"CLINICAL AND DERMOSCOPIC FEATURES OF FACIAL AND NON-FACIAL LESIONS IN PATIENTS WITH PAPULOSQUAMOUS DISORDERS - A CROSS-SECTIONAL STUDY"

BY

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DISSERTATION SUBMITTED TO BLDE UNIVERSITY B.L.D.E (DEEMED TO BE UNIVERSITY), VIJAYAPURA

In partial fulfilment of the requirements for the degree of MD

IN

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UNDER THE GUIDANCE OF

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I hereby declare that this dissertation entitled **"CLINICAL AND DERMOSCOPIC FEATURES OF FACIAL AND NON-FACIAL LESIONS IN PATIENTS WITH PAPULOSQUAMOUS DISORDERS - A CROSS-SECTIONAL STUDY"** is a bonafide and genuine research work carried out by me under the guidance of Dr. KESHAVMURTHY ADYA, Professor & Head, Department of Dermatology Venereology and Leprosy, at BLDE (Deemed to be University) Shri B.M. Patil Medical College and Research Centre, Vijayapura.

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LIST OF ABBREVIATIONS

PR - Pityriasis rosea

PP - Plaque Psoriasis

SD - Seborrheic dermatitis

PRP - Pityriasis rubra pilaris.

LP - Lichen planus

PL - Polarized light

NPL - Non Polarized light

ABSTRACT

Background- Papulosquamous disorders are common, heterogenous group of disorders. Dermoscopic features of various papulosquamous disorders are well-characterized. Face is not commonly involved in these conditions, when involved they present differently because facial topography is different from non-facial skin. Clinical and dermoscopic features may vary for same reason. Further, face being a cosmetically significant area, invasive biopsy for confirmation of the diagnosis cannot be performed routinely.

Aims and objectives-

- To study the clinical and dermoscopic features of facial and non-facial lesion in patients with papulosquamous disorders namely, plaque psoriasis, classical lichen planus, pityriasis rosea, seborrheic dermatitis and pityriasis rubra pilaris.
- To correlate clinical and dermoscopic features of different papulosquamous disorders.

Materials and methods- It is an hospital based cross-sectional study of 55 patients presenting with various papulosquamous disorders. Patients were subjected to detailed clinical and dermoscopic examination and categorized into plaque psoriasis, classical lichen planus, pityriasis rosea, seborrheic dermatitis and pityriasis rubra pilaris.

Results- Psoriasis was most common diagnosis (65.45%), followed by lichen planus (23.64%), while pityriasis rosea (3.64%), pityriasis rubra pilaris (3.64%), and seborrheic dermatitis (3.64%) were less frequent. The mean age for psoriasis and lichen planus was 28.01 and 27.23 years, respectively. Males were more frequently affected (65.45%).

Dermoscopy of psoriasis revealed site-specific variations, with a red background (52.78%) and diffuse vessel distribution (97.14%) being predominant in non-facial lesions, while facial lesions showed a pink background (50%) and patchy vessel distribution (42.31%) ($p < 0.001$). White scales were consistently present in both locations.

In lichen planus, a violaceous pink background was most common in both facial (38.46%) and non-facial (61.54%) lesions, and Wickham striae were observed in 84.61% of cases. No significant site-specific variations were noted.

Pityriasis rosea lesions showed a uniform pink background with white collarette scales and brown globules, with perifollicular scaling and hypopigmentation noted in 50% of cases.

Pityriasis rubra pilaris exhibited a pinkish red background in both facial and non-facial lesions, with perifollicular scaling (100%) and diffuse white scaling (100%). Dermoscopic features were largely consistent across sites.

Seborrheic dermatitis showed a pinkish background in both facial and non-facial lesions, whitish scales (100%) being the predominant features.

Conclusion- Dermoscopic analysis revealed significant site-specific differences in psoriasis, while lichen planus, PRP, PR, and SD displayed more consistent features across facial and non-facial lesions. Dermoscopy remains a valuable tool for diagnosing and differentiating papulosquamous disorders.

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INTRODUCTION

“Papulosquamous disorders consist of a diverse group of inflammatory disorders of the skin that are characterized by an eruption that exhibit papule and squamous components with unknown etiology”.[30] (‘papula’ Latin word means ‘pimple’ and ‘squames’ means ‘scales’) They can last for weeks, months, or even years exhibiting acute to chronic patterns.[29] The spectrum includes inflammatory diseases such as psoriasis, pityriasis rosea and parapsoriasis.[29] Therefore Accurate diagnosis of papulosquamous skin disorders is necessary for effective treatment and evaluation of prognosis.

Dermoscopic features of various papulosquamous disorders are fairly well-characterized.

In papulosquamous disorders Face is not commonly involved, when involved they present differently because facial skin topography is different from non-facial skin. Clinical and dermoscopic features may vary for same reason. Further, face being a cosmetically significant area, invasive biopsy for confirmation of the diagnosis cannot be performed routinely. Studies assessing the differences or similarities in the dermoscopic findings of papulosquamous disorders at different locations are very scarce. Hence this study is undertaken to characterize the dermoscopic features of facial and non-facial skin lesions in papulosquamous disorders.

The present study aims to analyze the dermoscopic features in facial and non-facial lesions in papulosquamous disorders.

‘Dermoscopy is a non-invasive, in vivo method used for examining different skin lesions’. It connects macroscopic dermatology and microscopic histopathology by using a handheld device known as a "dermoscope," which makes it possible to see subsurface skin structures in

the epidermis, dermo-epidermal junction, and upper dermis that are typically invisible to the naked eye.[7]

Dermoscope is so called – A Dermatologist's Stethoscope.[7]

AIMS AND OBJECTIVES OF THE STUDY

- To study the dermoscopic and clinical features of facial and non-facial lesion in patients with papulosquamous disorders namely, plaque psoriasis, classical lichen planus, pityriasis rosea, seborrheic dermatitis and pityriasis rubra pilaris.
- To correlate clinical and dermoscopic features of different papulosquamous disorders.

REVIEW OF LITERATURE

'Papulosquamous disorders are divers group of disorders with primarily unknown etiology'. Skin lesions characteristically show red or purple papules or plaques with scales.

Prevalence varies from 2.5% to 10% in various studies.[30]

Previous studies –

-Nwako-Mohamadi et al. conducted a study in 2019, which revealed that dark-skinned people with lichen planus, plaque psoriasis, and pityriasis rosea showed dermoscopic findings that were generally in line with those for skin types I through III as reported in the literature. Plaque psoriasis lesions were vascular, while lichen planus and pityriasis rosea predominantly showed nonvascular findings.[1]

- Golinska et al. conducted a study in 2020 it was inferred that the anatomic location, duration, and sex of the patient can all affect the video-dermoscopic image of psoriatic plaques.[2]

- In a study done by Lallas et al., in 2014 it was inferred that Lesions on the scalp, face, palms, soles, folds, and genitalia can also exhibit the well-known dermoscopic criteria of psoriasis, with the prevalence of white scales differing depending on the body region.[3]

- An observational study conducted by Verma K et al., over time of 1 year showed psoriasis, lichen planus, pityriasis rosea are commonest papulosquamous diseases in descending order & involvement of face was seen in only 4.4 % of patients.[14]

DERMOSCOPY

The term “Dermatoscopy” was coined by German dermatologist Johann Saphier in 1920. Later, Goldman introduced the word “dermoscopy.” Dermoscopy is also known as ‘dermatoscopy’, ‘epiluminecsence microscopy’, ‘skin surface microscopy’, and ‘incident light microscopy’. Stolz and Braun- Falco pioneered the first dermoscope in 1989.[15]

The dermoscope is a portable, non-invasive diagnostic equipment that magnifies both the fine surface details of skin lesions and a few skin sub-stratal structures that are invisible to the naked eye and even to a magnifying lens.[12] It bridges microscopic dermatopathology and macroscopic clinical dermatology.[16]

Advantages of dermoscopy [17] –

- It is simple and time-saving.
- It is an outpatient-based non-invasive investigation that enables quicker evaluation of skin lesions.
- It aids investigator in focusing on the lesion.
- It can be used in follow-up visits after treatment.
- Provides a place to store photographs for comparison and analysis in the future.

PRINCIPLE:

Dermoscopic visualisation’s fundamental technique entails employing lenses to magnify skin lesions and varying light sources to illuminate them.[18] Any light beam that travels through skin typically is refracted, diffracted, reflected, or absorbed depending upon the type of skin (Figure 1).[19]

Light is reflected by dry, scaly skin, penetrating deeper through smooth, oily skin, increasing the transparency of the skin's subsurface. In the case of contact technique dermoscopy, the latter principle is utilised by observing the skin lesion after the application of coupling fluids such as oil (immersion oil, mineral oil), an antiseptic solution, water, glycerin, and gels.[20]

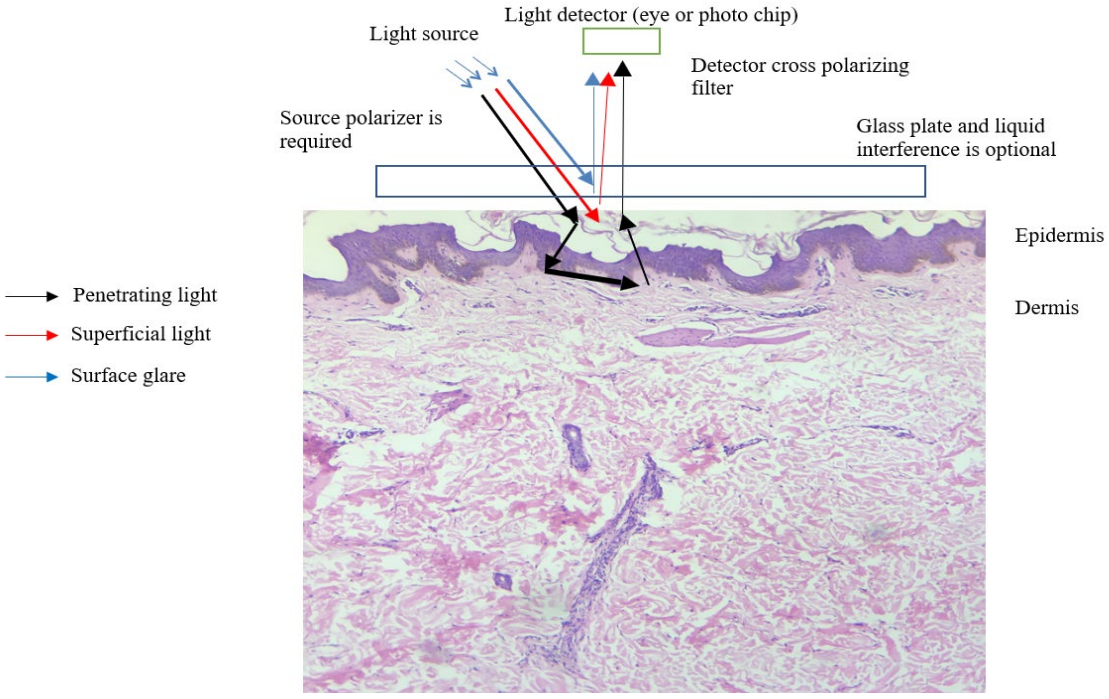

Figure 1: **Optics of Polarized and non-polarized dermoscopy.**

COMPONENTS OF DERMOSCOPE:[12]

1. Achromatic lens: Most dermoscopes have a 10X magnification. However, a video-dermoscope can attain magnifications of up to 1000X.
2. In-built illumination system: Compared to traditional halogen lights, which emit yellow light. For high-intensity white light LEDs are the conventional sources, using 70% less energy.
3. Power supply: This portable equipment is battery-powered or has rechargeable handles.

4. Contact plate: The components of the contact technique dermoscopy are large contact plates (20 mm in diameter) and small contact plates (8 mm in diameter). 2% glutaraldehyde or methylated spirit can be used to sterilise the multi-located silicone glass used in the contact plates. The purpose can also be achieved by boiling or autoclaving for five minutes at 134^0 C. These plates come in both graded and non-graduated varieties, some of which have scales.
5. Display system: Unlike the video-dermoscope, which can be connected to a computer or other displays or even have its own screen, the hand-held dermoscope has a see-through viewing window.
6. Inbuilt photography system: Except for the hand-held dermoscope, these now constitute a vital part of a dermoscope. The camera could be an integrated video camera, an attachable conventional or digital camera, or both. In the former situations, supporting software is implemented for image capture, storage, retrieval, and even analysis.

TYPES OF DERMOSCOPE: [20]

Marghoob et al. reviewed different dermoscope models and classified them into the following categories.

1. Dermoscopes without image capturing facility: These are portable, otoscope-like equipment without an internal camera or other means of image capturing. The use of an adaptor, however, allows the attachment of cameras to certain of these devices. To appreciate skin structures, it uses four different coloured polarised light—white, blue (surface pigmentation), yellow (superficial vessels), and red (deep pigment and vessels)—all of which are based on the idea that the depth of light penetration is proportional to wavelength.

2. Dermoscopes with image capturing facility: These devices either consist of a connected camera for taking pictures or have an integrated image capture system. With this technique, entire-body photography (body mapping) is also possible. Some have distinct lenses that may be attached to traditional or digital cameras. Photos that are 10X magnified can be taken both clinically and microscopically. A higher-resolution camera is attached to the handpiece of a video dermoscope, and the image is displayed on a computer screen. This device can also be used to record brief videos.
3. Dermoscopes with image capture facility and analytical capability:

   These equipments are mostly utilised for diagnostic workup of pigmented lesions in nations with high melanoma incidence. Images of the patient that have been maintained can be compared to recent ones. Any significant alteration to the lesion results in a change in colour signals.

DERMOSCOPY TECHNIQUE:

Both contact and non-contact methods can be employed to use the dermoscope. Dermoscopy utilising the contact technique applies a glass plate or contact plate to the surface of the lesion with an interface fluid and illuminates it with non-polarized light (NPL). When employing polarised light, a non-contact approach, there is no contact with the surface of the skin, which has the extra benefit of preventing nosocomial infections.[21]

Polarised light offers better visualisation of deeper components in the skin, whereas NPL allows for improved visualisation of more superficial structures.[22]

The vessels that run perpendicular to the skin's surface are represented as loops, while those that run parallel to it are represented as lines since the dermoscope allows for the visualisation of the skin in a horizontal orientation. Due to the non-contact technique’s inability to compress the vascular systems, vessels can be seen more clearly.[23]

IMMERSION FLUID:

The immersion oil linkage is the most ideal one for dermoscopic assessment.[12]

Categorisation of immersion or linkage fluid as:

i. Oils
ii. Water-based gels
iii. Water
iv. Disinfectant solutions

The characteristics of an optimal immersion liquid are:[12]

i. Inexpensive and readily available
ii. Enhances the structural characteristics of skin lesions without affecting their colour.
iii. Non-volatile
iv. Should produce fewer air bubbles
v. Can be used in specific areas like periorbital skin
vi. Shouldn't produce an excessive amount of bright or matte light.

