"A STUDY TO EVALUATE DERMATOSCOPIC FEATURES OF PAPULOSQUAMOUS DISORDERS (PSORIASIS, LICHEN PLANUS AND PITYRIASIS ROSEA)"

Submitted by

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Under the guidance of

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LIST OF ABBREVATIONS

OPD	-	Out-patient department
LED	-	Light emitting diodes
Ps	–	Psoriasis
LP	–	Lichen planus
PR	–	Pityriasis rosea
PRP	-	Pityriasis Rubrapilaris
PSD	–	Papulosquamous Disorder
WS	-	Wickham striae
FP	-	Follicular plugging
CO	-	Comedone-like opening
RBC’s	–	Red Blood Cells
SUHK	-	Subungual hyperkeratosis
LR	-	Longitudinal ridges
HPE	-	Histopathological Examination

ABSTRACT

Background

Dermatoscope is a non-invasive tool which is principally used in diagnosing pigmented skin lesions. Recently its use in other non-pigmented dermatological conditions has been found to be useful. 'Papulosquamous' is a term used for the skin lesions which are papular and located in the superficial skin layer (squamous layer). Individuals affected with papulosquamous disorders (PSD) mainly psoriasis (Ps), lichen planus (LP), and pityriasis rosea (PR) have skin lesions characterized by erythematous macules that progress to papules, develop scales, and is associated with itching. Diagnosis of Ps, LP, and PR is usually established clinically followed by histopathological confirmation. However, performing skin biopsy may not be possible always in a busy out-patient department as histopathological examination is a time-consuming procedure. Dermatoscopy may be a helpful measure for quick examination of the skin lesions and reach a provisional diagnosis, in such situations.

Objectives

To determine the dermatoscopic patterns of papulosquamous disorders namely psoriasis, lichen planus and pityriasis rosea.

Methods

It is a hospital-based, cross-sectional, analytic study. Patients of any age group and gender, suffering from Ps, LP, and PR attending the Dermatology, Venereology and Leprosy out-patient department of a tertiary care hospital were enrolled for the study. Detailed history and clinical examination was done in all patients. Most recently developed skin lesion was examined dermatoscopically and histopathologically. The examined variables were vascular morphology (vessels

pattern and type) in Ps, LP, and PR. Univariate analysis and adjusted odds ratios were calculated.

Results

Two hundred and seventeen patients with papulosquamous disorders (Ps-110; LP- 66; PR-41) were included in the study. Age of the study subjects ranged from 2 months to 73 years, with mean (±SD) age value of 32.78 (±17.83) years. There was male preponderance as compared to females in all the disease categories.

In psoriasis, the dermatoscopic findings were mainly the vascular features, which were red dotted vessels and globules. Light red background was the most significant (p<0.0001) finding for the diagnosis of Ps.

On dermatoscopic examination of LP lesion, the most common findings were non-vascular features (Wickham's striae, comedone-like opening and follicular plugging) and showed statistically significance (p<0.05). These findings were exclusive of LP.

Dermatoscopy of lesions of PR demonstrated presence of erythema, dotted vessels, and irregular pattern of vessels. All these findings were statistically significant (p<0.05). These features were predominately seen in PR and not seen in any other PSD.

Conclusion

Our observations showed that the evaluation of both the vascular and non-vascular findings improved the diagnosis of these disorders. Ps, LP, and PR show specific dermatoscopic patterns that may be additive to their clinical diagnosis. Certain combinations of dermatoscopic features can reliably suggest the diagnosis of these papulosquamous disorders.

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INTRODUCTION

Dermatoscope is a non-invasive, hand-held diagnostic tool which magnifies the subtle clinical features on the surface of skin lesions as well as divulges some sub-surface skin structures, not normally visible with magnifying lens.[1]

The first dermatoscope was developed in 1989 by Stolz and Braun-Falco. Dermatoscope represents the link between macroscopic clinical dermatology and microscopic dermatopathology.[2] A dermatoscope is functionally similar to a magnifying lens but with several add-on features of an in-built specialized illuminating system (visible light, polarised light, and ultraviolet sources), adjustable magnification, the ability to assess structures as deep as in the reticular dermis, and the ability to record digital images for future analysis and comparison.[2]

The dermatoscopic observation of the skin has been currently used for the examination of mainly pigmented skin tumors. However, in the last few years dermatoscopy has also been employed for the evaluation of non-pigmented skin disorders, such as some skin tumors, and inflammatory and infectious diseases.

'Papulosquamous' is a term used for the skin lesions which are papular and located in the superficial skin layer (squamous layer). Individuals affected with papulosquamous disorders have skin lesions characterized by erythematous macules that progress to papules, develop scales, and is associated with itching.

Papulosquamous disorders include chronic recurring skin diseases such as psoriasis (Ps), pityriasis rosea (PR), and lichen planus (LP).

Diagnosis of Ps, LP, and PR is usually established clinically, based on the characteristic morphology and distribution. But sometimes atypical presentation does exist, requiring histopatholgical examination for diagnostic confirmation. Skin biopsy and histopathological examination, though gold standard in the diagnosis of these

disorders, are disliked and refused by many patients for its invasiveness. In such a situation dermatoscopy is an easy, non-invasive alternative of skin biopsy.

