Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: https://saspublishers.com/sjams/

OPEN ACCESS

Pathology

Histopathological and Clinical Correlation of Hyperpigmented Skin Lesions

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DOI: 10.36347/sjams.2020.v08i11.007 | **Received:** 16.10.2020 | **Accepted:** 30.10.2020 | **Published:** 12.11.2020

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Abstract **Original Research Article**

Introduction*:** The spectrum of clinical disease related to hyperpigmented lesion is wider. The most common hyperpigmented skin lesion is lichen planus and its variants. Histopathological examination helps to derive an accurate tissue reaction. Pathologic examination often serves as a confirmative diagnosis for skin lesions. The histology-based treatment will be helpful for establishing a standardized management for hyperpigmentary skin lesions. ***Materials and Methods*:** A total of 100 patients with hyperpigmented punch skin biopsy lesions in all age groups following inclusion and exclusion criteria is taken and examined for histopathological correlation from the Department of Pathology. ***Result: In this study of hyperpigmented skin lesions the maximum number of cases 45 (45%) were those of classical Lichen planus and its variants, followed by 12% of eczematoid dermatitis, 8% of PMLE, 7%of DLE, 6% of lichen simplex chronicus, 7% of post inflammatory hyperpigmentation, 3% of prurigo nodularis, 4% of prurigo simplex, morphea 4%, acne 3%, and 1% of erythema dyschromium perstans. 90% cases show histopathological correlation and 10% cases were diagnosed only on histology based. ***Conclusion*:** Lichen planus and its variants are most common hyperpigmentary skin lesions found in the study population. The pathologist ability to render an accurate diagnosis depends on the available clinical evaluation details.

Keywords: Lichen planus, basal cell damage, DLE, PMLE, interface dermatitis.

INTRODUCTION

The skin is the largest organ of body, accounting for around15% of the total body weight in a human adult [1].

The importance of accurate diagnosis is emphasized here as the underlying diseases have varying etiologies that need to be accurately diagnosed in order to effectively treat the hyper pigmentary lesions. In this review, we discuss and describe the utility of histology in the diagnosing of hyper pigmentary disorders and how, in many cases, it can lead to targeted and more effective therapy. We focus on the most common hyper pigmentary disorders seen in Indian patients [2].

Pigmentary problems is one of the most frequent causes for dermatologic consultation. Disorders of pigmentation can result from migration abnormalities of melanocytes from neural crest to the skin during embryogenesis, impairment of melanosome transfer to keratinocytes and alteration in melanin synthesis. Although high melanin content confers better photo protection, photo damage in the form of pigmentary disorders is quite common [2].

Hyperpigmentation is not only a cosmetic problem causing psychological upset but can also reflect underlying organ dysfunction at times. The cause of hyperpigmentation usually can be traced to the presence of activity of melanocyte when the patient seeks medical attention for skin lesions, the physician requires an accurate diagnosis in order to institute proper treatment. However, the clinical diagnosis of skin diseases may be challenging, as the clinical information and appearance of skin lesions invariably overlap. Evidence for a correct diagnosis is often difficult without histopathologic examination of skin biopsies. It is well known that the histologic diagnosis of inflammatory and other skin diseases requires clinicopathologic correlation, and there is evolution of

skin lesions into different stages as the disease progresses. Histopathologic examination often serves as a confirmative and complimentary part of the diagnosis. The histology-based treatment and management may be helpful for establishing an more accurate treatment protocol for hyperpigmentary skin lesions [3].

Acquired pigmentary disorders are found all over the world. Classic morphologies of these lesions have been reviewed in the global dermatology literature with an emphasis on treating these difficult diseases.

MATERIALS AND METHODS

Aim

To study the histopathology of hyperpigmented skin lesions and its clinical correlation.

Objectives

1. To confirm the clinical diagnosis of hyperpigmented lesion with histopathological diagnosis.
2. To study the incidence of hyperpigmented lesions in the study population.