Immersion oil is a better choice for an immersion fluid in visualizing the pigment network. Ultrasound gel or immersion oil can be employed for structural elements other than pigment networks. Ultrasound gel is a preferable option to immersion oil for dermoscopic inspection of non-pigmented skin lesions because it is less expensive and easier to wipe from the skin than immersion oil, which contains chemicals that are teratogenic, embryotoxic and carcinogenic like dibutyl phthalate and chlorinated paraffin.

A 70% alcoholic formulation provides the best outcomes regarding image quality, minimizing air bubbles, and improved patient tolerance because it has a less unpleasant odour, according to a study by Gewirtzmanet et al.[24] Alcohol is more effective in inflammatory dermatoses and may reduce the spread of infections. Glass, when placed over skin coated in linkage fluid (as in contact plates), greatly increases the transillumination of the skin lesion since its refractive index (1.52) is approximately identical to the skin refractive index (1.55). Dermoscopy of solid curved areas can be performed with the help of ultrasound gel, especially in the periphery of the nail plate.[25]

It is also suitable for evaluating the eyelids, mucosa, genitalia, and nail bed.[12] By utilising gel, the total curved area of the nail can be visible because unlike liquids, which escape out, viscose gel fills up and stays in the space between the surface to be observed and the contact plate.[12]

Major categories of dermoscopic criterion:

Each disease can be distinguished dermoscopically by one or two characteristic criteria. A structure that is more prominent than other coexisting features in a lesion's greater portion is referred to as a "predominant" criterion. Scales, vasculature, and structures related to hair follicles are frequently observed structures in inflammatory skin conditions.

The most significant factors to evaluate while doing a dermoscopy are –

1A. SCALES COLOUR[26]

i) White: The most common scale colour seen in primary and secondary follicular keratotic diseases, as well as other conditions, including papulosquamous and erythemato-squamous skin disorders.

ii) Yellow: Extravasation of serum results in yellow crusts, and serum combined with keratin results in yellow scales. This feature corresponds to spongiosis on histopathological examination.

iii) Brown: Scales that are brown in colour result from pigmented parakeratosis seen in a number of dermatoses. Exogenous pigmentation may also lead to brown scaling.

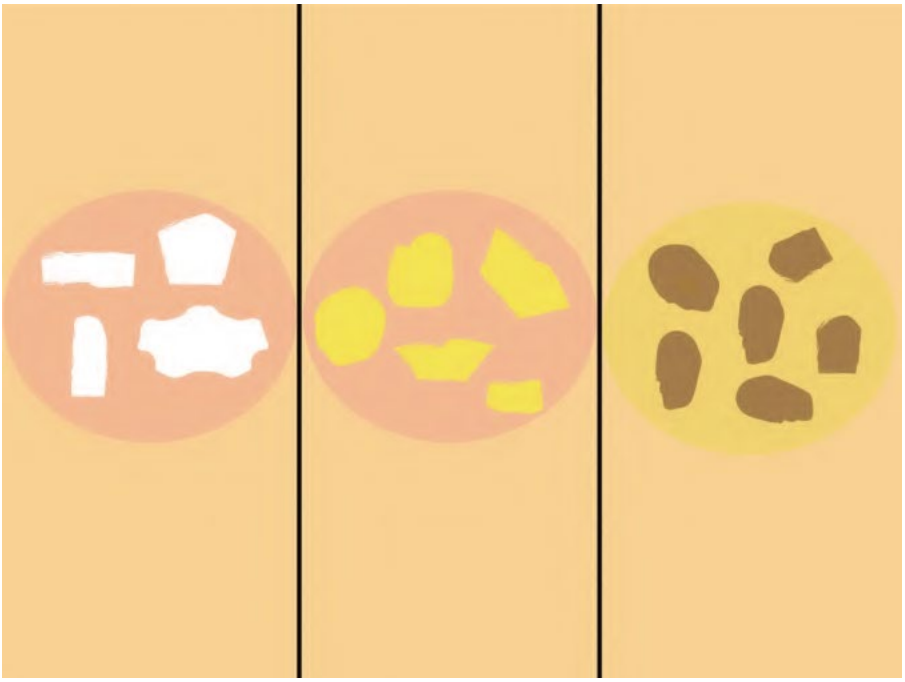

Figure 2: **Color of scales: white (A), yellow (B), brown (C).[26]**

1B. **SCALES DISTRIBUTION**[26]

i) Central: The centre of the lesion is highlighted by scales. Despite being extremely common in psoriasis, this scaling pattern cannot be considered distinct.

ii) Diffuse: Scales spanning the entire lesion's surface. Since it can be found in many hyperkeratotic dermatoses, a diffuse scale cannot be used to arrive at a diagnosis.

iii) Patchy: Scale distribution is asymmetric and random. Numerous conditions exhibit this.

iv) Peripheral: Scales are mainly found on the edges, with central clearing. Although it can also be a feature of other illnesses like tinea corporis, it is a hallmark of pityriasis rosea.

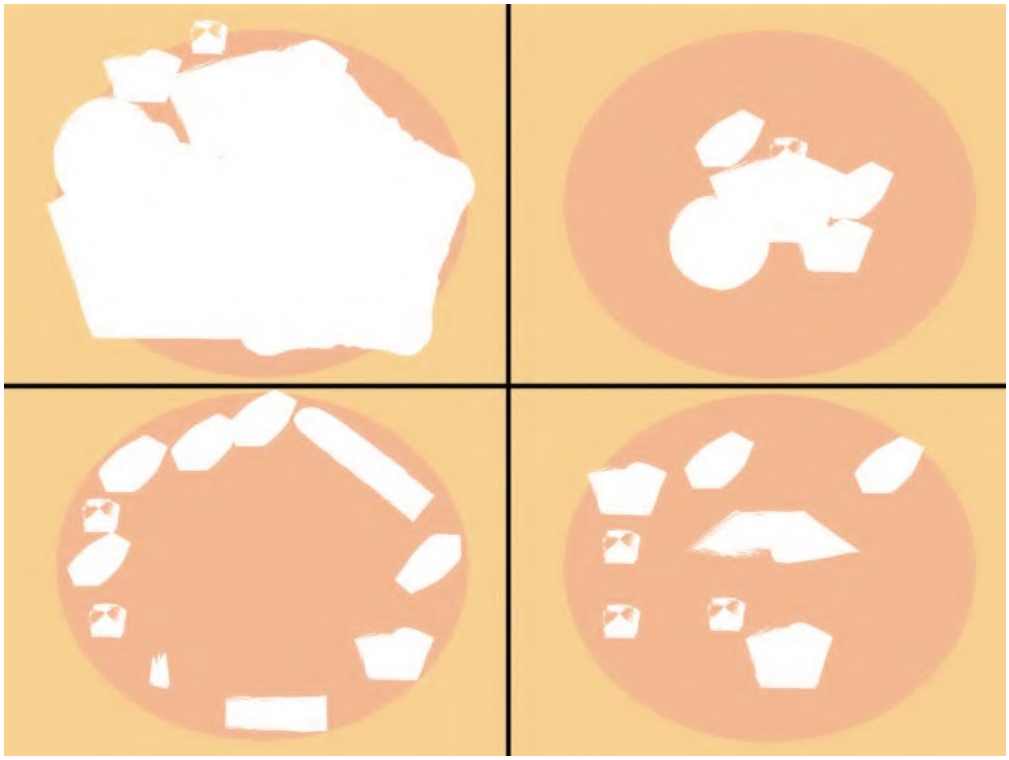

Figure 3: Scales distribution: A) Diffuse B) Central C) Periphery D) Patchy[26]

2. VESSELS:

Vessels situated in the dermis are usually pink and look out of focus. This is due to the result of dispersion of light through the connective tissue in the dermis. In contrast, those situated closer to the surface (directly beneath the epidermis) are brilliant red and well-defined[31]

2A. VESSELS MORPHOLOGY[26]

a. Dotted vessels - Include roundish vessels of any size, without distinguishing between globular or pinpoint vessels, which differ only in diameter. Dotted vessels can be seen dermoscopically in a variety of different inflammatory dermatoses, such as lichen planus, pityriasis rosea, porokeratosis, dermatitis (all varieties), and psoriasis.
b. Linear vessels (not curved and without branches) - Sun-damaged skin frequently shows linear vessels. Long-term topical steroid treatment of any disease's lesions also exhibits them.
c. Linear vessels with branches - They resemble the normal vessels found in basal cell carcinoma. They appear in the latter stages of discoid lupus erythematosus and granulomatous skin disorders (sarcoidosis, TB).
d. Linear curved vessels - They resemble the common comma vessels found in cutaneous nevi. They are present in mycosis fungoides, granulomatous diseases, and lichen planus.

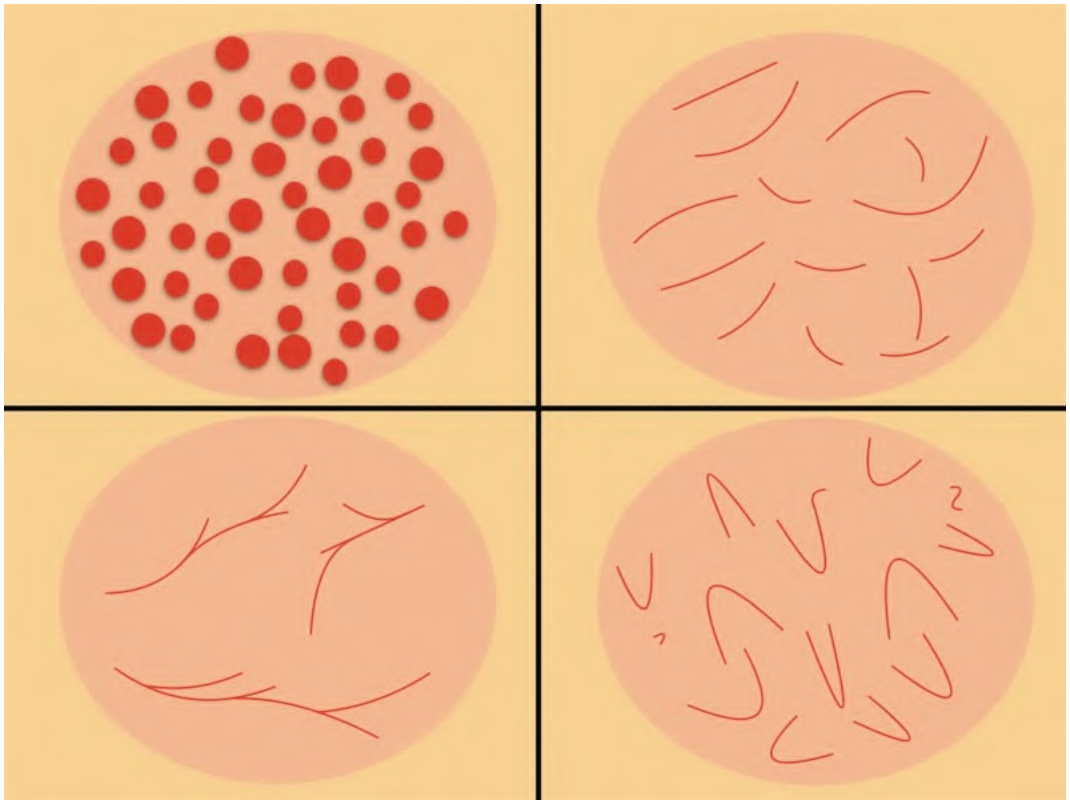

Figure 4: Morphologic types of vessels: dotted vessels (A), linear vessels (B), linear vessels with branches (C), linear curved vessels (D).[26]

2B. VESSELS DISTRIBUTION[26]

a. Regular - The vascular structures are evenly and uniformly dispersed throughout the lesion's surface.

b. Peripheral - Vascular structures are primarily found in the lesion's periphery.

c. Patchy - Vascular structures do not follow any particular pattern; they are arranged randomly. Another name for it is unspecific or asymmetric distribution.

d. Reticular - The vascular structures form a network.

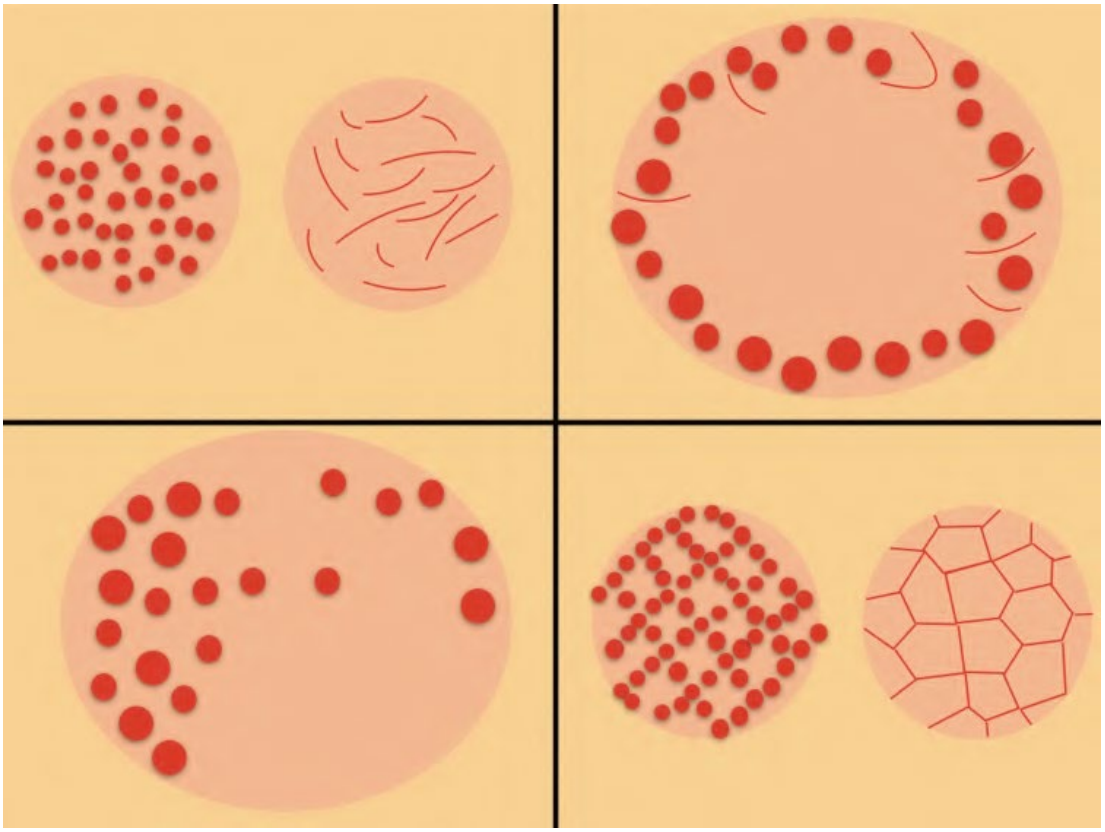

Figure 5: Possible distributions of vessels: Regular (A), Peripheral (B), Patchy (C), and Reticular (D)[26]

3. FOLLICULAR CRITERIA[26]

i. Follicular red dots: This indicates vasodilation and perifollicular inflammation. They can also be seen in follicular mucinosis but typically in discoid lupus erythematosus.

ii. Follicular plugs: Filling the follicular ostia are keratin plugs that are white or yellow in hue. It is a dermoscopic sign of discoid lupus erythematosus in its early stages, although it is also observed in other conditions, such as follicular keratosis disorders.