Dermatoscope has been in use in diagnosing various papulosquamous disorders for quite some time. In various studies it has been demonstrated that these disorders can be diagnosed with certainty with the help of a dermatoscope. Dermatoscopic findings of papulosquamous disorders are quite characteristic and thus merit diagnostic value in the absence of histopathological examination.

In this study papulosquamous disorders, mainly psoriasis, lichen planus and pityriasis rosea, have been examined through dermatoscope as well as histopathological examination was done whenever feasible. Findings derived from both the modalities were correlated to know whether dermatoscopy can be considered as a meaningful replacement of histopathology in diagnosis of papulosquamous disorders.

The dermatoscopic features of various disorders may vary depending upon the individual patient's skin colour. In this study, for the first time, South Indian patients with papulosquamous disorders have been examined with dermatoscope.

OBJECTIVE OF STUDY

To determine the dermatoscopic patterns of papulosquamous disorders namely psoriasis, lichen planus and pityriasis rosea.

REVIEW OF LITERATURE

Papulosquamous disorders comprise of a group of skin diseases characterized by the presence of papules and scales. These conditions are very frequent among patients attending dermatology out-patient department (OPD). These disorders are inflammatory, non-infectious and of unknown etiology, having distinct clinical and histopathological features.

Papulosquamous disorders are usually diagnosed clinically. However if there is an unusual or atypical presentation or if the lesional morphology is altered by treatment, clinical diagnosis becomes difficult. In such cases skin biopsy may be helpful, but it is an invasive way of diagnosing the disease, especially when the lesions are few in number. In such situation dermatoscopic examination of the lesion may be more practical as it is a non-invasive, OPD-based technique. In some situations, like in children, pregnant women and very old patients a diagnostic skin biopsy may be denied by the parents or patients respectively. Dermatoscopy would be a helpful diagnostic tool in such instances.

DERMATOSCOPE:

Dermatoscope (synonyms: epiluminescence microscope, skin surface microscope, incident light microscope) is a non-invasive, tool which is principally used in diagnosing pigmented skin lesions. Recently its use in other non-pigmented dermatological conditions has been found to be useful.[1]

Dermatoscopy is performed with manual devices which do not require any computer assistance and generally employs X10 magnifications. Videodermatoscope presents with a video-camera equipped with the lenses providing magnification ranging from X10 to X1000.[2]

Parts of a dermatoscope:

1. *Achromatic lens*: This basic instrument provides 10X magnification, but higher magnification up to 1000X can be achieved with videodermatoscope.
2. *In-built illuminating system*: Light emitting diodes (LED) are the standard sources that provide high intensity white light and consume 70% less power than classical halogen lamps, which emit yellow light. Illumination can also be altered by turning off a set of LEDs.

   Videodermatoscope uses polarised light which allows them to display the subsurface features of skin lesions without using contact plates and linkage fluids.
3. *Power supply*: Hand-held instruments are powered by batteries or have rechargeable handles.
4. *Display or viewing system*: Hand-held dermatoscope have see-through viewing window, while the videodermatoscope can be connected to a computer or another display device or have their own display screen.
5. *In-built photography system*: This is an essential component of a dermatoscope except the hand-held dermatoscope. The camera may be either attachable conventional or digital camera, or in-built video camera. Supporting software, for the capture, storage, retrieval and even interpretation of images is incorporated in the latter cases.

Types of dermatoscope:

Marghoobet al[3] have reviewed various models of dermatoscope. For simplicity, the authors have grouped dermatoscopes into the following types:

a) Instruments without image capturing facility
b) Instruments with image capturing facility, and,
c) Instruments with image capturing facility and analytical capability.

The latter two instruments have the added advantage of being able to take short videos of skin lesions with the dermatoscopical findings. Since digital cameras can now be fitted to some devices, this classification is not rigid.

In the following section, all the three types of dermatoscopes have been discussed.

a) *Dermatoscope without image capturing facility*: This type is a hand-held, otoscope-like instrument that lacks an in-built camera or any other image capture facility. However, cameras can be attached to some of these instruments with an adaptor. It incorporates four different coloured polarized light, *viz*. white, blue (surface pigmentation), yellow (superficial vessels), and red (deep pigment and vessels), to facilitate better visualization of skin structures based on the principle that, depth of penetration of light is proportional to the wavelength.
b) *Dermatoscope with image capturing facility*: These instruments have either an in-built image capture system or have a camera attached for dermatoscopic photography. Whole body photography (body mapping) is also possible with this type of instrument. Some have special lenses, which can be mounted onto a conventional or a digital camera. Both clinical and dermatoscopic pictures of 10x magnification can be taken. A videodermatoscope has a high resolution

camera fitted to the hand piece, and the image is seen on the computer screen. Small videos can be taken with this instrument.

c) *Dermatoscope with image capture facility and analytical capability*: These instruments are mainly used in the countries where the incidence of melanoma is more and the concern for melanoma is a driving force to improve the use of dermatoscope for clinical diagnosis and pre-operative assessment of pigmented lesions. Archived images of the patient can be compared with new ones and any significant change in lesion produces different colour signals. An artificial neural network helps to decide whether a melanocytic naevus is benign or not.

