

HERPES SIMPLEX RELATED ANTIGEN IN CASES OF CARCINOMA OF THE ORAL CAVITY

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Abstract

The presence of Herpes related antigens was investigated by the Immunoperoxidase method in 50 cases of Squamous Cell Carcinoma of the Oral Cavity. Herpes related antigens were found in 8 biopsies and 12 smears of carcinoma cases. Two of the smears taken from 50 normal persons also showed HSV antigens but none of the 50 tonsils showed any such antigen.

The possibility of HSV infection being one among the multiple factors in the causation of Carcinoma of the Oral Cavity is put forward (JPMA 283, 1986).

INTRODUCTION

Carcinoma of the Oral Cavity is the second commonest malignant tumour in both males and females in Pakistan, constituting about 10% of all malignant tumours.¹

A number of case control studies done in Pakistan, India and other places have found that there is a high association between the use of betel leaf (pan) with tobacco and Squamous Cell Carcinoma of the Oral Cavity and Pharynx²⁻⁴ But tobacco usage is not a factor in all cases. Some persons develop cancer even though they do not use tobacco or chew pan while many who do use tobacco do not get carcinoma. These findings suggest the possibility of other causative factors.

In recent years numerous studies have reported the association of Herpes Simplex Virus (HSV) with carcinoma of the Oral Cavity and Oropharynx and its role as a possible additional factor in the causation of Carcinoma of the Oral Cavity.^{5,6}

Chaudhry⁶ from this department showed that as compared to control cases the number of HSV₁ antibody positive cases were more in the carcinoma group. The titres of the antibody were also higher in the carcinoma cases as compared to the positive control cases.

With the development of Immunoperoxidase techniques for the localization of Herpes Virus related antigens in tissue sections this study was undertaken to determine the presence of Herpes Virus and/or its related proteins in cases with Squamous Cell Carcinoma of the Oral Cavity and pharynx.

MATERIALS AND METHOD

Paraffin sections from 50 biopsy proven cases of Squamous Cell Carcinoma of the Oral Cavity and pharynx were studied by the Immunoperoxidase method using the kit manufactured by Ortho Diagnostics for HSV 1&2.

In addition to the tissue sections 50 smears of the same cases were also stained by Immunoperoxidase. As controls, 50 tonsils removed for chronic inflammation and 50 smears from the Oral Cavity of normal persons were also examined.

Cells which took a dark red stain confined within the cell outlines and with little or no background staining were taken as positive for Herpes Viruses. Cases in which the stain was light or fuzzy or in which the background also took on some stain were labelled as doubtful. The age and sex distribution of cases and controls is shown in Table -1.

TABLE – 1
Age & Sex distribution of Carcinoma and control Cases.

Age Group in years	Carcinoma of the Oral Cavity		Tonsillectomy Cases		Normal persons from whom smears were taken	
	(Group A&B) (50)		(Group C) (50)		(Group D) (50)	
	Male	Female	Male	Female	Male	Female
1-10	0	0	4	2	0	0
11-20	0	0	14	22	0	0
21-30	2	2	3	1	2	
31-40	5	7	1	2	6	8
41-50	11	4	1	0	13	6
51-60	7	4	0	0	5	5
61-70	1	1	0	0	5	0
70 ⁺	4	2	0	0	0	0
Total	30	20	23	27	31	19
Mean Ages in years	51.24	50.00	16.73	16.81	49.38	45.47

Figures in parenthesis indicate the total number of cases in each group.

RESULTS

Using the above staining method 8 of the 50 biopsies showed cells positive for Herpes Virus antigens

(Table-II). As compared to this none of the tonsils studied as controls showed any positive cells. In 12 cases of the carcinoma group, the smears showed positive cells while only 2 of the smears from normal persons showed stained cells. Doubtful stained cells were seen in 4 biopsies, and 4 smears of the carcinoma cases; while 4 smears from normal persons showed doubtful cells (Table-II).

TABLE – II
Results of Staining for HSV Antigens by the Immunoperoxidase Stain.

Group	No. of Cases	No. of cases showing staining for HSV	% of the total	doubtful cases	% of the total
Biopsies of Carcinoma of Oral Cavity & Oropharynx	50	8	16	4	8
Cytological smears from the Carcinoma patients	50	12	24	4	8
Tonsillectomy Cases	50	0	0	0	0
Cytological smears from normal persons	50	2	4	2	4

In all the eight cases of the Carcinoma of the Oral Cavity in which the sections showed HSV stained cells, the smears also showed positive cells.

DISCUSSION

Carcinogenesis is a multistage process. Summation of the action of multiple factors eventually leads to the formation of a malignant cell. For many cancers the major factors (both initiators and promoters) have been identified. Tobacco in both the chewing and smoking forms has been identified as one of the major factor in the causation of Carcinoma of the Oral Cavity and Pharynx.⁷ However, there are a small minority of cases of Carcinoma of the Oral Cavity and Pharynx who do not consume tobacco or any other known carcinogen. Conversely, not all the heavy users of tobacco get Carcinoma of Oral Cavity or Pharynx. In an effort to find additional associated factors which may contribute to carcinoma formation at these two sites attention has been directed towards Herpes Virus.

This study has shown that Herpes Virus related antigens are detected more often in cases with carcinoma than controls. This does not establish a causal relationship, it only opens an avenue for further work. A prospective study of patients with herpetic infection of Oral Cavity and Oropharynx with matched controls and including individuals with and without tobacco habits is needed.

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