iii. Perifollicular white colour: Each hair follicle and/or the spaces between hair follicles are surrounded by a white circle. Epidermal hyperplasia (like hypertrophic lichen planus), perifollicular fibrosis (like DLE), or perifollicular depigmentation (like vitiligo) could be the causes.

iv. Perifollicular pigmentation: Pigment is primarily concentrated or prominent around the hair follicles. It is the first indication of repigmentation in vitiligo and is also visible in some alopecias

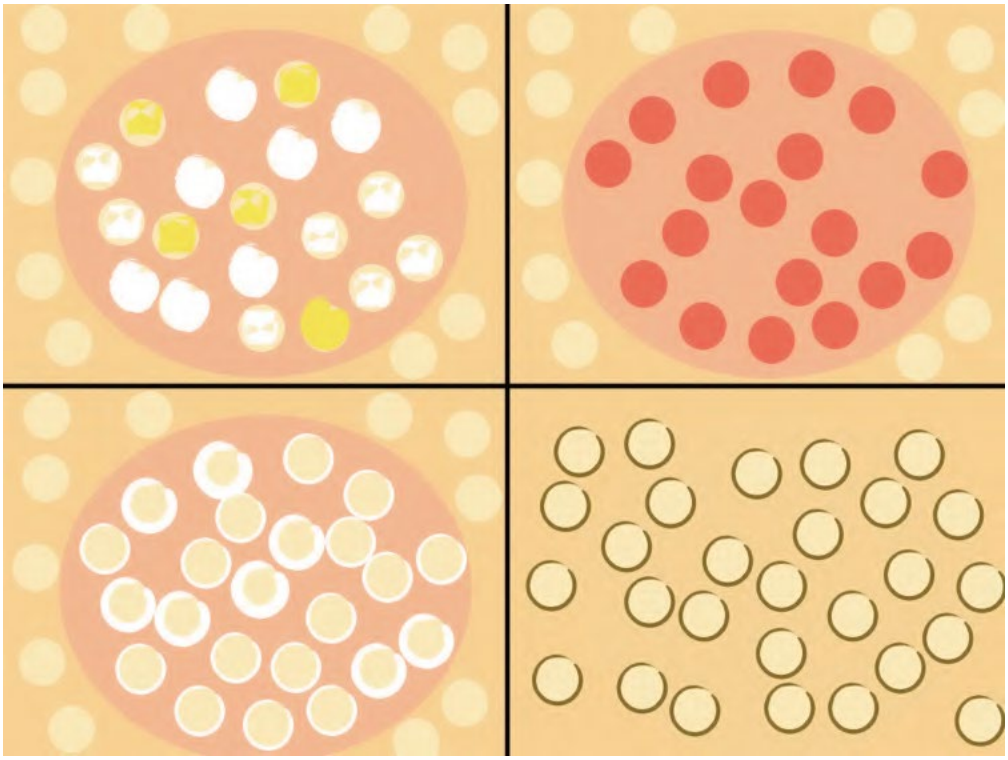

Figure 6: Follicular criteria: A) Plugs B) Follicular red dots C) Perifollicular hypopigmentation D) Perifollicular pigmentation[26]

4. SPECIFIC CLUES[26]

A "specific clue" is a characteristic that, when present, strongly suggests a single diagnosis. Therefore, characteristics that are unique to one disease and not to any other entity are known as "specific clue". Examples of specific clues are the white crossing lines of lichen planus (Wickham striae) and the peripheral keratotic rim of porokeratosis.

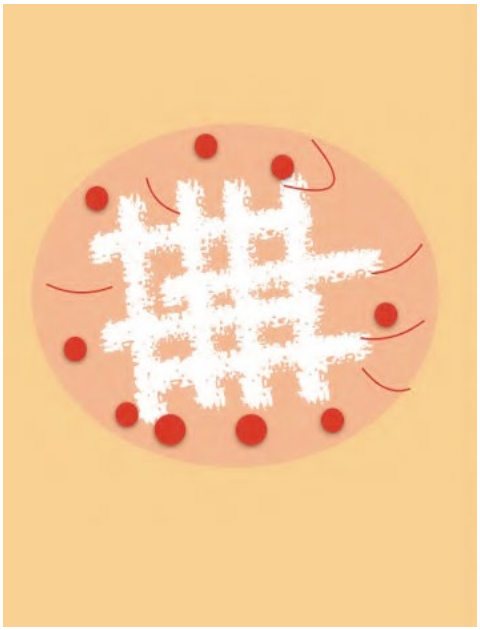

Figure 7: Wickham striae of lichen planus[26]

CLASSIFICATION OF PAPULOSQUAMOUS DISORDERS

Psoriasis
Parapsoriasis – Pityriasis lichenoides et varioliformis acuta (PLEVA) Pityriasis lichenoides chronica (PLC) Small plaque parapsoriasis Large plaque parapsoriasis
Pityriasis rosea (PR)
Lichen planus (LP)
Seborrheic dermatitis (SD)
Other – Pityriasis rubra pilaris (PRP) Lichen nitidus Lichen striatus

Table 1: Classification of papulosquamous disorders.

PSORIASIS

'Psoriasis is a common chronic, inflammatory proliferative condition of skin, characterized by red, scaly, sharply demarcated indurated plaques, present particularly over extensor surfaces and scalp'.[7]

Psoriasis is estimated to affect at least 60 million people worldwide.[32]

Incidence between 0.03% and 0.32% is reported in adults.[32]

Ages of incidence, 1st between 16 and 22 years of age and the 2nd between 57 and 62 years.[32]

It is autoimmune-mediated disorder triggered by infection, stress, and cold.[7]

Psoriasis is a hyperproliferative condition, and inflammatory mediator cells and cytokines trigger a series of immunologic responses that lead to enhanced keratinocyte proliferation.[36]

'Chronic plaque psoriasis is the most common type of psoriasis', it presents with well-defined, erythematous plaques of various sizes, typically covered by adherent silvery scales. The scalp, elbows, and knees are the most commonly affected areas, followed by the lower back, buttocks, nails, trunk, umbilical region, palms, and soles.[36]

The severity of hyperkeratosis varies according to the anatomical region; it is nonexistent in intertriginous tissues and heavy on the scalp or palms and soles. When scales are removed, little bleeding spots (Auspitz sign), and the scales are usually adherent in the middle and looser at the edges.[36]

Dermoscopy - White scales, regularly distributed dotted vessels & red / pink background.[4]

The uniform, regular & symmetrically distributed red dots throughout the lesion correspond to dilated tortuous blood vessels in the histology of plaque psoriasis.[4]

LICHEN PLANUS

'Lichen planus is a common inflammatory condition that can affect any ectodermal-derived tissue'. (Greek – 'leichen' means "tree moss"; Latin 'planus' means "flat")

Prevalence of lichen planus is approximately 1%.[37]

Seen usually in middle-aged adults from 30 to 60 years of age.[37]

It is an idiopathic T cell–mediated process without a clear autoantigen.

Lichen planus is characterised by 'well-marginated, dull red-violet, flat-topped, polygonal papules they are grouped and often coalesce into plaques'.

Wickham striae are highly characteristic in lichen planus and are easily visualized with dermoscopy.

Compact orthokeratosis over wedge-shaped hypergranulosis and acanthosis zones, centred on acrosyringia and acrotrichia, is referred to as Wickham striae.[33]

Lesions are grouped & symmetrically distributed commonly affecting flexural aspects of bilateral extremities.

Variants are based on configuration, morphology of lesion, and site of involvement[27]

Dermoscopy - Pearly white streaks (wickham striae) – Reticular, Annular, Star-burst, Radial, Linear, Leaf-venation, Globular pattern.

Pink/violaceous background

Scattered brown dots/globules

Dotted and linear vessels (typically running from centre towards periphery)

Yellow areas

White scales[28]

PITYRIASIS RUBRA PILARIS

'Pityriasis rubra pilaris (PRP) is a chronic papulosquamous disorder of unknown etiology'.[36]

With peaks in the first (for juvenile forms) and fifth to sixth decades (for adult forms) of life, its age distribution is bimodal.[34]

PRP is more often sporadic, but it may sometimes be inherited[36]

It may be linked to an aberrant immune response to an antigenic trigger, particularly streptococcal infections, however vaccines or drugs may also play a role.[36]

PRP classified into six types, which differ from each other on the basis of clinical features, age of onset, and prognosis:[36]

Type I: Classic adult type
Type II: Atypical adult type
Type III: Classic juvenile type
Type IV: Circumscribed juvenile type
Type V: Atypical juvenile type
Type VI: HIV-associated PRP

Classical type has follicular hyperkeratotic papules, salmon- or orange-red scaly patches and collarette scaling on the periphery.[36] Pruritus is seen in early stages of disease.[9]

Typically islands of normal skin are present called as 'islands of sparing'.[9]

Dermoscopy – 'Round or oval yellowish areas surrounded by linear dotted vessels, Central keratin plugs'.[8]

SEBORRHEIC DERMATITIS

Seborrheic dermatitis (SD) is a 'common, relapsing dermatitis characterised by erythematous patches and superficial scaling'.[10] It affects scalp, face, central chest and ano-genital areas which have high density of sebaceous glands.[10] SD is often symmetrical in distribution and has a preference for cutaneous folds, such as big flexures and sub-mammary areas.[10]

Its distribution is bimodal, peaking between the ages of two and twelve months in infancy and early adulthood.[35]

Although the exact reason is unknown, sebum production, individual vulnerability, and the skin surface microbiota—particularly lipophilic Malassezia yeasts—seem to be important factors.[35]

Medial eyebrows, eyelids, glabellar area, ear creases, and nasolabial folds are usually affected by facial SD. Posterior ear folds, alar creases & nasal side walls frequently show fine scaling with localised red or pink patches.[35]

Scalp involvement can vary from a more inflammatory eruption with thicker, yellow, greasy scales and crusts to moderate, tiny, grey-white scales without underlying red or pink regions.[35]

Dermoscopy – 'Arborizing vessels, yellowish scaling, structureless red areas, honeycomb pigment and comma vessels'.[4]

PITYRIASIS ROSEA

Pityriasis rosea inflammatory condition that is common and self-healing & is most likely brought on by herpes viruses (types 6/7).[36] Commonly seen in adolescents and young adults and resolves spontaneously after three to eight weeks.[36]

PR is characterized by multiple “salmon-colored” macules and papules covered by fine scales that have the tendency to desquamate at the periphery, forming “collarette” sign.[36] The disease usually begins as a single mother or herald patch, then after a week or longer, several "secondary" lesions that are either discrete or coalesce to create bigger plaques develop.[36] The lesions are commonly seen on the trunk and their orientated parallel to the lines of the cleavage.[36] Lesions on the extremities are not commonly seen, while face lesions are rare.[36]

Dermoscopy shows Diffuse and structureless yellow-orange areas.[4]

Herald patch and secondary lesions display typical pattern of white coloured peripheral scales (collarette sign).[4] Dotted vessels with patchy distribution are seen in pityriasis rosea.[4]

METHODOLOGY

Source of data: Patients presented to Shri B.M. Patil Medical College Hospital and Research Centre, VIJAYAPURA.

Period of study: The study was conducted during the period of May 2023-February 2025

Study design: A hospital based, cross-sectional study.

Sample size: With anticipated proportion of red dots in PP lesions 64.2%,[1] the study required sample size of 90 patients with 95% level of confidence and 10% absolute precision.

- Formula used-

$$n = \frac{z^2 p*q}{d^2}$$

Where Z= Z statistic at α level of significance

d^2 = Absolute error

P= Proportion rate

q= 100-p

Statistical Analysis:

- The data obtained was entered in a Microsoft Excel sheet, and statistical analysis was performed using statistical package for the social sciences (Version 20).
- Results were presented as Mean ±SD, Median and interquartile range, frequency, percentages and diagrams.
- Association Significant difference between Categorical variables were computed using Chi-square test.
- $P<0.05$ is considered statistically significant.

METHOD OF COLLECTION OF DATA:

Inclusion criteria:

- Patient clinically diagnosed with one of the papulosquamous disorders (plaque psoriasis, classic lichen planus, pityriasis rosea, seborrheic dermatitis and pityriasis rubra pilaris) having facial and non-facial lesions, irrespective of age, gender and patients who have not received any form of treatment (topical and/or systemic) within the past four weeks will be enrolled for study after informed consent.

Exclusion criteria:

- Patients with papulosquamous disorders who are on treatment or have received any form of treatment (topical and/or systemic) within the past four weeks.

Methods:

In this study, informed consent was taken from all the patients with papulosquamous disorders.

After obtaining informed consent patients were subjected to detailed clinical and dermoscopic examination.

In this study, a hand-held dermoscope (Dermlite DL4™, 3Gen Inc., San Juan Capistrano, CA, USA) was used. Lesions were studied using both PL and NPL.

Dermoscopic observations were recorded as per proforma.

Methodology:

Informed consent for the study was taken from the patients. All patients underwent a complete clinical and dermoscopic examination.

All the patients were subjected to a detailed clinical assessment in which history regarding onset, and duration papulosquamous disease was recorded. Patients were examined for morphological features of facial and non-facial lesions. The findings were recorded in proforma.

Dermoscopy of facial and non-facial skin was carried out for each lesion

Non-facial skin for different disorders -

- Plaque psoriasis – Trunk, upper and lower extremities.
- Classic Lichen planus – Trunk and upper extremities.
- Pityriasis rosea - Trunk, upper and lower extremities.
- Seborrheic dermatitis – Scalp, upper and lower extremities.
- Pityriasis rubra pilaris - Trunk, upper and lower extremities.

For dermoscopy, a handheld dermoscope (Dermlite DL4™, 3Gen Inc., San Juan Capistrano, CA, USA) was used. First dry dermoscopy was carried out without interface fluid further details were visualized by polarized and non-polarized dermoscopy with interface fluid. Dermoscopic images were recorded using a digital camera attached to the dermoscope. Dermoscopic observations were recorded as per the descriptive analytical terminologies for pattern analysis.

The data compiled was categorized and statistically analysed.

ETHICAL CLEARANCE:

Institutional ethical commitee clearance was undertaken for the study

RESULTS

A hospital based cross-sectional study was conducted from May 2023 to Feb 2025

Among patients attending dermatology OPD at Shri BM Patil medical college during this period, 55 patients presented with papulosquamous disorder having facial as well as non-facial lesions.

Out of 55 participants, psoriasis was the most common diagnosis with 36 patients (65.45%), followed by lichen planus with 13 patients (23.64%).