IMMERSION FLUIDS

In dermatoscopic examinations the most preferable linkage fluid is immersion oil. Linkage or immersion liquids can be divided into four groups:

(i) Water-based gels,

(ii) Oils,

(iii) Disinfectant solutions,

(iv) Water.

The characteristics of an ideal immersion liquid are:

(i) Cheap and easily procurable,

(ii) Makes structural parameters of the skin lesion well-visible, without changing colour,

(iii) Should produce less air bubbles,

(iv) Not easily volatile,

(v) Can be used in special locations like circumocular skin,

(vi) Should not lead to very matte or excessive bright image.

In the identification of pigment network, which is an important parameter for the diagnosis of melanocytic lesions, immersion oil is more appropriate immersion fluid. In the identification of structural components other than the pigment network it's the ultrasound gel or the immersion oil. Ultrasound gel is preferred during dermatoscopic examination in special locations such as mucosa, nail bed, genital region, and eyelids. In dermatoscopic examination of non-pigmented skin lesions, ultrasound gel is better alternative than immersion oil because it is cheap and easily removable from the skin.[4] Immersion oil is not preferred because it contains chlorinated paraffin and dibutyl phthalate, which have teratogenic, fetotoxic, and carcinogenic effects.[5]

An evidence-based study by Gewirtzmanet al[6] showed that a 70% alcoholic solution gives best results in terms of image clarity, eliminating air bubbles, and better patient tolerance, as it has less strong odour. As alcohol potentially decreases the rate of transmission of infections, it is better used in inflammatory dermatoses, which are likely to be excoriated and secondarily colonised with microorgansims.[7]

Glass has a refractive index (1.52) similar to that of skin (1.55) and hence when placed over linkage fluids coated skin (as in contact plates), further enhances transillumination of the lesion. Ultrasound gels are useful, while performing dermatoscopy of solid curved areas, particularly the area surrounding the nail plate.[8]

By using gels, the entire curved area of the nail can be viewed as the viscous gel fills up and remains in the space between the surface to be viewed and the contact plate, unlike liquids which would escape out. These gels can also be used around the eyes.[9]

Principle of dermatoscopy:

The basic principle of dermatoscopy is the illumination of a lesion with different light sources. Any light ray incident on skin undergoes varying proportion of reflection, refraction, diffraction, and absorption depending on the physical properties of the skin (Figure1).The dry, scaly skin reflects the light, but smooth, oily skin allows most of the light to pass through, enabling it to reach the deeper dermis and taming the visibility of the sub-surface features.[1]

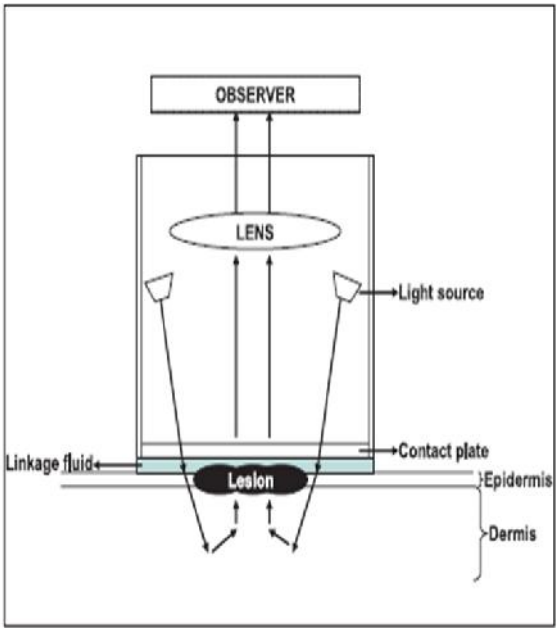


Figure 1: The refracted light transilluminates the lesion while passing through it and is perceived as a distinct pattern. Reproduced from "Dermoscopy and Tricoscopy in diseases of brown skin Atlas and Short text."

The identification and evaluation of vascular structures on dermatoscopy depends largely on the optical system and examination technique used. There are several important aspects to consider: the method (contact dermatoscope *vs* polarised light dermatoscope), the resolution of the dermatoscope, and the choice of immersion fluid.

METHOD

Dermatoscopy can be done by either;

1. *Contact technique*: The glass plate (graduated or non-graduated) of the instrument comes in contact with the surface of the linkage fluid. Contact plates are made of multicoated silicone glass. The contact plate can be sterilized with 2% glutaraldehyde, methylated spirit, boiling or autoclaving.
2. *Non- contact technique*: No linkage fluid is needed to visualize the lesions. Thus there is no risk of nosocomial infections.

In contact dermatoscopy, the choice of an appropriate immersion fluid (the fluid placed between the skin and the glass plate of the dermatoscope), and the correct use of the optical system are key to obtain the clear image of vessels. The closer the vessels are to the surface, it is more likely that the pressure on the skin will compress these vessels. When a contact dermatoscope is used, it is thus essential to apply minimal pressure to prevent collapse of vessels.

An algorithm for the dermatoscopic diagnosis of non-pigmented skin disorders

The algorithm for the diagnosis of the non-pigmented skin lesions includes five steps:

Step 1: Evaluation of the lesion number (single or multiple)

Step 2: Evaluation of the morphological type of the vascular pattern

Step 3: Evaluation of the architectural arrangement of the vascular pattern within the lesion(s).

