cent of cervical cancer patients and 38.4 per cent of healthy controls showed antibodies against HSV. The prevalence rate of HSV antibodies in both oral and cervical cancer patients was significantly higher than the control group ($P < 0.05$) (Table). The oral cancer patients showed a very high geometric mean titre (GMT) of 225, compared to 63 in healthy controls and 85 in cervical cancer patients. There was no correlation between the antibody titre and different

stages of the diseases ($P > 0.05$). Seth and co-workers⁹ have observed a higher prevalence rate of HSV antibodies in controls using indirect haemagglutination inhibition test.

Though there are many reports associating adenoviruses with various types of cancers in animals^{5,6}, similar reports are scanty for human cancers⁷. In the present study antibodies to adenovirus were seen in 37 per cent of oral cancer patients, 50 per cent cervical cancer patients and 48.8 per cent of healthy controls. The difference in the prevalence rate of this antibody was not significant either in percentage or in the GMT value ($P > 0.05$). The prevalence rate of adenovirus antibodies in our control subjects was comparatively higher than that reported from the neighbouring district of Kottayam (37.7%)¹⁰ and was in agreement with the findings obtained by Singh and co-workers⁷. Thus, our finding of higher prevalence rate of HSV antibodies in oral and cervical cancer patients indicates the possible primary or secondary role of

Table. Viral antibodies in oral and cervical cancer patients

Viral antigen	Human groups	Total no. of sera tested*	Number of sera positive	Per cent positivity
Herpes simplex	Oral cancer	92	52	56.5**
	Cervical cancer	58	40	69**
	Controls	86	33	38.4
Adeno	Oral cancer	92	34	37
	Cervical cancer	58	29	50
	Controls	86	42	48.8

*Samples which had shown anticomplementary activity were not included in the analysis;
P value, ** < 0.05

HSV with these cancers. However, we have not found higher prevalence rate of adenoviral antibodies in these cancer patients.

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