Pityriasis rosea, pityriasis rubra pilaris, and seborrheic dermatitis were less common, each accounting for 2 patients (3.64%)

Table 2: Clinical diagnosis

CLINICAL DIAGNOSIS	**n**	**%**
PSORIASIS	36	65.45%
LICHEN PLANUS	13	23.64%
PITYRIASIS ROSEA	2	3.64%
PITYRIASIS RUBRA PILARIS	2	3.64%
SEBORRHEIC DERMATITIS	2	3.64%
Total	55	100%

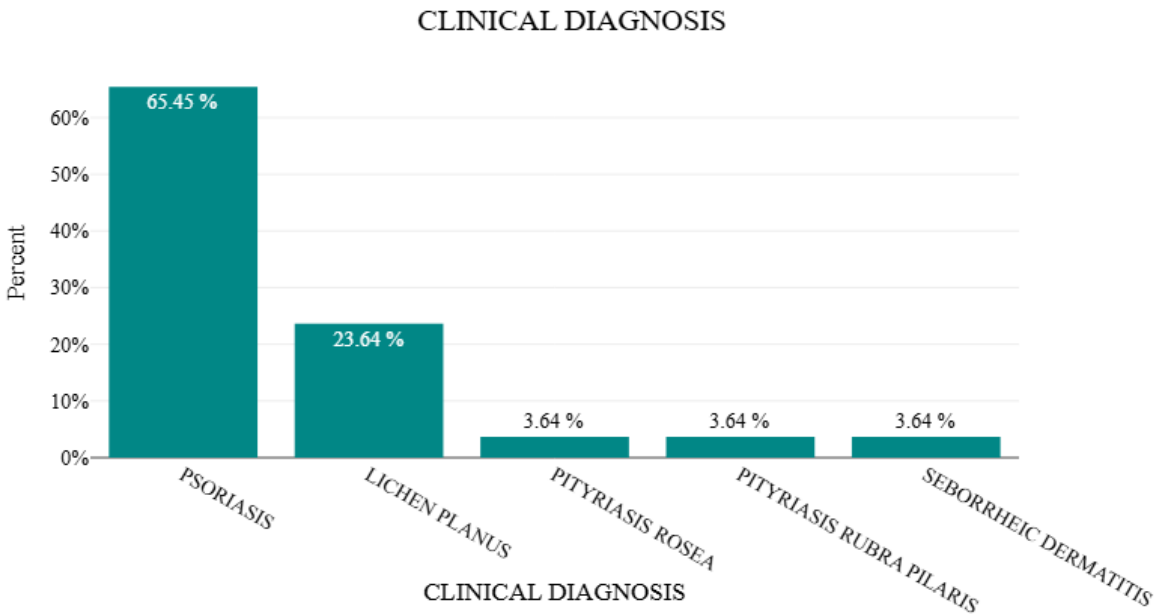

Figure 8: Graphical representation of distribution of cases.

AGE DISTRIBUTION –

Patients with psoriasis had a mean age of 28.01 years (SD = 19.3), while those with lichen planus had a mean age of 27.23 years (SD = 18.62). Patients with pityriasis rosea (mean age = 10.0, SD = 5.66), pityriasis rubra pilaris (mean age = 10.5, SD = 6.36), and seborrheic dermatitis (mean age = 16.5, SD = 0.71) were generally younger.

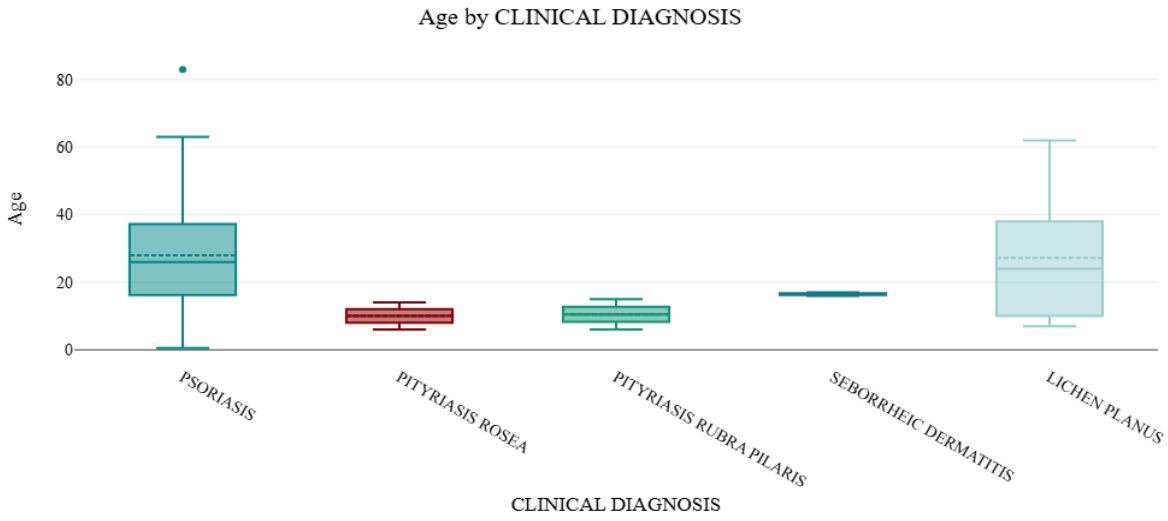

Figure 9: Mean age of participants according clinical diagnosis

Table 3: Mean age difference in different diseases			
Clinical Diagnosis	n	Mean	Std. Deviation
PSORIASIS	36	28.01	19.3
PITYRIASIS ROSEA	2	10	5.66
PITYRIASIS RUBRA PILARIS	2	10.5	6.36
SEBORRHEIC DERMATITIS	2	16.5	0.71
LICHEN PLANUS	13	27.23	18.62

GENDER DISTRIBUTION -

The gender distribution shows a male predominance in the study population, with 36 males (65.45%) compared to 19 females (34.55%)

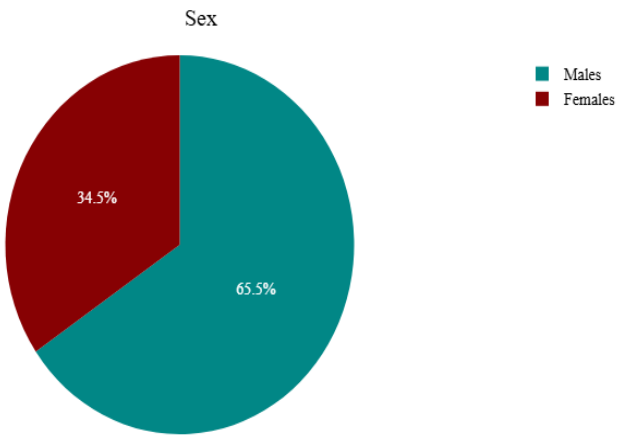

Figure 10: Gender wise distribution of participants

PSORIASIS DERMOSCOPIC FEATURES –

For non-facial skin lesions, red was the predominant background colour (n = 19) (52.78%), followed by pinkish red (n = 11) (30.56%), and pink (n = 6) (16.67%). In contrast, facial lesions showed pink as the most common background colour (n = 18) (50%), followed by pinkish red (n = 9) (25%), pinkish white (n = 6) (16.67%), and reddish (n = 3) (8.33%).

The p-value of <0.001 indicates a highly significant difference in background colour between facial and non-facial psoriasis lesions.

Table 4: Background colour in psoriasis among facial and non-facial lesions

BACKGROUND COLOUR	**Non-facial skin**		**Facial skin**		**Total**	**P value (Fisher's Exact test)**
	n	%	n	%	n	
Red	19	52.78%	3	8.33%	22	<0.001 S
Pinkish Red	11	30.56%	9	25%	20	
Pink	6	16.67%	18	50%	24	
Pinkish White	0	0%	6	16.67%	6	
Total	36	100%	36	100%	72	

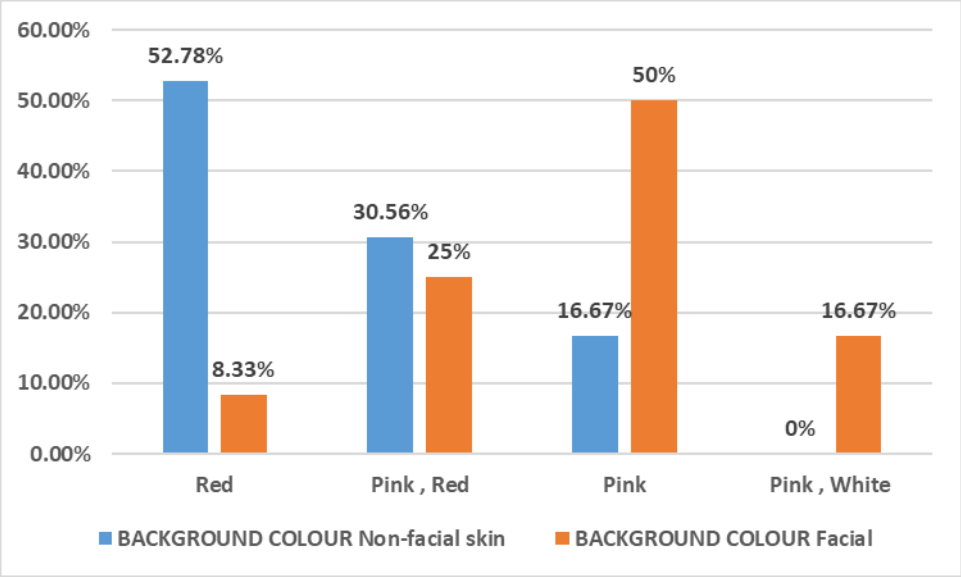

Figure 11: comparing background colour in dermoscopy of psoriasis

Vessels were present in 35 psoriasis patients in non-facial skin lesions (97.22%) & 26 patients (72.22%) showed on facial skin lesions.

Vessel morphology in psoriasis showed dotted vessels as the most common pattern in both non-facial (n = 24) 68.57% and facial lesions (n = 18) 69.23%. Polymorphic vessels were observed in (n = 8) 22.86% of non-facial and (n = 5) 19.23% of facial lesions, while coiled vessels were seen in (n = 3) 8.57% of non-facial and (n = 3) 11.54% of facial lesions.

The p-value of 0.900 indicates no significant difference in vessel morphology between facial and non-facial psoriasis

Vessel distribution in non-facial lesions showed overwhelmingly diffuse distribution (n = 34) (97.14%) with only (n = 1) 2.86% having patchy distribution. In contrast, facial lesions showed diffuse distribution in (n = 15) 57.69% of cases and patchy distribution in (n = 11) 42.31%. (Table 6) The p-value of <0.001 indicates a highly significant difference, suggesting that vessel distribution patterns in psoriasis vary substantially between facial and non-facial sites

Table 5: Vessel morphology in psoriasis cases among facial and non-facial lesions						
VESSEL MORPHOLOGY	**Non-facial skin**		**Facial**		**Total**	**P value (Fisher's Exact test)**
	n	%	n	%	n	
Dotted, Coiled	8	22.86%	5	19.23%	13	0.900
Dotted	24	68.57%	18	69.23%	42	
Coiled	3	8.57%	3	11.54%	6	
Total	35	100%	26	100%	61	

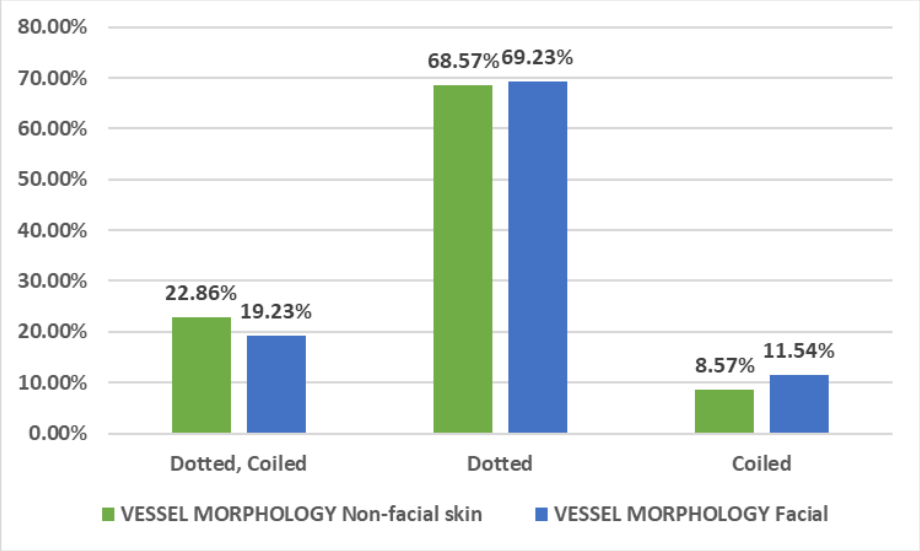

Figure 12: vessel morphology in dermoscopy of psoriasis

Table 6: vessel distribution in psoriasis cases among facial and non-facial lesions						
VESSEL DISTRIBUTION	**Non-facial skin**		**Facial**		**Total**	**P value (Fisher's Exact test)**
	n	%	n	%	n	
Diffuse	34	97.14%	15	57.69%	49	<0.001 S
Patchy	1	2.86%	11	42.31%	12	
Total	35	100%	26	100%	61	

White scales were the predominantly in both non-facial (n = 35) (97.22%) and facial psoriasis lesions (n = 34) (94.44%). A single patient showed combined whitish yellow scales (2.78% in both locations), while yellow scales alone were observed in (n = 1) 2.78% of facial lesions only.

Table 7: scales colour in psoriasis cases among facial and non-facial lesions

SCALES COLOUR	Non-facial skin		Facial		Total	P value (Fisher's Exact test)
	n	%	n	%	n	
WHITE	35	97.22%	34	94.44%	69	0.900
WHITE, YELLOW	1	2.78%	1	2.78%	2	
YELLOW	0	0%	1	2.78%	1	
Total	36	100%	36	100%	72	

For scale distribution in psoriasis, diffuse scaling was predominant in both non-facial (n = 33) (91.67%) and facial lesions (n = 27) (75%). However, facial lesions showed more variety, with patchy scaling in (n = 5) 13.89%, diffuse & peripheral scaling in (n = 2) 5.56%, and other patterns in smaller percentages. (Table 8) The p-value of 0.0015 indicates a significant difference in scale distribution between facial and non-facial sites.

Follicular changes were noted in 8 non-facial (22.22%) & 20 facial (55.55%) skin lesions.

All non-facial lesions with follicular involvement (100%) predominantly showed perifollicular scaling alone. In contrast, facial lesions showed more diverse follicular features: predominantly perifollicular scaling in (n = 9) 45%, combined perifollicular scaling and hypopigmentation in (n = 6) 30%, and predominantly perifollicular hypopigmentation in (n = 5) 25%. (Table 9) The p-value of 0.033 indicates a significant difference, suggesting that facial lesions have more diverse follicular changes compared to non-facial lesions.

Table 8: scales distribution in psoriasis among facial and non-facial lesions						
SCALES DISTRIBUTION	**Non-facial skin**		**Facial**		**Total**	**P value (Fisher's Exact test)**
	n	%	n	%	N	
Peripheral	2	5.56%	1	2.78%	3	0.0015 S
Diffuse	33	91.67%	27	75%	60	
Patchy & Peripheral	1	2.78%	1	2.78%	2	
Patchy	0	0%	5	13.89%	5	
Diffuse & Peripheral	0	0%	2	5.56%	2	
Total	36	100%	36	100%	72	

Table 9: Follicular features in psoriasis cases among facial and non-facial lesions						
Follicular features	**Non-facial skin**		**Facial**		**Total**	**P value (Fisher's Exact test)**
	n	%	n	%	n	
Perifollicular scaling	8	100%	9	45%	17	0.033 S
Perifollicular hypo pigmentation	0	0%	5	25%	5	
Perifollicular scaling, Perifollicular hypo pigmentation	0	0%	6	30%	6	
Total	8	100%	20	100%	28	

LICHEN PLANUS DERMOSCOPIC FEATURES –

For lichen planus, the most common background colour in non-facial lesions was violaceous pink (n = 8) (61.54%), followed by violaceous red (n = 2) (15.38%). Other colours appeared in smaller percentages. Facial lesions showed a similar pattern with violaceous pink (n = 5) (38.46%) being most common, followed by violaceous red (n = 2) (15.38%), and pinkish red (n = 2) (15.38%). The p-value of 0.78 indicates no significant difference in background colour distribution between facial and non-facial lichen planus, suggesting that the characteristic violaceous colour of lichen planus is consistent across anatomical sites.