Step 4: Evaluation of additional dermatoscopic criteria.

Step 5: Diagnosis.

In the first step, evaluation of the number of the skin lesion is important, as following this step it can be further categorised into category 1 (skin tumor, primarily a single

lesion) or the category 2 (an inflammatory or infectious disease, primarily multiple lesions).

Once the morphological features of the vessels have been analysed, it is essential to examine the architectural features, as these provide essential clues for diagnosing non-pigmented cutaneous tumors, many of which have the same vascular pattern, but different architectural arrangements.

Thereafter the subsequent steps will allow a diagnostic conclusion.[10]

VASCULAR PATTERNS OBSERVED IN DERMATOSCOPY

Dermatoscopy provides a horizontal view of the skin. Vessels that run parallel to the skin surface are visualised as lines, while those run perpendicularly are generally viewed as dots, or even loops. Vessels located in the dermis are generally pink and appear out of focus due to the effect of dispersion of light through the dermal connective tissue. Those vessels which are located closer to the surface are bright red and focussed. (Figure 2).

In histopathological examination, it is difficult to fully appreciate the morphological features of blood vessels as histopathology provides a vertical view of the sections of the lesions. On the other hand, dermatoscopy provides a horizontal view of the lesion, allowing identification of a wide variety of vascular structures. Each of the skin lesions has characteristic morphological and architectural features. The examination of vessels is of particular interest in the diagnosis of non-pigmented skin lesions, where vascular features are often the only clues that suggest presence of malignancy.

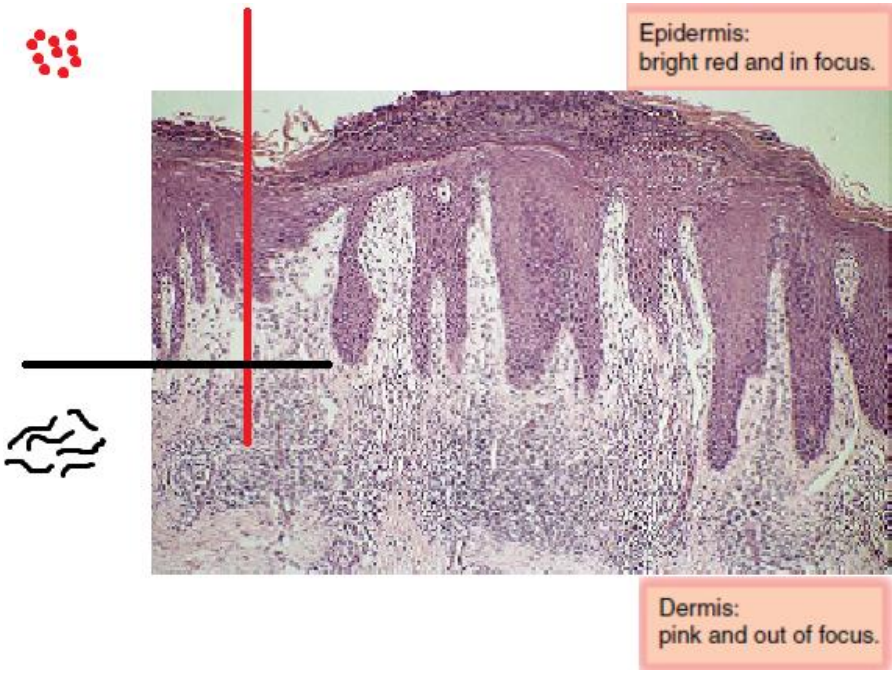


Figure 2: Dermatoscopic morphologic features of vessels according to their location in the skin.

In certain anatomical areas (breasts and buttocks), the normal vascular plexus, which is formed by papillary dermal vessels (seen as small red dots) and the upper dermal plexus (seen as coarse, blurred network of vessels) are very clear and can be mistaken for tumour vessels.

Different vascular patterns are identified on dermatoscopy. The most important ones are dotted vessels, comma vessels, milky red areas or globules, glomerular vessels, lacunae and crown vessels.

In the following section, individual papulosquamous disorders will be discussed.

PAPULOSQUAMOUS DISORDERS

PSORIASIS

Psoriasis is a common, chronic, inflammatory disorder of the skin characterized by red, scaly, sharply demarcated, indurated plaques, and micaceous

scales present particularly over extensor surfaces and scalp.[11] Auspitz sign is a characteristic feature of psoriasis which denotes appearance of pin-point bleeding spots on gentle removal of surface scale, resulting from trauma to the dilated dermal capillaries.[12] Various morphological variants of psoriasis are guttate, plaque, erythrodermic, and pustular psoriasis. Histopathologically, there is elongation of the rete ridges, thinning of suprapapillary epidermis, diminished to absent granular layer, pallor of the upper layers of epidermis, presence of Munro microabscesses in corneal layer and presence of spongiform pustules of Kogoj in uppermost portion of spinous layer.[13]

Microcirculation in psoriasis:

Immunohistochemical study reveals a nearly four-fold increase in endothelial vascular surface in psoriatic lesion as compared to normal skin and thus angiogenesis is important in the pathogenesis of psoriasis.