Study Area

The study was carried out among patients presenting with hyperpigmented skin lesion from rural population of Pondicherry.

Study Design: Descriptive study

Sample Size: 100 cases with hyperpigmented lesions.

Inclusion Criteria: Biopsy of patients clinically diagnosed as hyperpigmented lesion.

Exclusion Criteria: Patients with bleeding diathesis.

METHODOLOGY

The study was carried out in the Department of Pathology and Dermatology, Sri Venkateshwara Medical College Hospital & Research Institute, Puducherry. Skin biopsies of the patients clinically diagnosed as hyperpigmented lesions after satisfying inclusion and exclusion criteria was studied.

Biopsy Technique

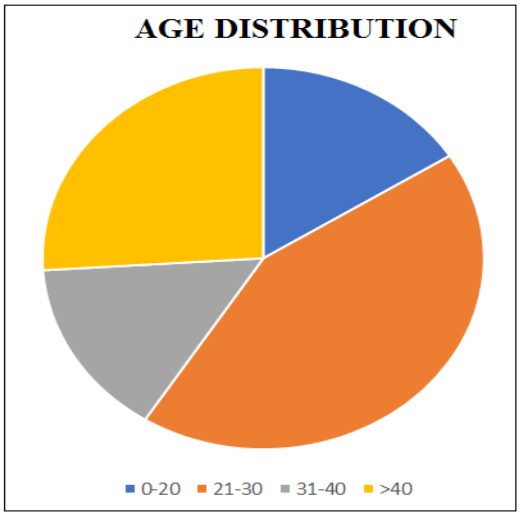
Biopsy is taken from the lesion. The site is cleaned and painted with an antiseptic solution and adequate amount of local anesthetic (2% lidocaine) is injected to the skin and subcutaneous tissue. A specimen obtained with a 4mm biopsy punch is adequate for histologic study and then placed in 10% formalin.

Examination

A three dimensional size and shape gross examination done followed by routine processing and embedding in paraffin wax. 3-5microns thick paraffin sections were stained with Hematoxylin and Eosin. Stained slides will be viewed under the microscope to study the histopathological features. Epidermal and dermal changes will be noted. Also focal or diffuse nature of the lesion, pigment incontinence and appendageal involvement will be recorded.

STATISTICAL ANALYSIS

Age Distribution



Age (years)	Percentage of distribution
Birth -10	3
11 - 20	13
21 - 30	43
31 - 40	15
41 - 50	11
>50	15

SEX DISTRIBUTION OF HYPERPIGMENTED SKIN LESIONS

Age (years)	Male Patients	Female Patients	Total	Percentage of distribution
Birth -10	2	1	3	**3**
1 - 20	5	8	13	**13**
21-30	20	23	43	**43**
31 - 40	7	8	15	**15**
41 - 50	4	7	11	**11**
>50	9	6	15	**15**
	47	**53**	**100**	**100**

CLINICAL AND HISTOLOGICAL CORRELATION

CLINICAL/ HISTOPATHOLOGY CORRELATION	CASES	PERCENTAGE OF DISTRIBUTION
Cases correlated both clinically and histopathologically	90	90
Diagnosis confirmed on histopathological features	10	10

DISTRIBUTION OF THE CASES

Sl. No	Lesions	No. of cases	Percentage (%)
01	Classical -lichen planus	24	24
02	Lichen planus hypertrophicus	6	6
03	Lichen planus pigmentosus	6	6
04	Lichenoid like keratosis and reaction	7	7
05	Lichen amyloidosis	2	2
06	Lichen simplex chronicus	6	6
07	Erythema dyschromium perstans	1	1
08	Prurigo nodularis	3	3
09	Prurigo simplex	4	4
10	Post inflammatory hyperpigmentation	7	7
11	Discoid lupus erythematosus	7	7
12	Eczematous dermatitis	12	12
13	Polymorphous light eruption	8	8
14	Morphea	4	4
15	Acne	3	3
	Total	100	100

