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AN OBSERVATIONAL STUDY ON DERMOSCOPIC FEATURES IN PIGMENTARY DERMATOSES

Dermatology

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ABSTRACT

Dermoscopy is a valuable non-invasive tool increasingly used in dermatology to enhance the diagnosis of various skin conditions. This observational study explores the dermoscopic features of pigmentary dermatoses in 150 patients attending the dermatology outpatient department at Dr. B.R.A.M. Hospital, Raipur. The study analyzed hypopigmented and hyperpigmented lesions using a Heinz Delta 20T polarized dermoscope, focusing on structure, patterns, vasculature, and colors. Common pigmentary conditions observed include melasma, pityriasis alba, and vitiligo. The findings reveal that dermoscopy enhances clinical accuracy by identifying distinct patterns, including reverse pigment networks and perifollicular pigmentation. This study underscores the importance of dermoscopy as an essential diagnostic tool, particularly in populations with darker skin types, where distinguishing pigmentary disorders by the naked eye can be challenging.

KEYWORDS

dermoscopy, pigmentary dermatoses, hyperpigmentation, hypopigmentation

INTRODUCTION -

Dermoscopy, a non-invasive imaging technique, has revolutionized dermatology by enabling the detailed examination of skin lesions at a submacroscopic level. Initially used for diagnosing melanoma and non-melanoma skin cancers, its application has expanded to include a variety of skin disorders, including pigmentary dermatoses. These conditions, which involve either hyperpigmentation or hypopigmentation, are often difficult to distinguish with the naked eye, especially in darker skin types. Dermoscopy offers a valuable diagnostic tool, providing greater accuracy without the need for invasive procedures like biopsies. This study aims to analyze the dermoscopic features of various pigmentary dermatoses in an Indian population, thereby highlighting its role in enhancing clinical diagnosis and management. The most important criteria to be considered while using dermoscopy in general dermatology are:

(a) the morphology/arrangement of vascular structures,
(b) scaling patterns,
(c) colors,
(d) follicular abnormalities, and
(e) specific features.

MATERIALS AND METHODS

Study Design

This hospital-based, observational study was conducted in the Department of Dermatology, venereology and leprosy at Dr. Bhimrao Ambedkar Memorial Hospital , Raipur, over a period of 12 month among 150 patients attending outpatient department. Informed consent was obtained from all patients to be a part of the study

Inclusion Criteria

- Patients of all age and sex with pigmented skin lesions.
- Patients willing to give written informed consent by self/ guardian.

Exclusion Criteria:

- Invasive or non invasive procedures over the lesions in the past 6 weeks.
- Use of depigmenting agents in past 6 weeks

OBSERVATIONS AND RESULTS

Table No . 1 : Distribution Of Cases According To Clinical Diagnosis

CLINICAL DIAGNOSIS	Frequency	Percent
ACANTHOSIS NIGRICANS	5	3.3
BECKERS NEVUS	3	2.0
CARP	1	0.7
EPHELIDS	1	0.7
ERYTHEMA DYSCHROMIUM PERSTANS	1	0.7
EXOGENOUS OCHRONOSIS	4	2.7
FIXED DRUG ERUPTION	4	2.7
FRICTIONAL MELANOSIS	2	1.3
IDIOPATHIC GUTTATE HYPOMELANOSIS	7	4.7
LICHEN PLANUS PIGMENTOSUS	6	4.0
LICHEN SCLEROSIS ET ATROPHICUS	3	2.0
MACULAR AMYLOIDOSIS	7	4.7
MELASMA	24	16.0
NEVUS DEPIGMENTOSUS	1	0.7
NEVUS OF OTA	2	1.3
PIGMENTARY DEMARCATION LINES	4	2.7
PITYRIASIS ALBA	16	10.7
PITYRIASIS VERSICOLOR	20	13.3
POSTINFLAMMATORY HYPERPIGMENTATION	1	0.7
PRE VITILIGO	1	0.7
PROGRESSIVE MACULAR HYPOMELANSIS	2	1.3
RIEHLS MELANOSIS	4	2.7
SCHAMBERGS DISEASE	7	4.7
SEBORRHEIC MELANOSIS	4	2.7
VITILIGO	20	13.3
Total	150	100.0

