

Study of Dermatoglyphics in the occurrence of the carcinoma of cervix

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Abstract

Since long the carcinoma of cervix has been one of the major killers of womens above 5 th decade. All over the world. Many studies have been done on its etiological factors but no study has revealed. The exact cause as like many other cancers. That means inspite of a large no. of researches going on in the world, it is said that like most other Cancers cancer cervix also shares common aetiological factors like genetic, environmental. Though some factors like heredity plays a role inits etiology, on the other hand cancer cervix is uncommon in married jewwish women points towards environmental factors. This study was an attempt to focus a ray of light on the issue of cancer cervix which is very important to an Oncologist, gynecologist and also to an anatomist. The present study was undertaken to evaluate the correlation of specific association of Ridges on the patients hands which are responsible and associated with occurrence of cancer cervix and which makes a women to be susceptible to this disease and also for abnormal ridge formation and indicates that a genetic background does exist for this disease. The present study was carried out on 120 subjects in two of which (a)60 cases of cancer cervix and (b) 60 controls ranging in age group of 25 to 60 yrs of age matching with the age groups of patient of cancer cervix. The Dermatoglyphics prints were taken as to make the qualitative analysis i.e. finger tip patterns (Like ulnar loops, radial loops, whorls and arches)patterns in interdigital areas, total finger ridge count (TFRC), a-b ridge count, t-d ridge count and atd angle. The study shown that ulnar loop frequency was significantly decreased in patient with cancer cervix as compared with controls and also showed an increased arch frequency in pts of cancer cervix as compared to controls. so also t-d ridge count and TFRC showed a decrease in the patient of cancer cervix whereas atd angle showed a significant increase in patient of cancer cervix than in controls.

Key Word: Dermatoglyphics, carcinoma cervix, arches, loops, whorls, total finger ridge count(TFRC)

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INTRODUCTION

“Dermatoglyphics “is a study of epidermal ridge configuration on palms and soles, which has been used from many years by scientists for various medicolegal and genetic purposes. Every dermatoglyphic pattern is unique i.e. no two persons, not even uniovular twins show exactly similar finger print patterns. These patterns make

their appearance on volar aspect of palm. As early as 12 th week of gestation and continue to form till 19 th week of gestation. Ridges on hands Preceded those on feet by 5 to 6 weeks. Since 1902, dermatoglyphics has been used as a personal identification mark by the law of enforcement authorities. These fixed patterns of epidermal ridges has helped the scientists for diagnosis of twins, questioned paternity and other hereditary and genetic disorders.(penrose 1969,Hirsch,1960) Hale and Philips (1961) studied palmar dermatoglyphics in congenital heart disease. Reddy *et al.* (1977) has carried out a study in Andhra Pradesh population to determine the Dermatoglyphic features in cancer cervix. Pal *et al.*(1985)had studied dermatoglyphic patterns in carcinoma cervix. So, in order to throw some light on significance of dermatoglyphic pattern in carcinoma cervix, the present work has been carried out.

AIMS AND OBJECTIVES

Looking to the increasing number of cases coming to our institute and all over the country,

The aims were:

- 1) To see the percentage frequency of fingertip pattern.
- 2) To see the range with number and frequency % of ulnar loops
- 3) To see the range with number and frequency % of whorls
- 4) To see the range with number and frequency of arches
- 5) To see the range with number and frequency of radial loops
- 6) To see the Total finger ridge count in each hand.

MATERIALS AND METHODS

The patients in this study were diagnosed and undergoing treatment in the department of Radiotherapy of Govt. Medical College and Hospital, Aurangabad. Both patients and controls were residents of Marathwada area, while selecting controls care was taken to rule out any hereditary disease and carcinoma in the family. The dermatoglyphic prints were taken on white paper using Kores duplicating ink. Each fingertip was rolled for complete imprint of the pattern and then the thumb was

rolled properly to have complete picture. Prints of both the hands were taken. The method used is the commonest and the easiest advised by Strong (1929) and R Smith (1969). The fingertip patterns were studied with the help of magnifying lens and following parameters were studied.