Table 10: background colour in lichen planus cases among facial and non-facial lesions

BACKGROUND COLOUR	**Non-facial skin**		**Facial**		**Total**	**P value (Fisher's Exact test)**
	n	%	n	%	n	
Red	1	7.69%	1	7.69%	2	0.78
violaceous, Pink	8	61.54%	5	38.46%	13	
violaceous, Red	2	15.38%	2	15.38%	4	
violaceous	1	7.69%	1	7.69%	2	
White, Red	1	7.69%	0	0%	1	
Pink, Red	0	0%	2	15.38%	2	
Pink	0	0%	1	7.69%	1	
White	0	0%	1	7.69%	1	
Total	13	100%	13	100%	26	

Out of 13 LP patients vessels were noted in 5 non-facial (38.46%) and 4 facial (30.76%) skin lesions.

All non-facial LP lesions (n = 5) (100%) showed dotted vessels. Facial lesions predominantly showed dotted vessels (n = 3) (75%) with linear vessels in (n = 1) 25%. The p-value of 0.444 indicates no significant difference in vessel morphology between facial and non-facial sites

Table 11: vessel morphology in lichen planus cases among facial and non-facial lesions

VESSEL MORPHOLOGY	**Non-facial skin**		**Facial**		**Total**	**P value (Fisher's Exact test)**
	n	%	n	%	n	
Dotted	5	100%	3	75%	8	0.444
Linear	0	0%	1	25%	1	
Total	5	100%	4	100%	9	

Table 12: vessel distribution in lichen planus cases among facial and non-facial lesions

VESSEL DISTRIBUTION	**Non-facial skin**		**Facial**		**Total**	**P value (Fisher's Exact test)**
	n	%	n	%	n	
Diffuse	4	80%	2	50%	6	0.683
Patchy	1	20%	1	25%	2	
PERIPHERAL	0	0%	1	25%	1	
Total	5	100%	4	100%	9	

Non-facial lichen planus lesions predominantly showed diffuse vessel distribution (n = 4) (80%) with patchy distribution in (n = 1) 20%. Facial lesions showed more variety with diffuse (n = 2) (50%), patchy (n = 1) (25%), and peripheral (n = 1) (25%) distributions. The p-value of 0.683 indicates no significant difference.

12 LP patients (92.30%) presented with scaling out of 13 patients.

All LP patients presenting with scaling both facial and non-facial lesions showed diffuse whitish scales.

Follicular rosettes were observed in one LP patient (7.69%) involving facial and non-facial lesions.

Brown dots/globules were noted in 3 non-facial (23.07%) & 1 facial (7.69%) skin lesions in patients presenting with LP.

Table 13: Pigmentary features in Lichen Planus cases among facial and non-facial lesions

Pigmentary features	**Non-facial skin**		**Facial**		**Total**
	n	**%**	**n**	**%**	**n**
Brown globules	3	23.07%	1	7.69%	4
Total	13	100%	13	100%	26

9 patients with LP (69.23%) showed Wickham striae in both facial and non-facial skin lesions & 2 patients showed WS only on facial or 2 showed only on non-facial skin lesions.

Non-facial lichen planus lesions showed various patterns of Wickham striae, with globular pattern being most common (n = 4) (36.36%), followed by globular and radial (n = 3) (27.27%), and other combinations. Facial lesions also showed variety, with globular pattern being most common (n = 5) (45.45%), followed by various combinations each at 9.09%.(Table 14)

The p-value of 0.9 indicates no significant difference in Wickham striae patterns between facial and non-facial lichen planus.

Table 14: Wickham striae in Lichen Planus cases among facial and non-facial lesions

Wickham striae	Non-facial skin		Facial		Total	P value (Fisher's Exact test)
	n	%	n	%	n	
Globular	4	36.36%	5	45.45%	9	
Linear, Circular, Radial	1	9.09%	0	0%	1	
Globular, Linear	1	9.09%	0	0%	1	
Globular, Linear, Reticular	1	9.09%	0	0%	1	
Globular, Radial	3	27.27%	0	0%	3	
Globular, Radial, Reticular	1	9.09%	0	0%	1	
Linear	0	0%	1	9.09%	1	0.9
Globular, Linear, Circular, Reticular	0	0%	1	9.09%	1	
Circular, Radial, Reticular	0	0%	1	9.09%	1	
Globular, Linear, Radial	0	0%	1	9.09%	1	
Linear and Globular	0	0%	1	9.09%	1	
Radial	0	0%	1	9.09%	1	
Total	11	100%	11	100%	22	

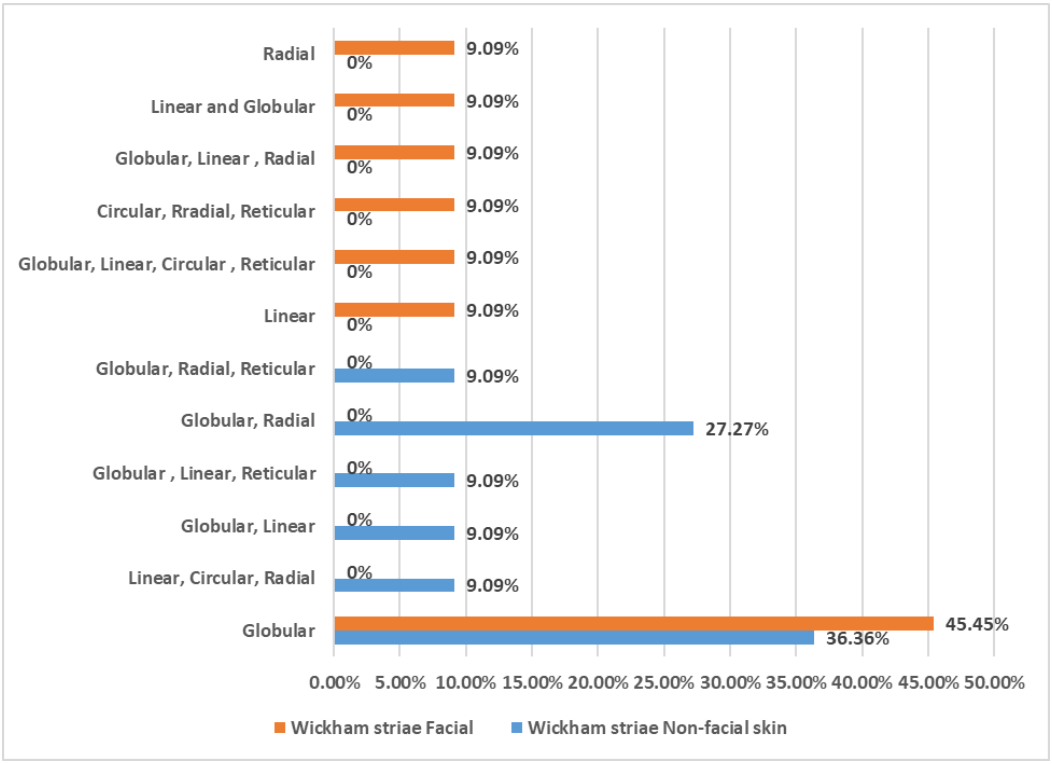

Figure 13: Graphical representation of different types of wickham striae

PITYRIASIS ROSEA DERMOSCOPIC FEATURES –

Both cases of pityriasis rosea (100%) showed pink background in both facial and non-facial lesions.

Table 15: background colour in pityriasis rosea cases among facial and non-facial lesions

BACKGROUND COLOUR	**Non-facial skin**		**Facial**		**Total**	**P value (Fisher's Exact test)**
	n	**%**	**n**	**%**	**n**	
Pink	2	100%	2	100%	4	NA
Total	2	100%	2	100%	4	

Both pityriasis rosea cases (100%) showed white scales in both facial and non-facial sites. Non-facial pityriasis rosea lesions showed collarette (n = 1) (50%) and central along with collarette scaling (n = 1) (50%). Facial lesions showed central (n = 1) (50%) and central along with collarette scaling (n = 1) (50%). The p-value of 0.9 indicates no significant difference.

Table 16: scales distribution in pityriasis rosea cases among facial and non-facial lesions

SCALES DISTRIBUTION	**Non-facial skin**		**Facial**		**Total**	**P value (Fisher's Exact test)**
	n	**%**	**n**	**%**	**n**	
Central	0	0%	1	50%	1	0.9
Collarette, Central	1	50%	1	50%	2	
Collarette	1	50%	0	0%	1	
Total	2	100%	2	100%	4	

Both patient showed interfollicular scaling over facial lesions (100%) and 1 patient showed over non-facial skin lesions (50%).

pityriasis rosea lesions (n = 1) (50%) with follicular involvement in both facial and non-facial sites showed combined perifollicular scaling and hypopigmentation

Table 17: follicular features in pityriasis rosea cases among facial and non-facial lesions

Follicular features	**Non-facial skin**		**Facial**		**Total**	**P value (Fisher's Exact test)**
	n	**%**	**n**	**%**	**n**	
Perifollicular scaling, Perifollicular hypo pigmentation	1	50%	1	50%	2	NA
Total	2	100%	2	100%	4	

Both pityriasis rosea patients (n = 2) (100%) in both facial and non-facial sites showed brown globules.

Table 18: pigmentary features in pityriasis rosea cases among facial and non-facial lesions

Pigmentary features	**Non-facial skin**		**Facial**		**Total**	**P value (Fisher's Exact test)**
	n	**%**	**n**	**%**	**n**	
Brown globules	2	100%	2	50%	4	NA
Total	2	100%	2	100%	4	

PITYRIASIS RUBRA PILARIS DERMOSCOPIC FEATURES –

Both pityriasis rubra pilaris patitent (100%) in both facial and non-facial sites showed pinkish red background color.

Table 19: background colour in pityriasis rubra pilaris cases among facial and non-facial lesions

BACKGROUND COLOUR	**Non-facial skin**		**Facial**		**Total**	**P value (Fisher's Exact test)**
	n	**%**	**n**	**%**	**n**	
Pink, Red	2	100%	2	100%	4	NA
Total	2	100%	2	100%	4	

Dotted vessels were seen in 1 PRP patient involving non-facial skin (50%).

pityriasis rubra pilaris lesions (n = 2) (100%) in both facial and non-facial sites showed whitish scales.

Both perifollicular & interfollicular scaling was seen in both PRP patients (100%) involving facial as well as non-facial skin lesions.

1 patient showed perifollicular tubular casts/scales over both facial as well as non-facial skin lesions.

SEBORRHEIC DERMATITIS DERMOSCOPIC FEATURES –

Non-facial seborrheic dermatitis lesions showed pink (n = 1) (50%) and pinkish white (n = 1) (50%) background. Facial lesions showed pinkish white (n = 1) (50%) and pinkish red (n = 1) (50%) background.

Table 20: background colour in seborrheic dermatitis cases among facial and non-facial lesions

BACKGROUND COLOUR	Non-facial skin		Facial		Total	P value (Fisher's Exact test)
	n	%	n	%	n	
Pink	1	50%	0	0%	1	0.368
Pink, White	1	50%	1	50%	2	
Pink, Red	0	0%	1	50%	1	
Total	2	100%	2	100%	4	

1 patient with SD showed whitish patchy and diffuse scaling over facial skin lesions & patchy scaling over non-facial skin lesions.

Other SD patient showed patchy distribution of white scale over both facial as well as non-facial skin lesions.

1 SD patient (50%) showed follicular features in facial as well as non-facial lesions.

The non-facial lesion with follicular involvement showed combined perifollicular scaling and hypopigmentation. The facial lesion showed perifollicular scaling and plugs (Table 21).

Table 21: follicular features in seborrheic dermatitis cases among facial and non-facial lesions						
Follicular features	**Non-facial skin**		**Facial**		**Total**	**P value (Fisher's Exact test)**
	n	**%**	**n**	**%**	**n**	
Perifollicular scaling, Perifollicular hypo pigmentation	1	100%	0	0%	1	0.157
Perifollicular scaling & PLUGS	0	0%	1	100%	1	
Total	1	100%	1	100%	2	

IMAGES OF DERMOSCOPY FEATURES OF FEW LESIONS FROM THE STUDY:

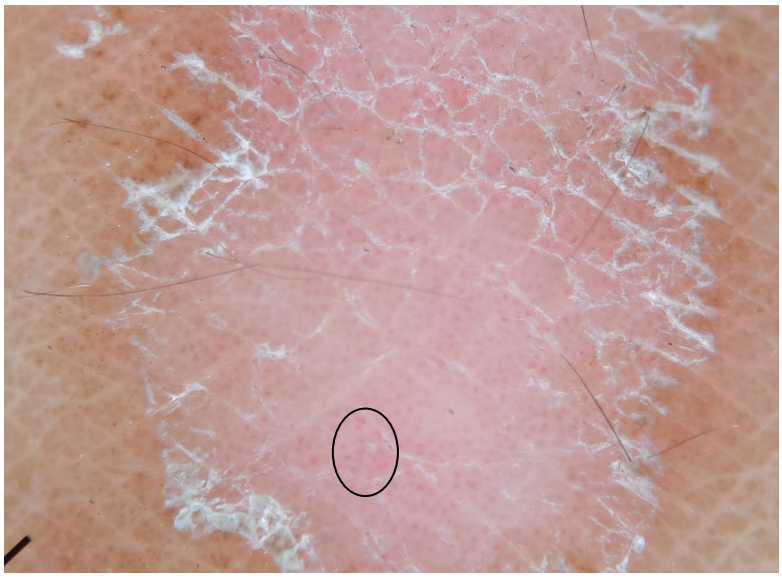

Figure 14: Dermoscopy of facial lesion in psoriasis showing pink background, dotted vessels (black circle) & white scales.

