



Study Of Fingertip Patterns In The Breast Cancer Female Patients

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Type of Publication: Original Research Paper

Conflicts of Interest: Nil

Abstract

Background: Breast carcinoma is the most common carcinoma among Indian women after cervical carcinoma. It is a major threat to women today, with nearly half a million deaths due to a lack of early diagnosis. Dermatoglyphics is the scientific study of dermal ridge pattern on the palmar & plantar aspects of palm, fingers, sole & toes. Patterns of fingerprint are unique to individuals, but they differ from person to person in number, shape, position and type. Fingertip pattern study refers to a non-invasive anatomical marker of the people with risk of developing breast carcinoma in future.

Aims & Objectives: To observe and compare the patterns of fingertip in the female breast carcinoma patients with the female controls. To identify the presence of distinct dermatoglyphic features in the breast carcinoma patients and its significance of variations among the patients and controls.

Materials & Methods: The study consists of 100 histopathologically diagnosed breast cancer female patients between 25–70 years of age from Aarupadai Veedu Medical College and Hospital, Puducherry. Similarly equal number of female controls who had no clinical symptoms and signs of breast carcinoma and no family history in the similar group of age as that of carcinoma breast female patients were included. Methodology used for collecting the fingertip prints was “Ink Method” depicted by Cummins and Midlo and then data were analysed statistically to detect the differences in the dermal ridge patterns between the carcinoma breast patients and normal controls.

Results: The decreased incidence of loop pattern and the increased incidence of both whorl and arch patterns were observed in the carcinoma breast patients and found significant statistically when compared with female controls.

Conclusion: It is clearly evident that some distinct variations of fingertip patterns are existing in the carcinoma breast patients using easy and cost-effective ‘ink’ method. With the presence of some distinct features of fingertip patterns in carcinoma breast patients, it could be possible to predict the people who are at more risk of developing carcinoma breast in future.

Keywords: carcinoma breast, fingertip prints, Patterns type

Introduction

Among the non-communicable diseases widespread globally, Breast carcinoma is the most common Indian women in line next to cervical cancer. Failure to diagnose at an early stage leads to more than half a

million deaths, which is a major threat to women in day today life. Global statistics constitutes nearly 1.7 women new diagnosed to suffer from breast cancer in 2012 and survival with complications due to breast cancer accounts to 6.3 million ever since 2016

annually[1]. Dermatoglyphics, a scientific approach to analyze the pattern of ridges present over palms and soles. These dermal ridges starts developing from 6th week of intrauterine life and completes the development between 12th& 13th week[2]. There have been studies to support there exists genetic influence upon this dermal ridge development, but surprisingly these are found to be unique for individuals and never gets altered unless there exhibits any physical damage. There were also literatures supporting the genetic cause for the development of breast cancer. Hence this study is undertaken to identify the correlation between the palmar finger print patterns and the breast cancer if any. This screening shall support the health care workers, policy makers to design a system to identify the breast cancer in women at very stage and thereby plan for management and avoid later complications[3,4]. The fingerprints is classified into three major classes (arch, loop, and whorl) and it is further divided into subcategories. The dermatoglyphics was extensively used in anthropology, criminology, and human genetics[5].

Aims & Objectives:

- 1) To observe the patterns of fingertip in the female carcinoma breast patients.
- 2) To compare the fingertip patterns of cases with the controls.
- 3) To identify the presence of distinct dermatoglyphic features in the breast carcinoma patients and its significance of variations among the patients and controls.

Methodology:

Type of study : Case control study

Study Population: The study consists of 100 histopathologically diagnosed cervical cancer patients in the age group of 25–70 years from Aarupadai Veedu Medical College and Hospital,

Puducherry. Similarly equal number of female controls who had no signs and symptoms of carcinoma breast and no family history in the similar age group as that of carcinoma breast female patients were included.