(A) Quantitative Analysis

1) Finger Tip Pattern:

- a) ulnar loops
- b) radial loops
- 3) whorls
- 4) arches

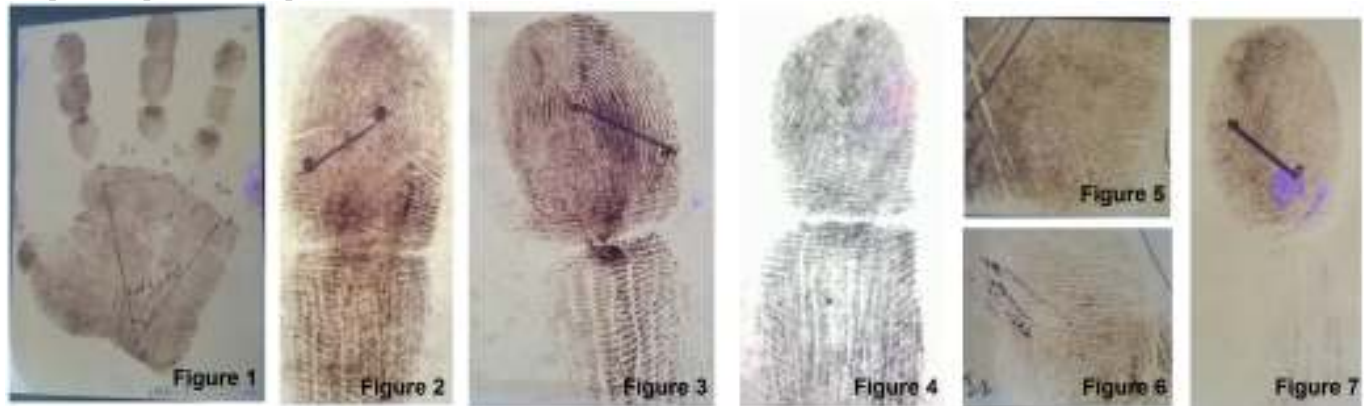
(B) Pattern in interdigital areas:

- a) Thenar
- b) Hypothenar

(C) Total finger ridge count:

- 1) a-b ridge count
- 2) t-d ridge count
- 3) atd angle

For statistical analysis of qualitative data, 2x2 contingency chi-square test and for quantitative data Relative deviate was applied (as sample size was more than 30)



Legend

- Figure 1: atd angle
 Figure 2: Ulnar loop
 Figure 3: Radial loop
 Figure 4: Whorl
 Figure 5: Hypothenar pattern
 Figure 6: arch
 Figure 7: Thenar pattern

OBSERVATIONS AND DISCUSSIONS

From our study % frequency of whorl pattern was 33.67% in ca.cx in comparison with control i.e. 29.67% Whereas in GP Pal *et al.* study it was 34.15% in ca.cx group and 35.2% in control group. In both these studies the values of chi-square test were statistically insignificant. But in Reddy *et al.* (1977) have observed significant ($p < 0.05$) high frequency of whorls in patients.

From our study and study of GP Pal it was seen that frequency of occurrence of ulnar loops in cancer cervix patients is much less as compared to controls which is seen by chi-square value, which is statistically significant. Both our study and study of GP Pal *et al.* showed increased incidence of arches in cancer cervix as compared to controls, which is reflected by their chi-square value which is statistically significant ($p < 0.001$).

Both studies indicated that the %frequency of radial loops were not significant shown to be $p < 0.05$ by chi-square value.(insignificant). In GP Pal study a-b ridge count did not showed any statistical significance but in our study a-b ridge count showed statistical difference in left hand and right hands together. In patients of cancer cervix where $p < 0.05$. Reddy *et al.* study also found no statistical difference between patients and control a-b ridge count. In our study t-d ridge count is statistically significant only in right hand, so also Reddy *et al.* (1977) reported decrease in t-d ridge count in patients. In our and GP Pal study atd angle was found to be increased in pts where as Reddy *et al.* in their study reported decreased atd angle in patients. In both our and GP Pal study, TFRC was decreased significantly in patient of cancer cervix. We found hypothenar pattern to be more prominent in patients with cancer cervix in our study, whereas GP Pal and Reddy *et al.* found no statistical difference in this pattern in cancer cervix patients.

SUMMARY AND CONCLUSIONS

Dermatoglyphic study of sixty patients of cancer cervix and sixty controls was done and following conclusions were drawn; Ulnar loop frequency showed significant decrease in patients of cancer cervix as compared to

controls. Arches showed an increased frequency in patients of cancer cervix as compared to controls. t-d ridge count showed decrease in right hand of cancer cervix patients in our study. atd angle showed a significant increase in patients of cancer cervix than controls. TFRC was decreased in cancer cervix patients in our study. Whorls and radial loops did not show any significant variation in cancer cervix patients and controls. a-b ridge count did not show any significant variation in cancer cervix patients and controls

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