Table No . 2 : Distribution Of Cases According To Colour

COLOR	Frequency	Percent
BLACK	1	0.7
BLUE BROWN	1	0.7
BLUE GRAY	1	0.7
BLUISH GRAY	8	5.3
BROWN	16	10.7
BROWN BLACK	3	2.0
BROWNISH BLACK	2	1.3
DARK BLUE	1	0.7
DARK BROWN	25	16.7
GRAY BLUE	1	0.7
GRAY BROWN	6	4.0
GRAYISH BROWN	1	0.7
LIGHT BROWN	13	8.7
OFF WHITE	3	2.0

PINKISH WHITE	1	0.7
SLATE GRAY	6	4.0
VIOLACEOUS	1	0.7
WHITE	60	40.0
Total	150	100.0

Table No . 3 : Distribution Of Cases According To Pigment Network

PIGMENT NETWORK	Frequency	Percent
ABSENT	23	15.3
BRKOEN	1	0.7
BROKEN	3	2.0
BROKEN AND REDUCED	1	0.7
COBBLESTONE PATTERN	1	0.7
EXAGERRATED PSEUDORETICULAR NETWORK	30	20.0
IRREGULAR	1	0.7
IRREGULAR AND PATCHY ACCENTUATION	1	0.7
IRREGULAR AND PROMINENT PSEUDONETWORK	1	0.7
IRREGULAR EXAGGERATED PSEUDORETICULAR	1	0.7
OFF WHITE STRUCTURELESS AREA	1	0.7
PATCHY EXAGGERATION OF PSEORETICULAR	2	1.3
PRMINENT	1	0.7
PROMINENT	12	8.0
PROMINENT AND IRREGULAR	3	2.0
PROMINENT AT SOME PLACES	1	0.7
PROMINENT IN CENTRE	3	2.0
PROMINENT IN SOME PLACES	1	0.7
PROMINENT PIGMENT NETWORK	1	0.7
PROMINENT PSEUDONETWORK	8	5.3
REDUCED	30	20.0
REDUCED AND BROKEN	2	1.3
REDUCED AT SOME	1	0.7
RETICULATE PATTERN ON WHITE BACKGROUND	1	0.7
REVERSE PIGMENT NETWORK	3	2.0
RIPPLED RETICULAR PATTERN	2	1.3
ROUND RETICULAR NETWORK	3	2.0
Total	138	92.0

Table No . 4 : Distribution Of Cases According To Perifollicular / Peri – Eccrine Involvement