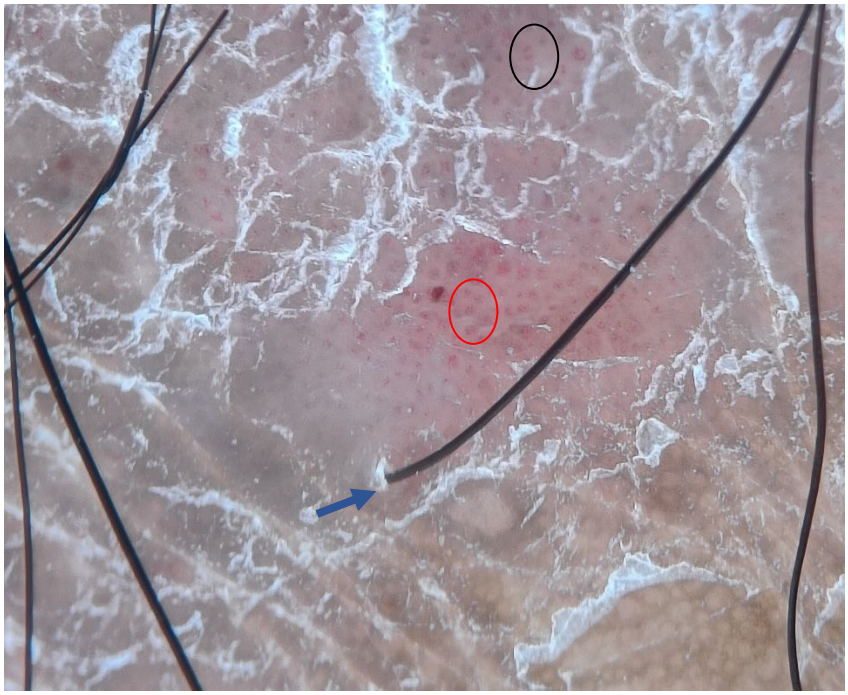

Figure 15: Dermoscopy non-facial lesion in psoriasis showing dotted (black circle) & coiled vessels (red circle) and perifollicular scaling (blue arrow).

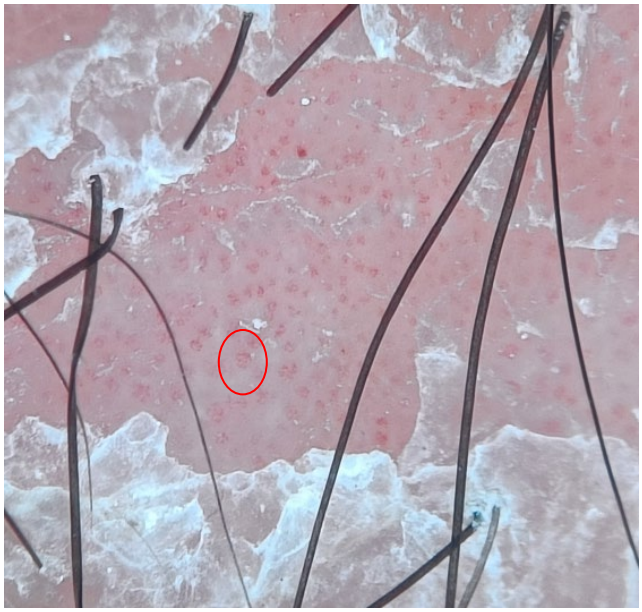

Figure 16: Dermoscopy non-facial lesion in psoriasis showing coiled vessels (red circle) and white scales

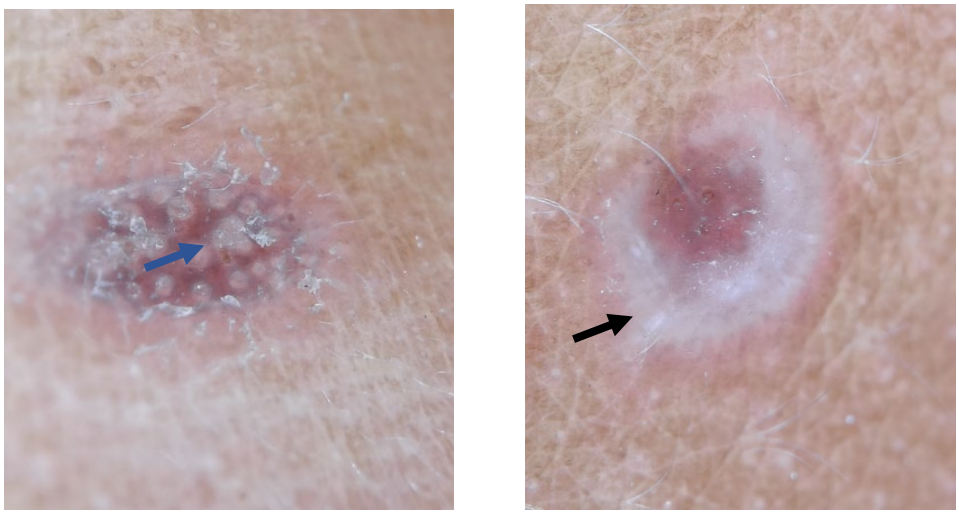

Figure 17: Dermoscopy of facial lesions in LP showing globular (blue arrow) & circular (black arrow) wickham striae.

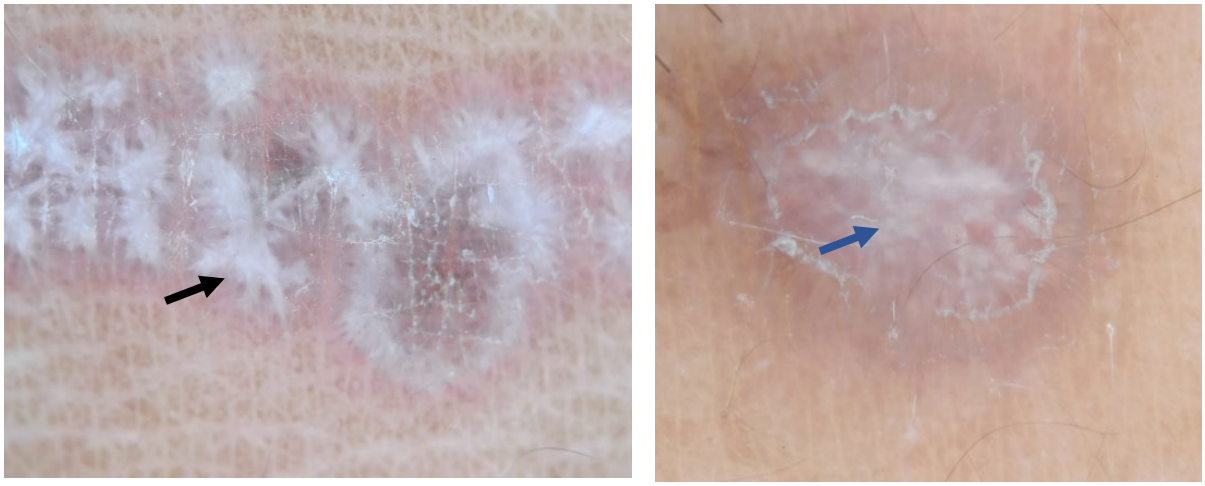

Figure 18: Dermoscopy of non-facial lesions in LP showing globular wickham striae (blue arrow) & leaf venation (black arrow) pattern.

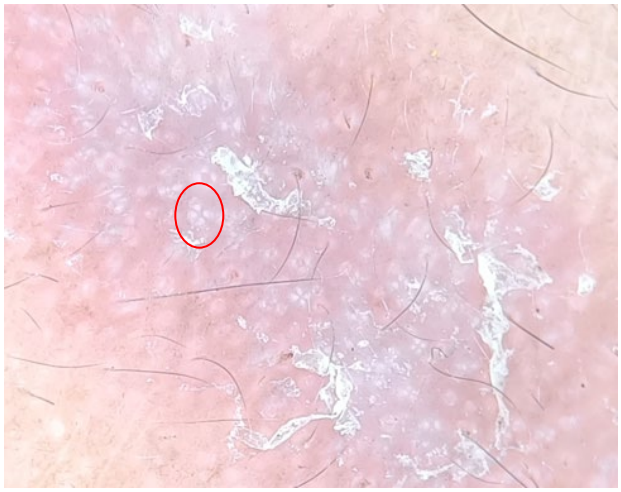

Figure 19: Dermoscopy of facial lesions in LP showing violaceous pink background & Follicular rosettes (red circle).

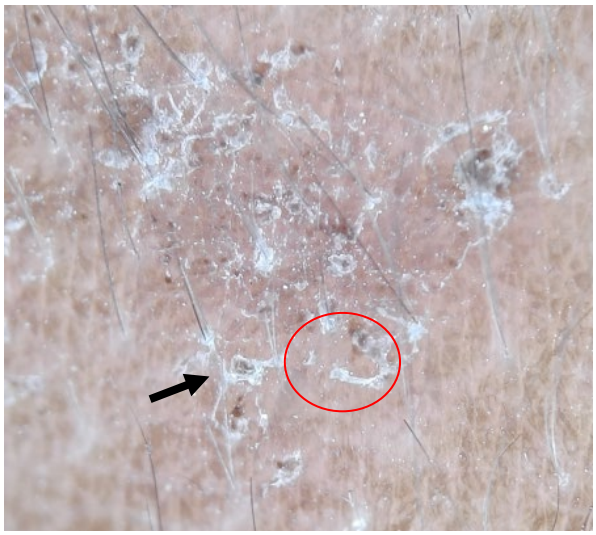

Figure 20: Dermoscopy of facial lesions in p. rosea showing white scaling, brown dots (red circle) & perifollicular scaling (black arrow).

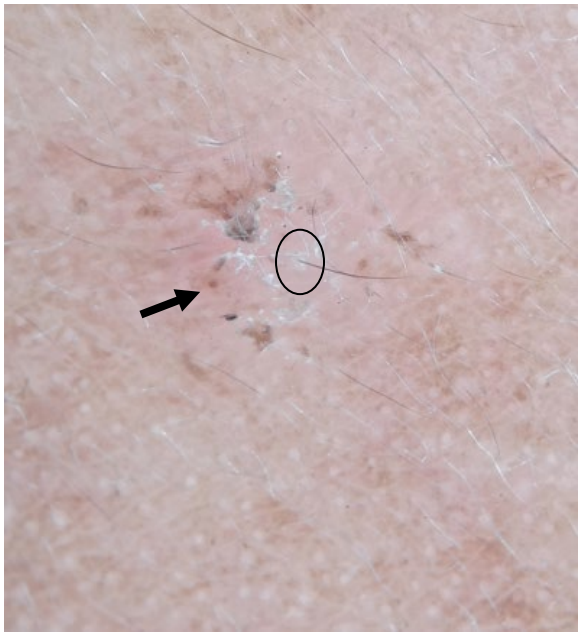

Figure 21: Dermoscopy of non-facial lesions in p. rosea showing pink background, brown dots (black arrow) & perifollicular scaling (black circle).

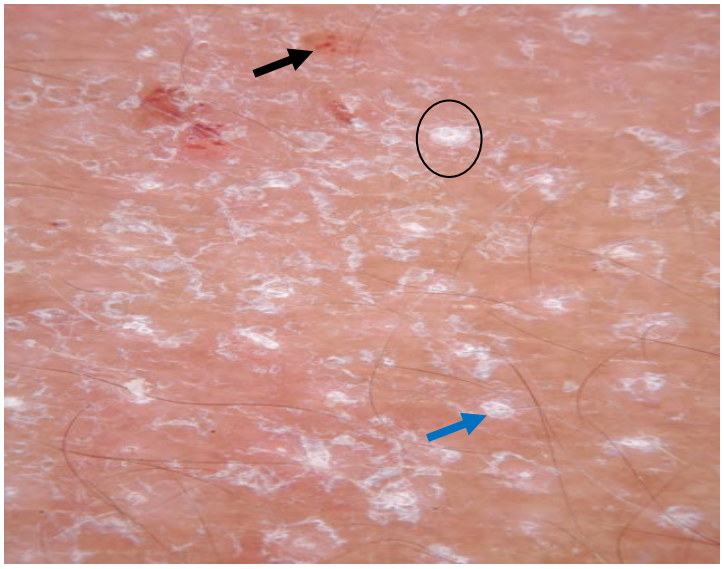

Figure 22: Dermoscopy of non-facial lesions in PRP pinkish background, white scales, dotted vessels (black arrow), perifollicular scaling (blue arrow) & follicular plug (black circle).

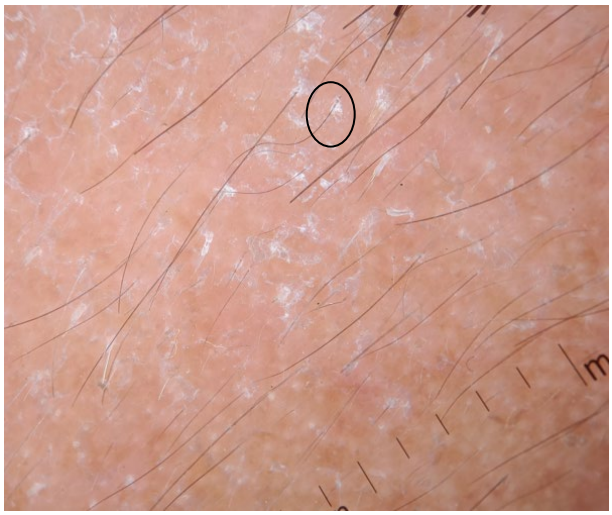

Figure 23: Dermoscopy of facial lesions in PRP pinkish background & perifollicular scaling (black circle).

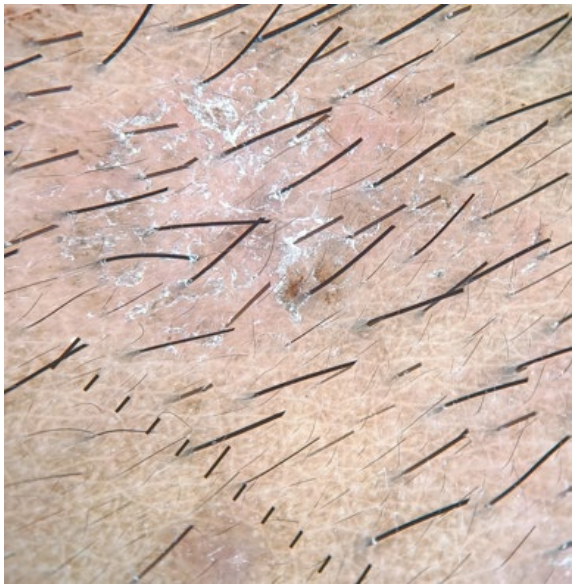

Figure 24: Dermoscopy of facial lesions in SD showing pinkish background, White scales & perifollicular scaling.

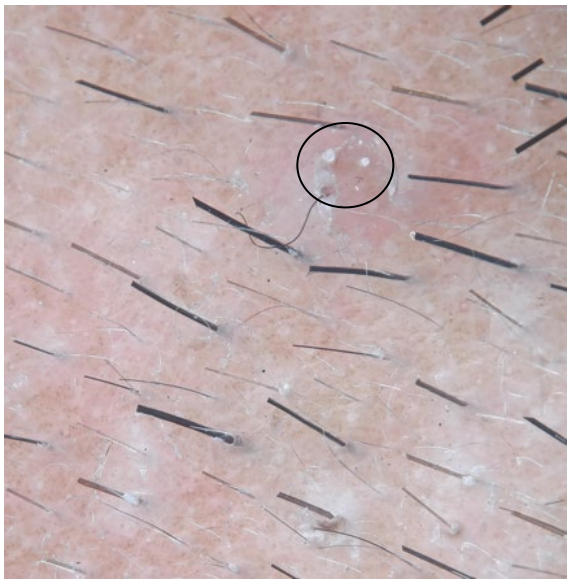

Figure 25: Dermoscopy of facial lesions in SD showing follicular plugs (black circle).

