



## Dermato Glyphic Study In Cases of Epidermoid Carcinoma of Oral Cavity In Males.

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### ABSTRACT

Introduction – Dermatoglyphic abnormalities have been noticed in various disease conditions. The present study is an attempt to find out the atypicalities in dermatoglyphics of oral cancer in males. Material and methods – The study was conducted on 100 patients of epidermoid carcinoma of oral cavity, admitted to the Jadav Ba Cancer Hospital attached to N.S.C.B. Medical College, Jabalpur (MP). The control group was formulated by 100 healthy males with no family history of cancer. Finger prints were recorded and analysed by statistical methods. Conclusion – From the current study it can be concluded that the dermatoglyphic patterns observed in the present study are quite significant. It could be utilised in early detection of disease process and advising disease prone individuals for a regular and frequent checkup, and taking of proper precautions.

### KEYWORDS

Dermatoglyphics, Arches, Whorls.

### Introduction :

The palmar and plantar surfaces of the human hands and feet are clothed by skin which is different from that covering other parts of the body. The skin here is continuously corrugated with narrow ridges. The ridges are present over distal part of digits also. The systemic study of these innumerable epidermal ridges is referred to as dermatoglyphics.

Abundant evidence is at hand to prove that some characteristics of finger epidermal ridges and of other dermatoglyphic areas are inherited. Similarities of dermal patterns amongst relatives, especially between monozygotic twins, difference between unrelated individuals and still greater variation between members of different races indicate that these patterns are genetically determined (Cummins & Midlo, 1961).

Dermatoglyphic abnormalities have been noticed in various disease conditions, particularly where the etiology has been traced to genetic causes. Altered dermatoglyphic traits are seen in leukaemia (Aleksandrowics et al, 1966), neurological disorders (Barbeau et al, 1965 and others), rubella (Achs et al, 1966), Indian childhood cirrhosis (Chandra, 1969), carcinoma (Rashad and Mi, 1975) and several other diseases.

The carcinoma of oral cavity appears to be a heterogenous disease whose cause are at present unknown. An environmental, sociobiologic and physiological factors appear to be associated with increased risk of above cancer.

Dermatoglyphic analysis have been made in the context of several disease entities, little effort seems to have made to find out a relationship between dermatoglyphic features in carcinoma oral cavity in males. It was therefore felt to be worthwhile in studying the dermatoglyphic features in this carcinoma which is amongst the commonest in males.

The present study, in which 100 bilateral palmar prints and 1000 finger prints of 100 cases of epidermoid carcinoma of oral cavity in males have been analysed and compared with a normal control group of equal number, is an attempt to find out the atypicalities in dermatoglyphics of oral cancer in males.

### Material and methods :

The study was conducted on patients admitted to the Jadav

Ba Cancer Hospital attached to N.S.C.B. Medical College, Jabalpur (M.P). The patients selected for the study were 100 males where the diagnosis of epidermoid carcinoma of oral cavity was established. The diagnosis were duly confirmed by histopathological studies. The control group is formulated by 100 healthy males with no family history of cancer selected on the basis of having almost similar parameters as those of the patients. Factors considered were those of region, religion, caste, age, physical features i.e. weight and height and socio-economic status. The technique described by Cummins and Midlo (1961) was followed to record dermatoglyphics. Prints were taken on glazed paper with adequate ink, optimum pressure and due care. Prints of both palms & all fingers were recorded and labelled immediately. The following parameters were studied, tabulated and analysed by statistical methods –

### Finger patterns -

1. Whorls 2. Loops 3. Arches

Palms –

1. Hypothenar 2. Thenar 3. Interdigital areas I to VI

Quantitative analysis –

1. Finger ridge count 2. Axial triradii and angle 3. Pattern intensity 4. interdigital ridge count.

### Observations :

Following significant findings in male patients were found -

1. Increased arches in 3rd finger of right hand (Table 1).
2. Increased arches in 5th finger of left hand (Table 2).
3. Increased '1' pattern in interdigital area IV of left hand (Table 3).
4. Increased LU pattern in hypothenar area of both hands (Table 4).
5. Increased main line termination of line 'a' in area IV and 3h of right hands (Table 5).

Based on these statistical features

5 points were accorded to each abnormality and summated abnormal dermatoglyphic rating was calculated. One could have scored maximum of 30 points but no patient scored more than 15 points.

### Discussion :

As there is no literature available on dermatoglyphic studies in cases of epidermoid carcinoma of oral cavity, an attempt has been made to compare these with studies in other cancers particularly leukaemia.

On the 3<sup>rd</sup> finger the arches were more in number in both the hands and 5<sup>th</sup> finger of left hand of patients. Menser and Purvis Smith (1969) also reported an increase of arches in acute blast cell leukaemia.