Sample size: Number of cases -100, Number of controls -100

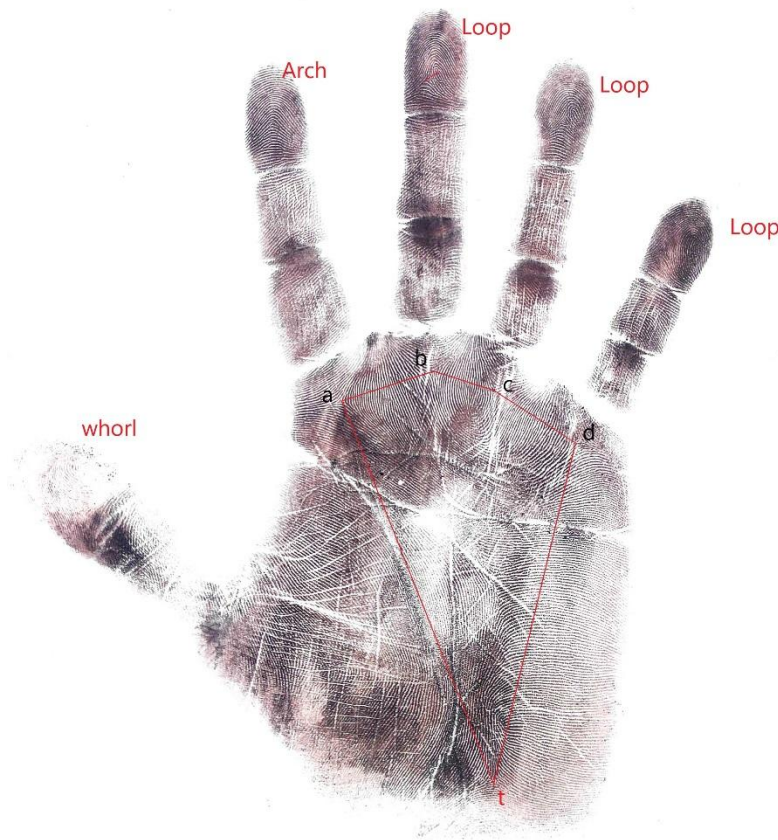
Selection criteria: Carcinoma breast patients between 25-70 years of age confirmed histopathologically by usually followed standard methods of investigation.

Materials required : Kores Duplicating ink, Stamp pad, A4 white charts, Magnifying lens, Cotton, Pen & Pencil.

Study procedure: After ethical clearance was obtained from Institute Ethics Committee (IEC) Fingertip prints were collected by “Ink Method” depicted by Midlo and Cummins and then data were analysed statistically to detect the differences in the dermal ridge patterns between the carcinoma breast patients and normal controls.

1. After receiving informed consent, both patients and controls were requested to wash their hands with soap and water and then they were requested to make their hands dry.
2. After applying the required quantity of ink over all their fingertips, the palmar aspect of the fingertip were examined for the uniformity of the ink.
3. Then they were instructed to press & roll their inked fingertips from the lateral to medial side over the A4 white charts to collect all the fingertip pattern.
4. Then all the collected fingertip pattern data were observed and analysed statistically to evaluate the presence of significance findings of variations in the fingertip pattern between the female breast cancer patients and the controls.

Figure showing the fingertip pattern of female breast carcinoma patient



Results:

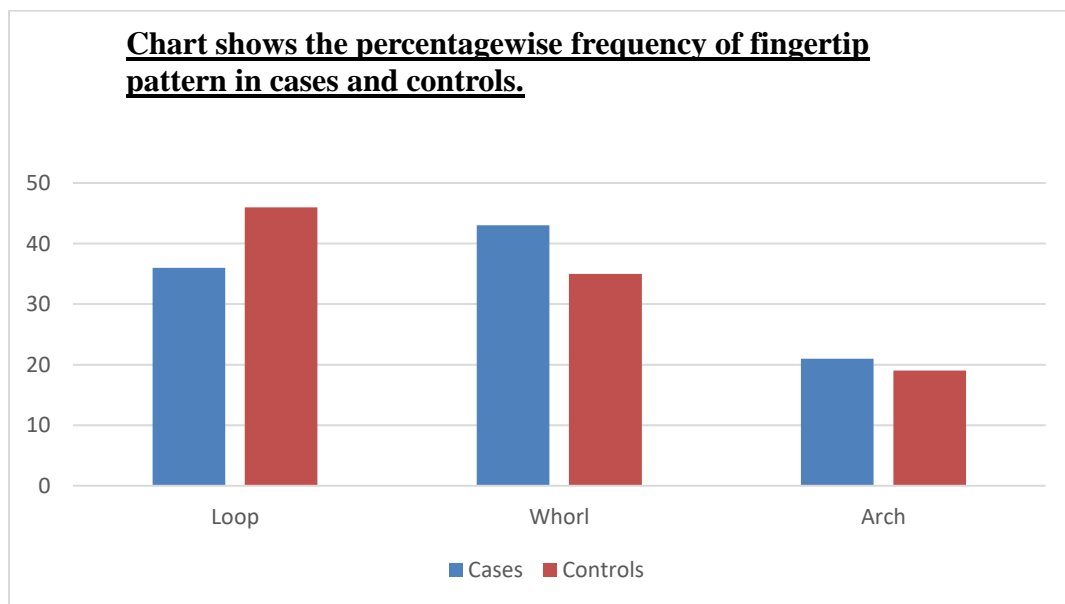
The collected fingertip pattern data of both 100 female breast cancer patients and normal female controls were observed and analysed statistically tests to find out presence of significance findings of variations in the fingertip pattern between the female breast cancer patients and the controls. From the collected data, The decreased frequency of loop pattern and the increased frequency of both whorl and arch patterns were observed in the carcinoma breast patients and statistically significant when compared to female controls.

Table 1 Shows the percentagewise frequency of fingertip pattern in carcinoma breast patients and controls

Fingertip pattern	Cases (n=100)				Controls(n=100)			
	Right (n=500)	%	Left (n=500)	%	Right (n=500)	%	Left (n=500)	%
Loop	190	38	170	34	250	50	210	42
Whorl	220	44	210	42	170	34	180	36
Arch	90	18	120	24	80	16	110	22

Table 2 shows the statistical analysis of various fingertip pattern between carcinoma breast patients and controls

Finger tip pattern	Female				X ²	P Value	Remark
	Cases(n=100)		Control(n=100)				
	No.	%	No.	%			
Loop	360	36	460	46	18.742	0.0043	S
Whorl	430	43	350	35	21.401	0.0036	S
Arch	210	21	190	19	20.532	0.0025	S



Discussion :

In the current study , the occurrence of loop pattern is significantly decreased in the breast cancer patients that does not coincide with Nateker (2006) PE, who found high number of occurrence of loop pattern in the breast cancer patients when compared with the control group. The findings of high frequency of whorl pattern in the cases of present study coincide with Nateker et al who also observed increased frequency of whorl pattern. In the present study, we have reported that the loop pattern are significantly decreased in breast carcinoma females when compared to the control group which is not similar findings of Oladipo who observed a increased incidence of loop pattern in the breast cancer patients . Aparajita Raizada et al. (2013)[12] found that loops are significantly decreased in the cases in comparison with cancer cases (3.24% cases and 16.27%

controls). In the present study,we also found less incidence of loops in the cases.Seltzer et al. in 1982 and 1990[13], Chintamaniet et al. in 2007[14], Lavanyaet et al (2012).[15], Abhilasha (2013)[16], and Sakinehabbasiet et al. in 2006[17] found that whorls and arches were found significantly increased in female breast cancer patients. The findings of high frequency of whorl and arch pattern in the current study were similar with findings of the above worker.

Conclusion:

It shows clearly that some identifiable distinct variations of fingertip patterns are existing in the carcinoma breast patients using easy and cost-effective ‘ink’ method. With the presence of some distinct features of fingertip patterns in carcinoma breast patients, it could be possible to predict the people who are at more risk of developing carcinoma breast in future and refer them for genetic counselling

& gene therapy to prevent them from the morbidity and mortality of carcinoma of the breast.

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