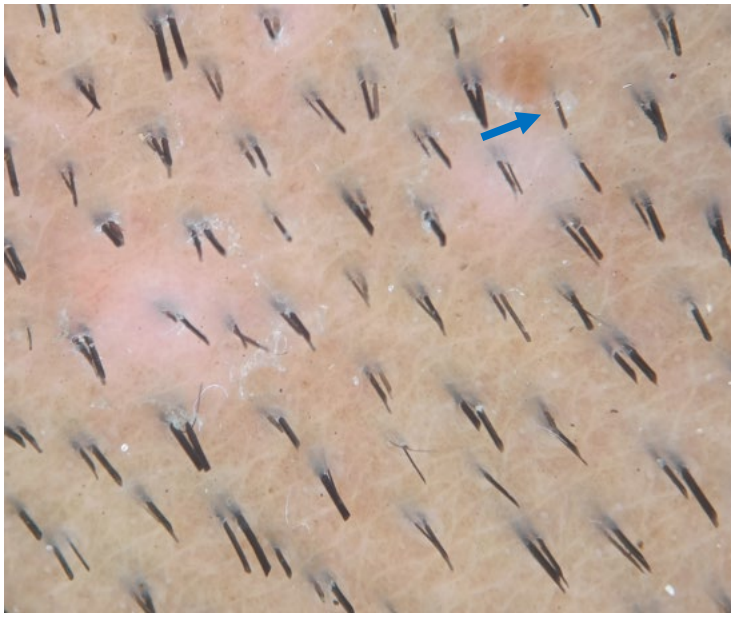

Figure 26: Dermoscopy of non-facial lesions in SD showing pinkish reddish background, perifollicular scaling (blue arrow).

DISCUSSION

'Papulosquamous disorders are a heterogeneous group of disorders whose aetiology primarily is unknown'.[30] Dermoscopy is a non-invasive diagnostic method of magnifying skin lesions that aids in diagnosing papulosquamous disorders.[3] Dermoscopic features of papulosquamous disorders are fairly well characterised, but studies assessing the differences or similarities in the dermoscopic findings of papulosquamous disorders at different locations are very scarce.

This study aimed at evaluating the dermoscopic features of papulosquamous disorders affecting both facial and non-facial skin, with a particular focus on psoriasis and lichen planus, which were the most commonly observed conditions in our cohort. Our findings are compared with previous literature to assess the similarities and differences in clinical and dermoscopic patterns.

Psoriasis

In our study, psoriasis was the most common diagnosis, accounting for 65.45% of cases. Similar prevalence rates have been reported in studies by Dogra et al. (2020)[13] where psoriasis was also the most frequently encountered papulosquamous disorder.

The background colour of non-facial psoriasis lesions predominantly exhibited red (52.78%), whereas facial lesions showed pink as the most common colour (50%). (p-value of <0.001)

The vessel morphology in our study predominantly showed dotted vessels in both facial (69.23%) and non-facial (68.57%) lesions, which is consistent with findings by Lallas et al. (2012)[4], who described dotted vessels as the hallmark dermoscopic feature of psoriasis. Additionally, Lallas et al. (2014)[3] reported that regularly distributed dotted vessels were the most common finding in various body sites, including the scalp, face, folds, palms, soles, and genitalia, with a prevalence of 97.1% of lesions. However, our study also found a significant

difference ($p < 0.001$) in the distribution of vessels, with facial lesions displaying patchy distribution and non-facial lesions having a largely diffuse pattern similarly Golińska et al. (2020)[3] reported diffuse distribution of vessels as most common pattern followed by patchy distribution.

Another important observation in our study was the variation in follicular patterns in psoriasis. All non-facial lesions with follicular involvement exhibited perifollicular scaling, whereas facial lesions showed greater diversity, including perifollicular scaling (45%), combined perifollicular scaling and hypopigmentation (30%), and perifollicular hypopigmentation alone (25%). (p-value of 0.033) This observation aligns with the findings of Errichetti & Stinco (2017)[8], who noted that facial lesions tend to show more diverse perifollicular changes these can be due to variations in sebaceous gland density and follicular structure. These follicular findings can assist in distinguishing psoriasis from other facial inflammatory disorders.

Lichen Planus

Lichen planus was the second most common diagnosis in our study, accounting for 23.64% of cases. Our dermoscopic findings revealed that the characteristic violaceous-pink background was observed in both facial and non-facial lesions (61.54% and 38.46%, respectively) are consistent with the literature. Vascular patterns in lichen planus in our study were predominantly dotted (38.46% in non-facial lesions and 23.07% in facial lesions) However, we observed some linear vessels in facial lesions (7.69%) Szykut-Badaczewska et al. (2023)[38] highlighted that vessel morphology can correlate with disease activity, where dotted vessels suggest active inflammation, while linear vessels are more frequently associated with resolving or regressing lesions.

Nandini et al. (2022)[40] described various Wickham striae patterns, including reticular, radial, leaf venation, and starry sky, which are helpful in distinguishing LP from other dermatoses. In our study, Wickham striae were observed in 84.61% of lichen planus cases in our study, globular Wickham striae were most commonly observed over both facial as well as non-facial lesions. There was no significant difference in patterns of Wickham striae between facial and non-facial lesions, supporting their diagnostic reliability across different anatomical sites.

Pityriasis Rosea, Pityriasis Rubra Pilaris, and Seborrheic Dermatitis

Pityriasis rosea, pityriasis rubra pilaris, and seborrheic dermatitis were less frequently observed, each comprising 3.64% of cases.

Our study confirmed that all pityriasis rosea lesions had a pink background colour and varied scaling patterns such as central and collarette which are consistent with findings from Elmas et al. (2022)[44], who reported peripheral scales as common findings.

Elmas et al. (2022)[44] also noted that the most frequent dermoscopic findings of pityriasis rosea were diffuse light red or pinkish background, white scales, and peripheral scaling. These findings are consistent with our observations and highlight the importance of considering dermoscopic patterns in differentiating pityriasis rosea from other inflammatory conditions. Additionally, pigmentary features, including brown globules, were consistently observed in our cases, reinforcing earlier reports of pigment alterations in post-inflammatory pityriasis rosea lesions.

Pityriasis rubra pilaris (PRP) lesions in our study demonstrated a combined pink-red background colour, perifollicular & interfollicular white scales. This is consistent with prior studies (Errichetti et al., 2019)[43]. Jha et al. (2018)[39] reported perifollicular yellow/orange halos and follicular plugs as defining features of PRP, which were not observed in our cases.

The perifollicular scaling pattern noted in PRP can sometimes overlap with features of psoriasis; however, the presence of follicular plugs and orange background colour can aid in differential diagnosis. 1 patient showed perifollicular tubular casts over both facial as well as non-facial lesions which were not noted in previous studies.

For seborrheic dermatitis, we observed a mixture of pink, pink-white, and pink-red background colours, with patchy white scaling being the most prominent feature. Studies by Kim et al. (2011)[42] and Gavvala et al. (2021)[41] indicated that SD lesions frequently display red dots, linear branching vessels, and yellow scales in a patchy distribution These findings are consistent with the observations made by Lallas et al. (2013)[45] where SD was characterized by dotted vessels and yellow scales which were not seen in this study. In our study, follicular features varied, with non-facial lesions showing perifollicular scaling and hypopigmentation, while facial lesions showed perifollicular scaling and plugs. These findings support the idea that seborrheic dermatitis presents differently depending on anatomical location.

This study contributes to the growing body of dermoscopic literature by highlighting key differences between facial and non-facial lesions in papulosquamous disorders.

Limitation of this study is small sample size.

CONCLUSION

'Papulosquamous disorders are heterogeneous group of disorders which are characterized by skin lesions consisting of red or purple papules or plaques with scales & whose etiology primarily is unknown'.[30]

This study provides valuable insights into the dermoscopic features of papulosquamous disorders affecting both facial and non-facial skin. Among the 55 patients presenting with papulosquamous disorders, psoriasis was the most common, followed by lichen planus, with pityriasis rosea, pityriasis rubra pilaris, and seborrheic dermatitis being less frequent. Dermoscopy proved to be a crucial tool in distinguishing these disorders based on background colour, vessel morphology, scale distribution, and follicular features.

Significant differences were observed in facial versus non-facial lesions across all conditions. Psoriasis demonstrated distinct background colour, vessel distribution patterns and varied follicular involvement, while lichen planus showed a consistent violaceous background and Wickham striae. Pityriasis rosea and PRP exhibited unique scaling and pigmentary features, and seborrheic dermatitis showed perifollicular scaling and plugs that aid in diagnosis. These results are consistent with earlier research and provide fresh perspectives on dermoscopic differences according to anatomical location.

The significance of using dermoscopy in clinical practice to improve diagnostic accuracy is underscored by this study, especially when it comes to distinguishing between disorders that share clinical features & present at different anatomical locations. Larger sample sizes and multi-centre collaborations are suggested for future research to confirm these results.

By using dermoscopy to refine diagnostic criteria, physicians can better identify and treat papulosquamous illnesses early on, which will ultimately improve patient outcomes.

SUMMARY

The study was conducted as a hospital-based cross-sectional study during the period of May 2023-February 2025 & gives a comprehensive evaluation of the clinical & dermoscopic features of papulosquamous disorders, focusing on the differences between facial and non-facial lesions. Study includes 55 patients diagnosed with papulosquamous disorders such as psoriasis, lichen planus, pityriasis rosea, pityriasis rubra pilaris (PRP), and seborrheic dermatitis. Psoriasis was the most frequently observed condition (65.45%), followed by lichen planus (23.64%), while the remaining conditions were less common.

Dermoscopy, a non-invasive diagnostic tool, played a crucial role in identifying characteristic features of each disorder. In psoriasis, the study highlighted variations in background color, vessel morphology, and follicular involvement between facial and non-facial lesions. Facial lesions showed more diversity in perifollicular changes, such as perifollicular scaling and hypopigmentation, whereas non-facial lesions primarily exhibited diffuse perifollicular scaling. Lichen planus was characterized by a violaceous-pink background, Wickham striae, and dotted vessels, with minimal variation between facial and non-facial lesions. Pityriasis rosea consistently exhibited a pink background with white scaling, while PRP lesions demonstrated a pink-red background with diffuse white scaling and perifollicular changes. Seborrheic dermatitis showed notable differences in follicular features, with facial lesions presenting perifollicular scaling and plugs, while non-facial lesions exhibited perifollicular scaling combined with hypopigmentation.

The results highlight the value of dermoscopy in distinguishing between papulosquamous conditions, especially in difficult patients with similar clinical manifestations. The study also emphasises how important it is to take site-specific differences in dermoscopic characteristics into account in order to increase diagnostic precision.

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ETHICAL CLEARANCE CERTIFICATE

BLDE
(DEEMED TO BE UNIVERSITY)
Declared as Deemed to be University u/s 3 of UGC Act, 1956
Accredited with 'A' Grade by NAAC (Cycle-2)
The Constituent College
SHRI B. M. PATIL MEDICAL COLLEGE, HOSPITAL & RESEARCH CENTRE, VIJAYAPURA

BLDE (DU)/IEC/ 881/2022-23 10/4/2023

INSTITUTIONAL ETHICAL CLEARANCE CERTIFICATE

The Ethical Committee of this University met on **Saturday, 18th March, 2023 at 11.30 a.m. in the CAL Laboratory, Dept. of Pharmacology,** scrutinizes the Synopsis/ Research Projects of Post Graduate Student / Under Graduate Student /Faculty members of this University /Ph.D. Student College from ethical clearance point of view. After scrutiny, the following original/ corrected and revised version synopsis of the thesis/ research projects has been accorded ethical clearance.

TITLE: "CLINICAL AND DERMOSCOPIC FEATURES OF FACIAL AND NON-FACIAL LESIONS IN PATIENTS WITH PAPULOSQUAMOUS DISORDERS: A CROSS-SECTIONAL STUDY".

NAME OF THE STUDENT/PRINCIPAL INVESTIGATOR: DR DEVAVRAT SANJAY GORE

NAME OF THE GUIDE: DR.KESHAVMURTHY ADYA, PROFESSOR, DEPT. OF DERMATOLOGY, VENEROLOGY AND LEPROSY.

Dr. Santoshkumar Jeevangi
Chairperson
IEC, BLDE (DU),
VIJAYAPURA
Chairman,
Institutional Ethical Committee,
BLDE (Deemed to be University)
Vijayapura

Dr. Akram A. Naikwadi
Member Secretary
IEC, BLDE (DU),
VIJAYAPURA
MEMBER SECRETARY
Institutional Ethics Committee
BLDE (Deemed to be University)
Vijayapura-586103. Karnataka

Following documents were placed before Ethical Committee for Scrutinization.

- Copy of Synopsis/Research Projects
- Copy of inform consent form
- Any other relevant document

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B.L.D.E.U's SHRI B M PATIL

MEDICAL COLLEGE HOSPITAL AND RESEARCH CENTRE, VIJAYAPURA-586103

RESEARCH INFORMED CONSENT FORM

TITLE OF THE PROJECT

"CLINICAL AND DERMOSCOPIC FEATURES OF FACIAL AND NON-FACIAL LESIONS IN PATIENTS WITH PAPULOSQUAMOUS DISORDERS: A CROSS-SECTIONAL STUDY".

PG GUIDE **:-** DR. KESHAVMURTHY ADYA

PG STUDENT **:-** DR. DEVAVRAT SANJAY GORE

PURPOSE OF RESEARCH:

To know the distinguishing features of facial and non-facial lesions in papulosquamous disorders in Northern part of Karnataka by correlating the clinical, dermoscopic features of the same.

BENEFITS:

I understand that my participation in this study will help the investigator to know the distinguishing features of facial and non-facial lesions of papulosquamous disorders with its clinic-dermoscopic features and its prevalence.

PROCEDURE:-

I understand that relevant history will be taken and I will undergo detailed examination and dermoscopy of the same.

RISK AND DISCOMFORTS:-

I understand there is no risk involved and I will experience no discomfort during the clinical examination.

CONFIDENTIALITY: -

I understand that medical information produced by this study will become a part of my hospital records and will be subjected to the confidentiality and privacy regulation of the said hospital. Information of a sensitive personal nature will not be a part of the medical records, but will be stored in the investigator's research file. If the data are used for publication in the medical literature or for teaching purposes no names will be used and other identifiers such as photographs and audio or videotapes will be used only with my special written permission. I understand I may see the photographs, videotapes and hear the audiotapes before giving this permission.

REQUEST FOR MORE INFORMATION:-

I understand that I may ask more questions about the study at any time concerned. Dr. DEVAVRAT SANJAY GORE is available to answer my questions or concerns. I understand that I will be informed of any significant new findings discovered during the course of this study, which may influence my continued participation.

REFUSAL OR WITHDRAWAL OF PARTICIPATION:

I understand that my participation is voluntary and I may refuse to participate or may withdraw consent and discontinue participation in this study at any time without prejudice. I also understand that Dr. DEVAVRAT SANJAY GORE may terminate my participation in this study at any time after he has explained the reasons for doing so and has helped arrange for my continued care by my own physician, if this is appropriate.