The number of whorl in the 5<sup>th</sup> finger was found significantly high in patients. Rosner (1969) reported an increased frequency of whorls in chronic myelogenous leukaemia.

The ulnar loops on the 5<sup>th</sup> finger of left side were decreased in patients. The decreased number of ulnar loops was also found in the patients of acute leukaemia (Menser & Purvis, 1972), acute blast cell leukaemia (Menser & Purvis Smith 1969).

**Conclusion :**

From the current study it can be concluded that dermatoglyphics does have a place in diagnostic screening of oral cancers as has been amply demonstrated by the observations and also the close correlation found in the dermatoglyphic patterns reported for other cancers by other workers and those reported in this work. The dermatoglyphic patterns observed in the present study are quite significant, It could be utilised in early detection of disease process and advising disease prone individuals for a regular and frequent checkup, and taking of proper precautions. More work in this area will certainly shed more light on this subject.

**Table 1 – Finger print pattern in 3<sup>rd</sup> finger**

Pattern	Right			Left		
	Case	Control	Significance	Case	Control	Significance
Ulnar loop	73	74	$\chi^2=0.03, p>0.05$	66	71	$\chi^2=0.58, p>0.05$
Radial loop	0	0		0	2	$\chi^2=0.07, p>0.05$
Whorl	21	26	$\chi^2=0.70, p>0.05$	25	26	$\chi^2=0.03, p>0.05$
Arch	6	-	$\chi^2=6.19, p<0.05$	9	1	$\chi^2=5.16, p<0.05$
	$\chi^2=6.54; p<0.05$ at 2 df			$\chi^2=8.602; p<0.05$ at 2 df		

**Table 2 – Finger print pattern in 5<sup>th</sup> finger**

Pattern	Right			Left		
	Case	Control	Significance	Case	Control	Significance
Ulnar loop	75	74	$\chi^2=0.03, p>0.05$	70	84	$\chi^2=4.77, p<0.05$
Radial loop	0	0		0	0	
Whorl	23	26	$\chi^2=0.24, p>0.05$	26	16	$\chi^2=2.44, p>0.05$
Arch	2	0	$\chi^2=0.51, p>0.05$	4	0	$\chi^2=4.08, p<0.05$
	$\chi^2=2.19; p>0.05$ at 2 DF			$\chi^2=7.65; p<0.05$ at 2 df		

**Table 3 – Inter digital area IV**

Pattern	Right			Left		
	Case	Control	Significance	Case	Control	Significance
Absent	53	52	$\chi^2=0.00, p>0.05$	39	50	$\chi^2=2.02, p>0.05$
D	7	31	$\chi^2=17.1, p<0.05$	36	26	$\chi^2=1.89, p>0.05$
d	37	26	$\chi^2=7.15, p<0.05$	26	16	$\chi^2=2.44, p>0.05$
L	0	0		4	4	$\chi^2=0.00, p>0.05$
1	3	0	$\chi^2=1.35, p>0.05$	6	0	$\chi^2=6.19, p<0.05$
	$\chi^2 = 7.706 ; P = 0.05$ at 3df (not significant)			$\chi^2 = 9.687 P = 0.05$ (significant)		

**Table 4 – Hypothenar area Males (Both hands)**

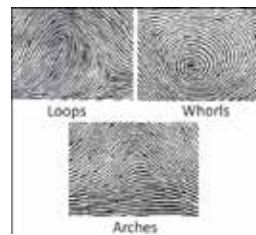
Pattern	Patient	Percentage	Control	Percentage	Significance
Absent	175	87.5	180	90.0	$\chi^2=0.63, p>0.05$
LR	13	6.5	20	10.0	$\chi^2=1.19, p>0.05$

LU	10	5.0	0	0	$\chi^2=8.31, p<0.05$
LR/LU	0	0	0	0	
W	2	1.0	0	0	$\chi^2=0.53, p>0.05$
LP	0	0	0	0	
	$\chi^2 = 13.55 P < 0.05$ (significant)				

**Table 5 – Main line termination, line 'a'**

Termination Area number	Males							
	Right hand				Left hand			
	Patient		Control		Pa-tient		Control	
11	2	2.0	3	3.0	-	-	3	3.0
7	1	1.0	2	2.0	-	-	-	-
5'	4	4.0	-	-	1	1.0	-	-
5	8	8.0	10	10.0	6	6.0	6	6.0
5"	10 10.0 29 29.0				11	11.0	12	12.0
4	52	52.0	38	38.0	37	37.0	43	43.0
3	18	18.0	17	17.0	35	35.0	33	33.0
3h	4	4.0	-	-	3	3.0	2	2.0
1	1	1.0	1	1.0	7	7.0	1	1.0

**Figure 1:**



**Figure 2 :**



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