PERIFOLLICULAR/ PERI -ECCRINE INVOLVEMENT	Frequency	Percent
APPENDAGEAL OPENINGS OBLITERATED	1	0.7
FOLLICULAR KERATINOUS PLUGS	4	2.7
FOLLICULAR KERATINOUS PLUGS AND PERIFOLLICULAR WHITE HALO	1	0.7
FOLLICULAR KERATOTIC PLUGS	1	0.7
FOLLICULAR KERATOTIC PLUGS AND PERIFOLLICULAR WHITE HALO	1	0.7
LEUKOTRICHIA	4	2.7
NO INVOLVEMENT	16	10.7
OBLITERATION OF FOLLICULAR OPENINGS	3	2.0
PERFOLLICULAR HYPOPOIGMENTATION	1	0.7
PERIECCRINE ACCENTUATION	1	0.7
PERIECCRINE ACCENTUATION PERIFOLLICULAR HYPOPIGMENTATION	1	0.7
PERIFOLLICULAR ACCENTUATION OF PIGMENT LOSS	3	2.0
PERIFOLLICULAR BROWN DOTS	1	0.7
PERIFOLLICULAR BROWN DOTS AND GLOBULES	2	1.3
PERIFOLLICULAR DEPIGMENTATION	1	0.7
PERIFOLLICULAR DEPOSITION OF PIGMENT	2	1.3
PERIFOLLICULAR HYPERPIGMENTATION	4	2.7
PERIFOLLICULAR HYPERPIGMENTATION AND LEUKOTRICHIA	1	0.7
PERIFOLLICULAR HYPOPIGMENTATION	22	14.7
PERIFOLLICULAR HYPOPIGMENTATION AND LEUKOTRICHIA	1	0.7
PERIFOLLICULAR HYPOPIGMENTATION AT PLACES	1	0.7
PERIFOLLICULAR LOSS OF PIGMENTATION	2	1.3
PERIFOLLICULAR PIGMENT NETWORK AND LEUKOTRICHIA	1	0.7
PERIFOLLICULAR PIGMENTATION	7	4.7
PERIFOLLICULAR PIGMENTATION AND LEUKOTRICHIA	1	0.7
PERIFOLLICULAR SCALES	2	1.3
PERIFOLLICULAR SCALING	3	2.0
PERIFOLLICULAR SPARING	1	0.7
PROMINENT FOLLICULAR OPENINGS	2	1.3
PROMINENT FOLLICULAR PLUGS	1	0.7
SPARING OF FOLLICULAR AND APPENDAGEAL OPENINGS	23	15.3
WHITISH YELLOW EXCCRESCENCE OF SEBUM COATING VELLUS HAIR	1	0.7
Total	116	77.3

Table No . 5 : Distribution Of Cases According To Pigment Structure

PIGMENT STRUCTURE	**Frequency**	**Percent**
NON UNIFORM PIGMENTATION WITH SATELLITE LESIONS	1	0.7
ANNULAR ARRANGEMENT OF PIGMENTATION	1	0.7
ARCUATE AND ANNULAR PATTERNOF PIGMENTATION	2	1.3
ARCUATE AND WORM LIKE PATTERN OF PIGMENTATION	1	0.7
ARCUATE ARRANGEMENT OF PIGMENTATION	1	0.7
BLACK DOTS AND GLOBULES	1	0.7
BLACK GLOBULUES	1	0.7
BLOTCHY AREA OF HYPERPIGMENTATION	3	2.0
BLUE BROWN STRUCTURESS AREA WITH GRAY DOTS	1	0.7
BLUE GRAY GLOBULES	1	0.7
BLUISH GRAY GLOBULES ARRANGED IN SPECKLED PATTERN	1	0.7
BROWN DOTS	2	1.3
BROWN DOTS AND CLODS ON ERYTHEMATOUS BACKGROUND	1	0.7
BROWN DOTS AND GLOBLUES	5	3.3
BROWN DOTS AND GLOBLUES IN HEM LIKE PATTERN	1	0.7
BROWN DOTS AND GLOBULES	2	1.3
BROWN GLOBULES	4	2.7
BROWN GLOBULES FORMING ARCUATE PATTERN	1	0.7
BROWN GLOBULES AND ANNULAR ARRANGEMENT OF PIGMENT	1	0.7
BROWN GLOBULES AND ARCUATE ARRANGEMENT OF PIGMENT	2	1.3
BROWN GLOBULES ON AN ERYTHEMATOUS BACKGROUND	3	2.0
BROWN GLOBULESAND SURROUNDING ERYTHEMA	1	0.7