INJURY STATEMENT:-

I understand that in the unlikely event of injury to me resulting directly from my participation in this study and if such injury were reported promptly, then medical treatment will be

available to me, but no further compensation will be provided. I understand that by my agreement for my participation in this study, I am not waiving any of my legal rights.

I have explained to (patient's / relevant guardian's name) the purpose of the research, the procedures required, and the possible risks and benefits to the best of my ability in patient's own language.

_____ _____

Investigator / P. G. Guide Date

I confirm that ……(Name of the PG guide / chief researcher) has explained to me the research, the study procedures that I undergo and the possible risks and discomforts as well as benefits that I may experience. I have read and I understand this consent form. Therefore, I agree to give my consent for my participation as a subject in this research project.

_____ _____

Participant / guardian Date

_____ _____

Witness to signature Date

B.L.D.E.U'S SHRI B. M. PATIL MEDICAL COLLEGE HOSPITAL AND RESEARCH CENTRE, VIJAYAPURA.

Department of Dermatology, Venereology and Leprosy.

SCHEME OF CASE TAKING

"CLINICAL, DERMOSCOPIC STUDY OF FACIAL AND NON-FACIAL LESIONS IN PAPULOSQUAMOUS DISORDERS: A CROSS-SECTIONAL STUDY"

- General information

  Name: SL no:

  Age:

  Sex: Address:

  Contact no:

  Patient ID: Date:

- Presenting Complaints:

- History of presenting illness:

- Personal history:

- Past history:

- Family history:

- General Physical Examination:

  BP: Pallor:

  Icterus:

  PR: Edema:

  Lymphadenopathy:

- Local examination:

- Systemic Examination:

- Histopathological Findings:

- DIAGNOSIS:

DERMOSCOPIC FINDINGS: PLAQUE PSORIASIS –

DERMOSCOPIC FEATURES	NON-FACIAL SKIN	FACIAL SKIN
Background		
Pink		
Red		
Other (specify)		
Vessels: morphology		
Dotted		
Coiled		
Others (specify)		
Vessels: distribution		
Diffuse		
Patchy		
Others (specify)		
Scales: color		
White		
Yellow		
Others (specify)		
Scales: distribution		
Diffuse		
Patchy		
Peripheral		
Central		
Collarette		
Others (specify)		
Follicular features		
Plugs/comedo-like structures		
Perifollicular scaling		
Perifollicular hypopigmentation		
Perifollicular hyperpigmentation		
Others (specify)		
Pigmentary features		
Specify		
Other features		
Specify		

DERMOSCOPIC FINDINGS: LICHEN PLANUS –

DERMOSCOPIC FEATURES	NON-FACIAL SKIN	FACIAL SKIN
Background		
Pink		
Red		
Violaceous		
Others (specify)		
Vessels: morphology		
Dotted		
Linear		
Others (specify)		
Vessels: distribution		
Diffuse		
Patchy		
Peripheral		
Others (specify)		
Scales: color		
White		
Yellow		
Others (specify)		
Scales: distribution		
Diffuse		
Patchy		
Peripheral		
Central		
Collarette		
Others (specify)		
Follicular features		
Plugs/comedo-like structures		
Perifollicular scaling		
Perifollicular hypopigmentation		
Perifollicular hyperpigmentation		
Others (specify)		
Pigmentary features		
Brown dots/globules		
Black dots/globules		
Violaceous dots/globules		
Others (specify)		
Wickham striae		
Reticular		
Globular		
Reticuloglobular		
Other features		
Specify		

DERMOSCOPIC FINDINGS: PITYRIASIS ROSEA –

DERMOSCOPIC FEATURES	NON-FACIAL SKIN	FACIAL SKIN
Background		
Pink		
Red		
Other (specify)		
Vessels: morphology		
Dotted		
Coiled		
Others (specify)		
Vessels: distribution		
Diffuse		
Patchy		
Others (specify)		
Scales: color		
White		
Yellow		
Others (specify)		
Scales: distribution		
Diffuse		
Patchy		
Peripheral		
Central		
Collarette		
Others (specify)		
Follicular features		
Plugs/comedo-like structures		
Perifollicular scaling		
Perifollicular hypopigmentation		
Perifollicular hyperpigmentation		
Others (specify)		
Pigmentary features		
Brown dots/globules		
Black dots/globules		
Others (specify)		
Other features		
Specify		

DERMOSCOPIC FINDINGS: PITYRIASIS RUBRA PILARIS –

DERMOSCOPIC FEATURES	NON-FACIAL SKIN	FACIAL SKIN
Background		
Pink		
Red		
Yellow		
Other (specify)		
Vessels: morphology		
Dotted		
Coiled		
Linear		
Others (specify)		
Vessels: distribution		
Diffuse		
Patchy		
Others (specify)		
Scales: color		
White		
Yellow		
Others (specify)		
Scales: distribution		
Diffuse		
Patchy		
Peripheral		
Central		
Collarette		
Others (specify)		
Follicular features		
Plugs/comedo-like structures		
Perifollicular scaling		
Perifollicular hypopigmentation		
Perifollicular hyperpigmentation		
Others (specify)		
Pigmentary features		
Specify		
Other features		
Specify		

DERMOSCOPIC FINDINGS: SEBORRHEIC DERMATITIS –

DERMOSCOPIC FEATURES	NON-FACIAL SKIN	FACIAL SKIN
Background		
Pink		
Red		
Other (specify)		
Vessels: morphology		
Dotted		
Linear		
Others (specify)		
Vessels: distribution		
Diffuse		
Patchy		
Others (specify)		
Scales: color		
White		
Yellow		
Others (specify)		
Scales: distribution		
Diffuse		
Patchy		
Peripheral		
Central		
Collarette		
Others (specify)		
Follicular features		
Plugs/comedo-like structures		
Perifollicular scaling		
Perifollicular hypopigmentation		
Perifollicular hyperpigmentation		
Others (specify)		
Pigmentary features		
Specify		
Other features		
Specify		

KEY TO MASTER CHART

PRP – Pityriasis rubra pilaris

SD – Seborrheic dermatitis

LP – Lichen planus

R – Red

P – Pink

W – White

V – Violaceous

d – Dotted

c – Coiled

l – Linear

D – Diffuse

P – Patchy

PERI – Peripheral

Y – Yellow

C – Central

PFS – Perifollicular scaling

PFHYPO – Perifollicular hypopigmentation

BG – Brown globules

FR – Follicular rosettes

IFS – Interfollicular scaling

PFTC – Perifollicular tubular casts

WRG – White roundish globules

G – Globular

RADI – Radial

C – Circular

L – Linear

R – Reticular

COLL – Collarette

SL NO	NAME	AGE	SEX	CLINICAL DIAGNOSIS	DERMOSCOPY FEATURES																	
					background colour		vessel morphology		vessel distribution		scale colour		scales distribution		follicular features		pigmentary features		wickham striae		other features	
					Non-fac	Facial s	Non-fac	Facial s	Non-fac	Facial s	Non-fac	Facial s	Non-fac	Facial s	Non-fac	Facial s	Non-fac	Facial s	Non-fac	Facial s	Non-fac	Facial s
1	Shashikumar	23	M	Psoriasis	R	PR	dc	d	D	D	W	W	PERI	P	PFS	0	0	0	0	0	0	0
2	Sidappa	35	M	Psoriasis	R	PW	d	d	D	P	W	W	D	P	0	0	0	0	0	0	0	0
3	Naveen	22	M	Psoriasis	R	P	d	d	D	P	W	W	D	D	0	0	0	0	0	0	0	0
4	Vijay	33	M	Psoriasis	R	P	dc	d	D	P	W	W	D	D	0	0	0	0	0	0	0	0
5	Rajasab	24	M	Psoriasis	R	PW	d	0	D	0	W	W	D	D	0	0	0	0	0	0	0	0
6	Hanamanth	42	M	Psoriasis	PR	PR	dc	d	D	D	W	W	D	D	0	0	0	0	0	0	0	0
7	Jatteppa	25	M	Psoriasis	PR	P	d	0	D	0	W	W	D	D	0	PFHYPO	0	0	0	0	0	0
8	Santosh	26	M	Psoriasis	R	P	d	d	P	P	W	W	D	D	0	PFHYPO	0	0	0	0	0	0
9	Gulappa	83	M	Psoriasis	R	P	d	d	D	P	W	W	D	D	0	0	0	0	0	0	0	0
10	Shashikala	38	F	Psoriasis	P	P	d	d	D	D	W	W	D	D	0	PFHYPO	0	0	0	0	0	0
11	Shashekant	5	M	Psoriasis	P	PW	c	c	D	D	W	W	D	D	0	PFS & PFHYPO	0	0	0	0	0	0
12	Somanath	17	M	Psoriasis	R	P	dc	dc	D	D	W	W	D	D, PERI	0	PFHYPO	0	0	0	0	0	0
13	Dannama	4	F	Psoriasis	PR	P	dc	0	D	0	W	W	D	D	0	0	0	0	0	0	0	0
14	Shantappa	60	M	Psoriasis	R	P	d	dc	D	D	W	W	D	D	0	PFS & PFHYPO	0	0	0	0	0	0
15	Vasanth	29	M	Psoriasis	R	PR	dc	d	D	D	W	W	D	D	0	PFS	0	0	0	0	0	0
16	Prafull	21	M	Psoriasis	PR	R	d	c	D	D	W	W	P, PERI	P, PERI	PFS	PFS	0	0	0	0	0	0
17	Dhanamma	3	F	Psoriasis	PR	P	0	d	0	P	W	W	D	D	0	0	0	0	0	0	0	0
18	Avinash	17	M	Psoriasis	P	PW	dc	d	D	P	W	W	D	D	0	PFS	0	0	0	0	0	0
19	SUNIL	26	M	Psoriasis	PR	PR	d	0	D	0	W	W	D	D	PFS	PFS	0	0	0	0	0	0
20	Shantappa	52	M	Psoriasis	P	R	d	dc	D	D	WY	WY	D	D	0	PFS	0	0	0	0	0	0
21	Veeresh	34	M	Psoriasis	PR	P	d	0	D	0	W	W	D	D	PFS	PFS & PFHYPO	0	0	0	0	0	0
22	Prashant	39	M	Psoriasis	PR	PR	d	d	D	D	W	W	D	D	0	PFS & PFHYPO	0	0	0	0	0	0
23	Shankalinga	32	M	Psoriasis	P	P	d	0	D	0	W	W	D	P	PFS	PFHYPO	0	0	0	0	0	0
24	Otasingh	55	M	Psoriasis	R	PR	d	0	D	0	W	W	D	D	0	0	0	0	0	0	0	0
25	Abdul	48	m	Psoriasis	R	PR	d	d	D	D	W	W	D	D	PFS	PFS	0	0	0	0	0	0
26	Savitri	30	F	Psoriasis	PR	PW	d	d	D	D	W	W	D	D	PFS	PFS	0	0	0	0	0	0
27	Sumitra	30	F	Psoriasis	PR	PR	d	0	D	0	W	W	D	D	0	0	0	0	0	0	0	0
28	Ravi	25	M	Psoriasis	P	P	dc	dc	D	D	W	W	D	D	PFS	PFS	0	0	0	0	0	0
29	Pratikhsa	2	F	Psoriasis	R	R	d	d	D	D	W	W	D	PREI	0	PFS & PFHYPO	0	0	0	0	0	0
30	SOUJANY	0.5	F	Psoriasis	R	P	d	0	D	0	W	Y	D	P	0	0	0	0	0	0	0	0
31	Rahul	2	M	Psoriasis	R	P	d	d	D	P	W	W	D	P	0	PFS & PFHYPO	0	0	0	0	0	0
32	Shashikanth	37	M	Psoriasis	R	PW	c	d	D	P	W	W	D	D	0	0	0	0	0	0	0	0
33	Vishwas	10	M	Psoriasis	R	P	c	0	D	0	W	W	D	D	0	0	0	0	0	0	0	0
34	Raju	63	M	Psoriasis	PR	PR	d	dc	D	D	W	W	D	D	0	PFS	0	0	0	0	0	0
35	Pariti	14	F	Psoriasis	R	P	d	c	D	P	W	W	D	D	0	0	0	0	0	0	0	0
36	Aaradhya	2	F	Psoriasis	R	P	d	d	D	P	W	W	PERI	D,PERI	0	0	0	0	0	0	0	0
37	VEDA	6	F	P Rosea	P	P	0	0	0	0	W	W	C, COLL	C, COLL	0	0	BG	BG	0	0	0	0
38	Shrinivas	14	M	P Rosea	P	P	0	0	0	0	W	W	C, COLL	C	PFS & PFHYPO	PFS & PFHYPO	BG	BG	0	0	0	0
39	Adarsh	15	M	PRP	PR	PR	d	0	PERI	0	W	W	D	D	PFS,IFS & PFTC	PFS,IFS & PFTC	0	0	0	0	WRG	0
40	Laxmi	6	f	PRP	PR	PR	0	0	0	0	W	W	D	D	PFS &IFS	PFS &IFS	0	0	0	0	0	0
41	Chinmayanand	16	F	SD	P	PR	0	0	0	0	W	W	P	D, P	0	PFS & PLUGS	0	0	0	0	0	0
42	Rohan	17	M	SD	PW	PW	0	0	0	0	W	W	P	P	PFS & PFHYPO	PFS & PFHYPO	0	0	0	0	0	0
43	Suman	24	F	LP	R	VP	0	0	0	0	0	W	0	0	0	PFS & PFHYPO	0	0	0	G	0	FR
44	Padmaja	38	F	LP	VP	PR	d	d	D	D	W	W	D	D	PFS	0	BG	0	0	L	0	0
45	Sameera	7	F	LP	VP	P	d	0	D	0	W	W	D	D	0	0	0	BG	G	0	0	0
46	Prajwal	14	M	LP	VR	VP	0	1	0	P	W	W	D	D	0	0	0	0	L,C,RADI	L,C,G,R	0	0
47	Chandrashekhar	47	M	LP	VP	VR	0	0	0	0	W	W	D	D	0	0	0	0	G	G	0	0
48	Rajavardhan	10	M	LP	VR	V	d	0	P	0	W	W	D	D	0	PFS	0	0	G	C,R,RADI	0	0
49	Akash	25	M	LP	VP	VR	0	0	0	0	W	W	PERI	D	0	0	BG	0	L,G	L,G,RADI	0	0
50	Mohammad	18	M	LP	V	R	0	d	0	PERI	W	W	D	D	0	0	0	0	L,R,G	L,G	0	0
51	Manjula	62	F	LP	VP	PR	0	d	0	D	W	W	D	D	0	PFS	0	0	G,RADI	G	0	0
52	Maningappagauda	55	M	LP	WR	VP	0	0	0	0	W	W	D	D	PFHYPO & PFS	PFHYPO	0	0	G,RADI	RADI	0	0
53	Shradda	9	F	LP	VP	W	d	0	D	0	W	0	D	0	PFHYPO	PFHYPO	BG	0	G,R,RADI	0	0	0
54	Vaishali	35	F	LP	VP	VP	d	0	D	0	W	W	D	D	PFHYPO	PFHYPO	0	0	G,RADI	G	FR	0
55	Tanuja	10	F	LP	VP	VP	0	0	0	0	W	W	D	D	PFS	PFHYPO	0	0	G	G	0	0

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