Hern et al[14] conducted a study to assess the blood flow of psoriatic skin, with laser doppler flowmeter. It was observed that cutaneous blood flow was 9-13 times and2.5-4.5 times higher in lesional and perilesional skin respectively as compared to the normal skin. The two possible explanations which were suggested for this phenomenon were vasodilatation and elongation of existing vessels and new vessel formation.[15]

Braverman was the first to propose a mechanism to explain elongation of capillary loops in psoriasis: endothelial cells in the extrapapillary portion of venous limb undergoes division that leads to a venous configuration of the loop with the intrapapillary venous limb longer than the arterial limb (“venulization phenomenon”) (Figure. 3).[16,17]

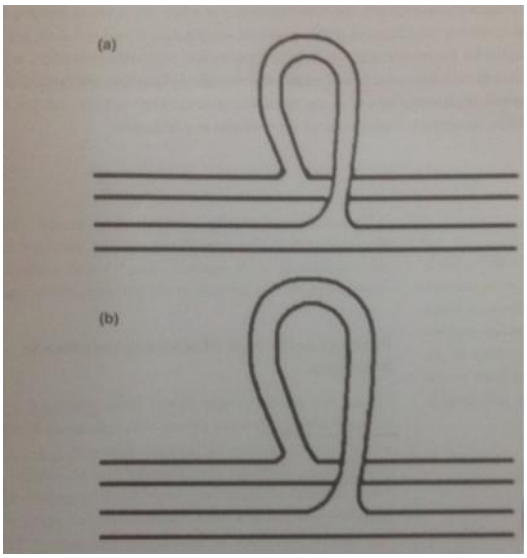


Figure. 3. Venulization phenomenon in psoriatic skin;(a) Normal capillary (b) psoriatic capillary .Reproduced from: Braverman IM: Microcirculation.In: Roenigk HH, Maibach HI (editors). Psoriasis, 3rd edition.Marcel Dekker Inc: New York;1998. p-399-407.

On the contrary, resolution of a psoriatic lesion is characterised by resorption of endothelial cells in the venous limb along with shortening of intrapapillary venous limb.[18]

Recently, Micali et al[19] conducted a study to evaluate the superficial vascular patterns in patients with palmar and / or plantar dermatoses with videodermatoscope. The authors observed presence of pinpoint-like capillaries linearly arranged along the furrows of dermatoglyphics at 50X. At 200X, the same capillaries appeared dilated and torturous, with a bushy homogenous appearance in all examination fields suggesting the diagnosis of psoriasis.

In a study by Pande S[20] on differentiating psoriasis and dry nummular eczema, it was found that multiple ‘red globules’ distributed homogenously in ‘honey comb’ or ‘sieve-like’ pattern in psoriasis, which were consistently absent in patients with dry nummular eczema.

Earlier studies have shown that dotted vessels as the only dermatoscopic criterion is insufficient to diagnose psoriasis as these are found in several other inflammatory and neoplastic lesions.[10,21] However in a study by Vazquez-Lopez et al,[22] presence of dotted vessels was a well-recognised criteria for diagnosis of psoriasis.

Lallas et al[23] conducted a study on accuracy of dermatoscopic criteria for the diagnosis of plaque psoriasis, dermatitis, lichen planus, and pityriasis rosea. The authors observed that besides vascular morphology, the vascular arrangement, distribution of vessels, and specific dermatoscopic clues have equal importance in differentiating psoriasis, dermatitis, lichen planus, and pityriasis rosea. A combination of regularly distributed dotted vessels over a light red background associated with scales was highly predictive of psoriasis and allowed the correct diagnosis with sensitivity of 84.9%, and specificity of 88%.

Vazquez-Lopez et al[24] performed a study to evaluate the role of dermatoscopy in assessing long-term safety of topical therapy with potent steroids in chronic psoriasis. They observed that, at the baseline all the psoriatic patients had red globules and at the end of the study these patients had red lines. But on naked eye examination there was no visible telangiectasia in the patients with red lines. On subsequent evaluation, few patients showed complete resolution of the red lines. The authors concluded that overuse of topical steroids resulted in thinning of epidermis and rete ridges, leading to visualization of subpapillary vessels (red lines).

Vazquez-Lopez et al[25] performed another study on dermatoscopy of non-pigmented skin disorders. The study revealed a wide spectrum of vascular changes, with variations in the morphology, arrangement and distribution of vessels. The most common vascular findings were the linear and rounded dots and globules, distributed

either in a homogenous or mixed pattern. In well-developed psoriatic plaques, a homogenous red globular pattern, devoid of linear vessels was observed. These lesions showed patches of colours surrounding the vascular lesions varying from pink to bright red. This study gave a clue to differentiate the psoriatic vascular changes from spongiotic dermatitis as, in the latter lesions, mixed changes with predominance of dotted vessels and linear vessels, and linear arrangement of the red dots (not to be confused with the red lines) were detected.