BROWNISH DOTS AND GLOBULES	1	0.7
COPPERY BROWN BACKGROUND WITH BROWN DOTS	1	0.7
COPPERY BROWN BASEMENT WITH BROWN DOTS	1	0.7
DARK BROWN GLOBULES	1	0.7
DARK BROWN GLOBULES ON BROWN BACKGROUND	1	0.7
DARKBROWN POLYGONAL GLOBLUES SEPARATED BY WHITE STRAIE	1	0.7
DIFFUSE BROWN PIGMENT	1	0.7
DIFFUSE WHITE GLOW	1	0.7
DIFFUSE WHITE GLOW AND PERILESIONAL HYPERPIGMENTATION	2	1.3
DIFFUSE WHITE GLOW PRESENT AND PERILESIONAL HYPERPIGMENTATION	1	0.7
DIFFUSE WHITE GLOW WITH PERILESIONAL HYPERPIGMENTATION	3	2.0
DIFFUSE WHITE GLOW WITH STARBURST PATTERN OF PIGMENTATION	1	0.7
DOTS AND GLOBULES IN COMPLETE RETICULAR PATTERN	1	0.7
DOTS AND GLOBULES IN ARCUATE PATTERN	1	0.7
DOTS AND GLOBULES IN HEM LIKE PATTERN	1	0.7
DOTS AND GLOBULES IN HEM LIKE PATTERN AND FEW TARGETOID APPEARANCE	1	0.7
DOTS AND GLOBULES IN INCOMPLETE RETICULAR PATTERN	1	0.7
FAINT BROWN PIGMENT NETWORK WITHIN WHITE AREA	2	1.3
FINE BROWISH STIPPLING IN RIPPLED RETICULATE PATTERN	2	1.3
FOCAL WHITE AREAS WITH BROKEN PIGMENTARY NETWORK	2	1.3
GRAY BLUE STRUCTURELESS AREA WITH SCATTERED GRAY DOT	1	0.7
GRAY BROWN DOTS AND GLOBULES	1	0.7
GRAY DOTS ON ERYTHEMATOUS BACKGROUND	1	0.7
GREY DOTS AND GLOBULES	1	0.7
GREY DOTS AND GLOBULES ON ERYTHEMATOUS BACKGROUND	1	0.7
GROUPED DARK BLUE GLOBULES	1	0.7
GROUPED GRAY BROWN DOTS	2	1.3
GROUPED STEEL BLUE GLOBULES AND DOTS	1	0.7
IRREGULAR PIGMENT NETWORK	1	0.7
LINEAR BROWN LINES AND BROWN GLOBULES	2	1.3
MICRO KOEBNERISATION	2	1.3
MULTIPLE BLOCTHES RANGING FROM BROWN TO BLACK IN COLOUR	1	0.7
NON UNIFORM PIGMENTATION	3	2.0
NON UNIFORM PIGMENTATION WITH PERILESIONAL HYPERPIGMENTATION	1	0.7
NON UNIFORM PIGMENTATION WITH SATELLITE LESIONS	1	0.7
OFF WHITE HUB WITH BROKEN BROWN STREAKS RADIATING FROM CENTRE	1	0.7
PERILESIONAL HYPERPIGMENTATION	1	0.7
PERIPHERAL WHITE GLOBULES	3	2.0
PERIPHERAL WHITE GLOBULES AND MICROKOEBNERISATION	1	0.7
PIGMENT ARRANGEMENT IN ARCUATE PATTERN	4	2.7
SATELLITE LESIONS	3	2.0
SCATTERED BROWN DOTS	1	0.7
STARBURST PATTERN	1	0.7
STARBURST PATTERN WITH MICRO KOEBNERISATION	1	0.7
UNIFORM BROWN PIGMENTATION WITH MOTH EATEN EDGE	1	0.7
WHITE CENTRAL HUB WITH BROKEN BROWN STREAKS	1	0.7
WHITE CENTRAL HUB WITH BROWN ILL DEFINED STREAKS	1	0.7
WHITE HUB SURROUNDED BY BROKEN BROWN STREAKS RADIATING FROM CENTRE	1	0.7
WHITE HUB SURROUNDED BY VARIOUS CONFIGURATION OF PIGMENTATION	1	0.7
WHITE HUB WITH BROWN STREAKS RADIATING FROM CENTRE	1	0.7
WHITE STRUCTURELES AREA	1	0.7
WHITE STRUCTURELESS AREA	13	8.7
WHITE STRUCTURELESS AREA AND PERILESIONAL HYPERPIGMENTATION	1	0.7
WHITE STRUCTURELESS AREA ON WHITE BROWN BACKGROUND	1	0.7
WHITE STRUCTURELESS AREA WITH AMOEBOID MARGINS	1	0.7
WHITE STRUCTURELESS AREA WITH AMOEBOID MARGINS WITH PERILESIONAL HYPERPIGMENTATION	1	0.7
WHITE STRUCTURELESS AREA WITH BACKGROUND ERYTHEMA	1	0.7
WHITE STRUCTURELESS AREA WITH COMEDO LIKE OPENINGS	1	0.7
WHITE STRUCTURELESS AREA WITH FAINT PIGMENT NETWORK	3	2.0
WHITE STRUCTURELESS AREA WITH FEATHERY MARGINS	2	1.3
WHITE STRUCTURELESS AREA WITH NEBULOID MARGINS	1	0.7
WHITE STRUCTURELESS AREA WITH PERILESIONAL HYPERPIGMENTATION	5	3.3
WHITE STRUCTURELESS AREA WITH PETALOID MARGINS	2	1.3
WHITE STRUCTURELESS AREA WITH PINKISH WHITE BACKGROUND	1	0.7
WHITE STRUCTURLESS AREA WITH FAINT PIGMENT NETWORK	1	0.7
WHITISH AREA WITH BROKEN PIGMENT NETWORK	1	0.7
WHITISH BROWN HUB SURROUNDED BY VARIOUS CONFIGURATION OF PIGMENTATION	1	0.7
Total	142	94.7