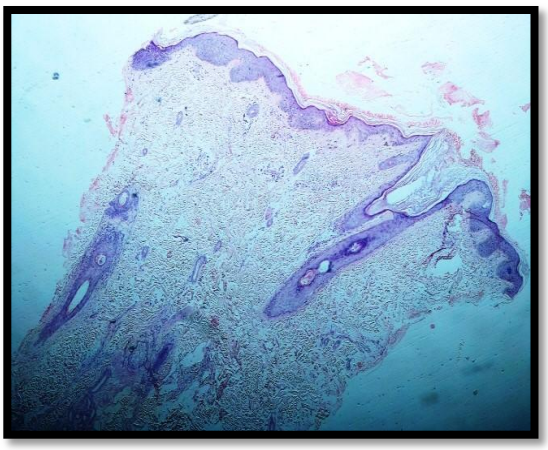


Fig-1: Lichen Plano Pilaris

Fig-2: Lichen Nitidus

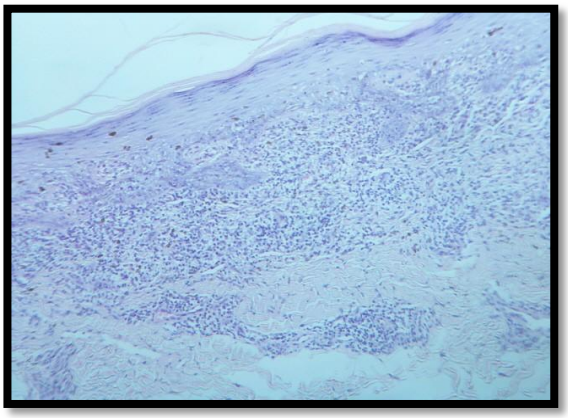
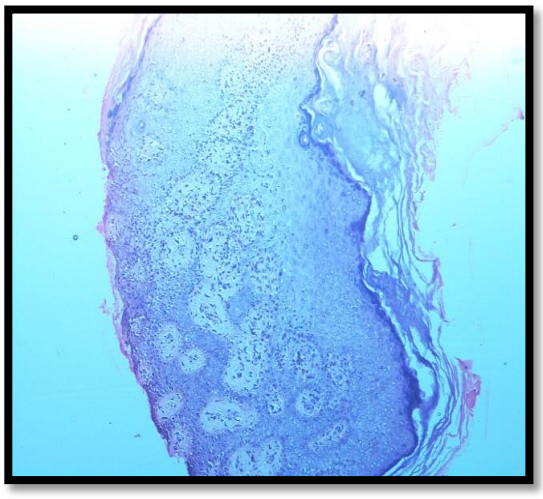