Red dots have been reported in melanoma, melanocytic naevus, seborrheic keratosis, basal cell carcinoma and keratinising tumors, where these are surrounded by white halo.[26,27,28]

In the normal skin and non-tumoral dermatoses, the red dots represent the tops of the normal vertical papillary loops. Red globules are the tops of ectatic/ elongated papillary loops and are present in non-tumoral dermatoses with psoriasiform hyperplasia. These appear in a homogenous distribution (i.e. regular psoriasiform hyperplasia) or in an uneven distribution (i.e. irregular epidermal hyperplasia). Red globules may also be a consequence of increased haemostatic pressure as in venous stasis.[29]

De Angelis et al[30] studied microcirculation of psoriatic plaques by videocapillaroscope. It was observed that with low magnifications (10-50X) it was not possible to evaluate the capillary loops of lesional skin in detail. However it provided a global view of the vascular pattern with a punctiform pattern. In general visualization requires magnifications of 100-400X to define the specific morphological characteristics of vascular pattern correctly. At these magnifications, dilated, elongated, and convoluted capillaries with a typical glomerular or bushy

pattern are seen. The calibre of the vessels is 12-13 μm compared to 5-6 μm diameters of the capillaries in healthy skin.

A study by Gilje O[31] showed that, at the edge of the psoriatic plaque, capillary loops are elongated with a hairpin pattern, arranged parallel to the cutaneous surface. High magnifications (500X) are able to assess the course of the erythrocytes into the vascular lumen.

Psoriasis and seborrhoeic dermatitis are relatively common inflammatory skin disorders that present with well-defined, erythematous scaly patches. These diseases share a common clinicopathological feature, but there are some apparent differences. When both conditions are localized on the scalp, with no involvement of other skin sites, a skin biopsy may be helpful for diagnosis. Kim et al[32] identified three valuable features of the vascular patterns which were important in diagnosing scalp psoriasis, i.e. red dots and globules, twisted red loops, and glomerular vessels. In addition other three vascular patterns were also identified, i.e., arborizing vessels, atypical red vessels, and feature-less areas; these were strongly associated with seborrhoeic dermatitis thus differentiating it from psoriasis. The red dots and globules represent the tortuous and dilated blood vessels within the elongate dermal papilla, which are the characteristic histopathological features of psoriasis. The arborizing vessels and atypical red vessels observed in seborrhoeic dermatitis indicate markedly dilated capillaries in slightly hyperplastic rete ridges.

Dermatoscopy is useful in distinguishing scalp seborrhoeic dermatitis from scalp psoriasis based on vascular pattern. The vascular pattern of psoriasis is characterised by red dots and globules, twisted loops, and glomerular vessels. It is however important to be aware that the twisted loops appear as dots on low

magnification (upto 20X). In seborrhoeic dermatitis the most common patterns are arborizing vessels and atypical red vessels in the absence of red dots and globules.[33]

Although twisted loops have been observed in psoriasis, these are not exclusive to psoriatic skin lesions. These loops are also observed in some skin lesions of seborrhoeic dermatitis. At low magnification twisted loops correspond to extensive array of red dots. Histopathologically these vascular structures correlate to tortuous capillaries in the dermal papillae. The observation of twisted loops in both psoriasis and psoriasiform seborrhoeic dermatitis may reflect true overlap disease, which is known as sebopsoriasis.[34]

Blum et al[35] studied dermatoscopic pattern of clear cell acanthoma, which resembles psoriasis vulgaris. The authors observed that dermatoscopic clue to clear cell acanthoma seemed to consist of partly homogenous, symmetrically or bunch-like arranged pin-point capillaries. The same pattern can also be seen in psoriatic plaques after removal of the scales; but in psoriasis the capillaries are more homogenously distributed. Both entities have similar histopathological features. These dermatoscopic distribution of capillaries correspond to histopathological features in both the disorders, characterised by epidermal hyperplasia with regularly elongated rete ridges and dilated capillaries in the dermal papilla.

Zalaudek et al[36] conducted a study to differentiate psoriasis from clear cell acanthoma. The authors observed that the dotted vessels in clear cell acanthoma are arranged as pearls on the line (pearl-like).Other distributions are reticular pattern mentioned by Bugatti et al[37] and net-like pattern described by Lacorrubba et al.[38]Some of the described dermatoscopic features of clear cell acanthoma overlap with psoriasis. But in psoriasis the vessels are homogenously and regularly distributed throughout the lesion.

It is difficult to differentiate psoriasis from other inflammatory dermatoses as red dots have also been described as the dermatoscopic feature in the latter cases. However, the characteristic regular distribution of red dots and possibly the background colour may provide important clues favouring the diagnosis of psoriasis.[39]

Lallas et al,[40] conducted a study on dermatoscopy for differentiation between pityriasis rubra pilaris (PRP) and psoriasis. The authors observed that psoriatic vascular patterns were in consistent with the findings of the study by Vazquez-Lopez et al,[22]. On the contrary, the PRP lesions were characterised by a clear different dermatoscopic pattern of round/oval yellowish areas surrounded by vessels of mixed morphology. Hence, presence of yellowish background colour is an important negative prognostic predictor for the diagnosis of psoriasis.

In a study conducted by Pan et al,[41] the authors observed that the global vascular pattern best described in psoriasis was 'homogenous'. Red dots and red globular rings were strongly associated with psoriasis rather than in tumors. Three positive features (a homogenous global vascular pattern, red dots, and a light-red background) and one negative feature (arborizing vessels including arborizing microvessels) were the most valuable in differentiating psoriasis from superficial basal cell carcinoma and intraepidermal carcinoma.