SUMMARY

* In this study, distribution of patients was done according to age group and gender. The mean age of the patients included in our study population was 31.63 ± 17.10. The majority of patients belong to the age group 21-40 which is 45.3% followed by 27.4% of age group below 20 and the minimum number of patients belonged to age group above 60 which is 6%. Majority of gender in our study population observed was Female that is 55.3% and the rest was male that is 44.7%. * In the present study, distribution of patients was done as per clinical diagnosis.We found that in clinical diagnosis melasma was found in maximum cases that is 16% followed by pityriasis versicolor & vitiligo that is 13.3% each. Pityriasis alba was found in 10.7% and rest other diagnosis were found minimum cases. * In current study, distribution of patients was done according to colour of the skin lesion. It was found that in majority of patients 40% skin lesions were white in colour followed by 16.7% patients in which lesions were dark brown colour. In 10.7% patients lesions were brown colour. Minimum patients (0.7%) had lesions violaceous, pinkish white, grayblue, blue gray, blue brown and black colour each. * In our study, distribution of the border of skin lesion in which it was found that in majority (57.3%) patients, it was ill defined cases followed by well defined border in 39.3% patients. Trichrome border was present in 2.7% patients and in 0.7% patients feathery margin was seen. * In this study, distribution of patients was done according to pigment network of lesions. Maximum cases (20%) had reduced & Exagerrated pseudoreticular network each followed by 15.3% patients in which pigment network was absent and in 8.7% patients it was prominent. Prominent Pseudo network was

seen in 5.3% patients. Rest pigment networks were seen in minimum no. of patients. * In the present study, distribution of patients was done according to Pigment structure. In majority (8.7%) of patients pigment structure of lesion was white structureless area, followed by 2.7 % patients had brown globules and pigment arrangement in arcuate pattern. * In this study, distribution of patients was done according to Perifollicular/Peri- Eccrine involvement of skin lesion. In majority (15.3%) of patients sparing of follicular and appendageal openings was seen followed by perifollicular hypopigmentation was seen in 14.7% patients. * In our study, 8% patients had telangiectatic vessels followed by dotted vessels and linear vessels in 2.7% patients each, 2% patients had few linear vessels and few dotted vessels and red dots were seen in only 1.3% patients. * In this study, distribution of patients was done according to other characteristics of skin lesions. Majority (9.9%) patients had diffuse white fine scales followed by 4.7% patients who had hub and spoke pattern.

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Conflicts Of Interest
There are no conflicts of interest

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