Fig-2: Lichenoid Dematitis



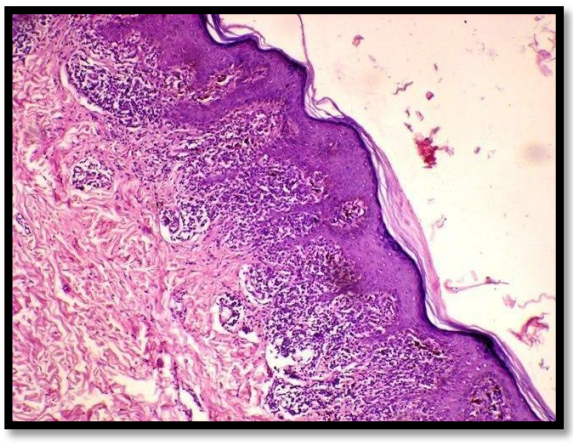


Fig-3: Lichen Planus

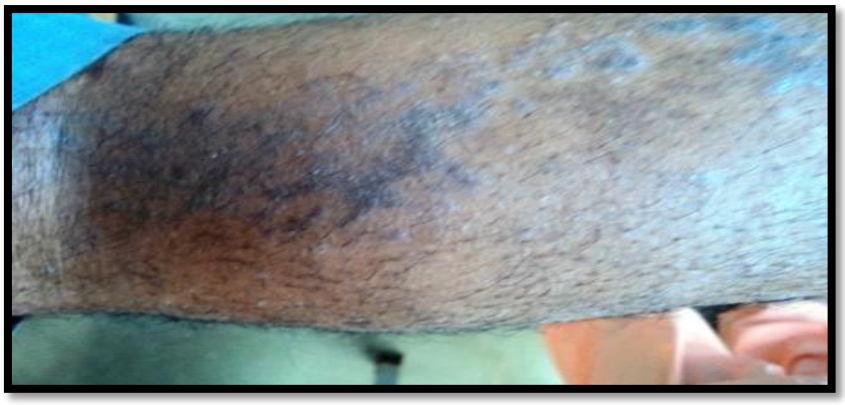


Fig-4: Lichen Planus Classical Purple Lesions

LICHENOID LESIONS (45/100 CASES)	PRESENT STUDY 45 CASES	ELLIS FA *et al.*, (1967) [4] 100 CASES	SEHGAL VN *et al.*, (2011) [5] 375 CASES	SONTHEIMER RD *et al.*, (2009) [6] 100 CASES
COMMON AGE GROUP	21-30 years	32-40 years	10-38 years	31-40 years
SEX PREDOMINANCE	Males	Males	Females	Females
ANATOMICAL LOCATION	Extremities, back and trunk	Upper extremities, trunk, back and genitalia	Extremities and back	Trunk, back, face, oral mucosa and Genitalia
SIGNS AND SYMPTOMS	Hyperpigmented Itchy papules and macules	Pruritic papules and macules	Flat topped papules	Papules and macules

RESULT AND DISCUSSION

Comparison of previous literature with present study

In this study of hyperpigmented skin lesions the maximum number of cases 45 (45%) were those of classical lichen planus and its variants, followed by 12% of eczematoid dermatitis, 8% of PMLE, 7% of DLE, 6% of lichen simplex chronicum, 7% of post inflammatory hyperpigmentation, 3% of prurigo nodularis, 4% of prurigo simplex, morphea 4%, acne 3%, and 1% of erythema dyschromium perstans.

In diagnostic evaluation of a hyper pigmentary lesions further characterization of morphology, distribution, pattern and extent of the lesion are helpful to make an accurate initial clinical diagnosis and skin biopsy is needed to confirm the diagnosis.

In this study an analysis of the clinical diagnosis with the histopathological diagnosis revealed a positive correlation in 90% of cases and negative correlation in 10% of cases thus emphasizing the importance and utility of histopathology in arriving at a conclusive diagnosis.

PREVELANCE OF CASES AMONG VARIOUS STUDIES

PRESENT STUDY 100 CASES	STULBERG *et al.*, (2003) [7] 100 CASES	PLENSDORF S *et al.*, (2007) [8] 60 CASES	FISTAROL KS *et al.*, (2009) [9] 100 CASES	DOMINGUEZ-SOTO L *et al.*, (1994) [10] 75 CASES
Lichen planus and its variants Post inflammatory hyperpigmentation Prurigo nodularis Prurigo simplex Lichen simplex chronicus Erythema dyschromium perstans DLE PMLE Eczema Morphea Acne	Melanoma Seborrheic keratosis Acanthosis nigricans Melasma Diabetic dermopathy Tinea versicolor Post inflammatory hyperpigmentation Sun exposure Phototoxic reaction	Post inflammatory hyperpigmentation Acne Lichen planus Atopic dermatitis Solar lentigos Melasma Ephelides Café-au-lait spots Nevus Melanoma	Nevus Melasma Café-au-lait spots Addison's disease Peutz-Jeghers syndrome Diabetic dermopathy Pityriasis versicolor	Ashy dermatosis Lichen planus pigmentosus Frictional dermatitis Pityriasis versicolor Pinta.

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