Psoriatic skin lesions exhibit a homogenous globular pattern with multiple uniformly sized dotted vessels in a patchy arrangement against a homogenous pink background with a central scaling surface. Apart from the diagnosis of psoriatic skin lesion by dermatoscopy, it is also useful for assessing the efficacy of treatment, as clinicians can monitor changes in vascular patterns. These changes consist of a

marked reduction in the density and length of vessels that is proportional to the clinical improvement observed in the lesions.[42]

LICHEN PLANUS

Lichen planus, was first described by Erasmus Wilson in 1869 as a pruritic papulosquamous disease of unknown etiology, affecting skin, mucous membranes, hair and nails. It is characterized by purple, polygonal, pruritic, papular eruption that has a typical histopathological picture.[43] The disease has predilection for the flexor surfaces of the forearms, legs, and glans penis. The eruption may be localized or extensive, and Koebner's phenomenon is commonly seen. The surface of the lesions show pathognomonic white lines in criss cross pattern or dots in a variable configuration called Wickham striae.[1]

LP is classified according to the configuration of lesion (linear LP, annular LP and zosteriform LP); morphological appearance (hypertrophic LP, atrophic LP and erosive LP); and site of involvement (oral LP, genital LP and LP of nails).

HISTOPATHOLOGY:

This consists of hyperkeratosis, wedge-shaped hypergranulosis, irregular acanthosis, vacuolar degeneration of the basal layer with the presence of intraepidermal or subepidermal colloid bodies, saw-toothed rete ridges and papillary dermal band-like infiltrate.[44]

DERMATOSCOPIC PATTERNS: (Table 1)

PATTERNS SEEN IN ACTIVE LESIONUNDER POLARISED LIGHT

Wickham striae

Fully evolved, active violaceous papules and plaques of lichen planus show a characteristic polymorphous pearly white structure that corresponds to the Wickham

striae (WS). The WS can be rounded, branched or arboriform, reticular, annular or in starburst pattern. At the border of WS show projections of varying size, from thin slender (bristle like) to thicker spikes (comb-like appearance). The starburst pattern is more commonly seen in an early lesion, while the arboriform and reticular patterns are more commonly seen in established lesion.

Red dots, red globules or red linear streaks

The islands of skin at the centre of the lesions have prominent capillaries that appear as pink to red globules, oval to elliptical in shape. These capillaries are arranged along the border of the islands in a palisaded pattern along with some ill-defined scattered pigmented dots. The borders of the skin lesions show linear streaks (prominent linear capillaries), intermingled with WS.

Hyperpigmented dots

Some of the active lesions shows prominent pigmented dots scattered within the lesion.

Micro-Koebner's phenomenon

In some of early papules elongated linear vessels with central, linear, white WS are seen under dermatoscopy.

PATTERNS SEEN IN ACTIVE LESIONUNDER NORMAL LIGHT

Comedone-like opening, rippled pattern and dells are observed.

PATTERNS SEEN IN SUBSIDING LESIONUNDER POLARISED LIGHT

Radiating streaks

These are linear extension along the circumference of lesion in the form of linear pigmented streaks.

Gray-black structure-less areas

A few lesions show structure-less areas of hyperpigmentation without any particular pattern.

Gray-black linear streaks

These lesions show broad linear hyperpigmented structures that successively branch to form a central broad reticular pattern and thinner linear streaks at the periphery.

Gray-black dots

In some lesions the dots are arranged in a linear pattern along the previously existent WS or arranged randomly.

The distribution of these pigment dots can be either:

I. *Diffuse:* Diffuse structure-less brownish areas.
II. *Dotted:* Fine or course gray-blue or brown dots or globules.
III. *Mixed:* Diffuse brownish areas and dotted structures.

These findings have potential prognostic value because skin lesions with presence of numerous blue dots have chronic course.

HISTOPATHOLOGICAL CORREALTION

Vascular structures

Red globules: correlate to the tortuous capillaries within the thin elongated dermal papilla.

Red dots: They represent normal papillary vessels.

Red lines: represent the deeper ectatic horizontal subpapillary capillaries.

Non-vascular strucutres

Wickham straie: Correspond to compact orthokeratosis above the zones of wedge-shaped hypergranulosis, centered around acrosyringia and acrotrichia.

Table 1. Dermatoscopic patterns in lichen planus

STAGE OF LESION	DERMATOSCOPIC FEATURES
Early lesion	*Starburst Wickham striae:* central pearly white structure with radiating spokes in a starburst pattern. *Red dots:* red coloured dots scattered at the periphery of the lesion.
Established lesion	*Reticular/Arboriform Wickham striae:* pearly white reticular structures coursing through the entire lesion. *Rippled pattern:* Corrugated appearance of the surface. *Dells:* Pits on the lesional surface. *Red dots:* Red coloured dots scattered within the lesion. *Red globules:* slightly larger than red dots scattered in the center of the lesion. *Red linear streaks:* Linear red coloured structures along the periphery of the lesion.
Resolving lesion	*Hyperpigmented radiating streaks:* dark brown radiating linear streaks along the periphery of the lesion; earliest sign of resolution. *Brown black dots:* Dark brown to dark gray dots scattered within the lesion indicating the presence the melanophages.

Central yellow brown areas: vacuolar degeneration of basal keratinocytes and spongiosis in the spinous layer.

Gray-blue dots: Melanophages in the dermis.

Comedone–like opening: Hyperplastic dilated hypergranular infundibula with orthokeratosis.

In a study conducted by Micali et al,[2] the authors observed that dermatoscopic evaluation of lichen planus provides an easy recognition of Wickham striae, which is predictive for the disease. Additional features were gray-blue dots, and cysts. Wickham striae appear as pearly white structures, which secondarily develop thin spikes (comb-like projections) or arboriform ramifications departing from the periphery. In long standing lesions there is decrease in Wickham striae and these are surrounded by pigmented structures. Dermatoscopy also helps in monitoring the evolution of the skin lesions of LP.

Zalaudek et al,[45] performed a study on dermatoscopic sub-patterns of inflammatory skin disorders. The authors observed that in clinically difficult cases of inflammatory disorders dermatoscopic features like a network of whitish striae and red globules at the periphery of the lesion was consistent with the diagnosis of LP. The whitish striae corresponded to Wickham striae.

Wickham striae are exclusively visualized under dermatoscope in skin lesions of lichen planus and thus it highlights the importance of presence of Wickham striae in diagnosis of lichen planus.[1,23]

Vazquez-Lopez F[46] reported the case of a patient who had lichen planus and co-existing psoriasis. On dermatoscopy of the skin lesions Wickham striae was seen along with adjoining vascular structures (red dots and globules).

Dermatoscopy and diascopy of the skin lesions of sarcoidosis clinically reveal individual yellow nodules (grains of sand) or yellow-brown discolouration (apple jelly sign) and on dermatoscopic examination yellow-brown homogenous patches are seen. Yellow-brown homogenous patches are not specific of sarcoidosis, but these are indicative of granulomatous skin disease (sarcoidosis, lupus vulgaris, leishmaniasis).

Conversely the dermatoscopy of lichen planus reveals the characteristic Wickham striae, but not yellow-brown homogenous patches.[47]

According to a study conducted by Martin et al,[42] the diagnosis of lichen planus by dermatoscopy is by easily identifiable Wickham striae on the surface of papule. Histopathologically these striae correlate with areas of orthokeratosis. The vascular pattern were characterised by the presence of predominately linear regular vessels and diffuse brownish structures-less areas that correspond to pigment in the epidermis. Other common findings are fine gray-blue or dark-brown dots or globules that correlate to pigment deposits within dermal melanophages.

Dermatoscopic findings in hypertrophic lichen planus are keratin-filled craters or comedone-like structures filled with yellow plugs or round corneal structure (corn pearls) which dot the surface of the skin lesions. Whitish structures and other vascular structures are also observed to a lesser extent.[1]

In lichenoid drug eruption, purplish white streaks and globules with multiple brown and red dots are observed in the center of the skin lesion under dermatoscope. The characteristic whitish globules, dots, streaks, annular, reticular and comb-like patterns of Wickham striae are absent.[1]

Dermatoscopic patterns observed in skin lesions of lupus erythematous are irregular whitish streaks with multiple red globules. Some lesions show brown granular pigmentation with red spots and globules in the center. The whitish Wickham striae are missing.[1]

PITYRIASIS ROSEA

Pityriasis rosea (PR) is an acute or sub-acute, symptomatic or asymptomatic condition affecting mainly young adult and apparently healthy children.[48]The characteristic skin lesions typically last from 2 to 10 weeks.[49]

Clinical features:

The first sign in PR is a solitary erythematous or salmon coloured, oval or round lesion known as 'herald patch' or 'mother patch' which usually appears on the trunk, sometimes on the neck or extremities, rarely on face or penis. The centre of the herald patch is wrinkled with a darker red peripheral zone separated by a collarette of fine scales. This is followed by secondary eruptions. The interval between the appearance of primary and secondary eruptions is variable (2 days to 2 months),but usually 7-[14] days. The lesions are symmetrical and localized mainly over thetrunk, adjacent areas of neck and extremities.[50]

Clinical types of PR are as follows:[51]

• Inverse PR

• Pustular PR

• Vesicular PR

• Purpuric PR

• PR urticaria.

• Gigantean PR

• Erythema multiforme-like PR

Histopathology:

Epidermis shows patchy parakeratosis, acanthosis, spongiosis and mild exocytosis. Vascular dilatation and extravasation of RBC's is common in the upper dermis and may extend into the lower layers of the epidermis. Superficial lymphohistiocytic dermal infiltration is seen.

DERMATOSCOPIC PATTERNS:

PR is typified by peripheral scaling, so called collarette scales, around a diffuse and structure-less yellowish center. In early skin lesions reddish globules or puncta with peripheral collarette of scales are seen. In older lesions granular or globular light brown pigmentation in the center are observed. Whitish structures that typify lichen planus are absent. In some cases dotted vessels are also seen.[1,23]

The application of dermatoscopy in recognition of collarette scaling was proposed by Chuh A T[52] because this technique magnifies the lesions, eliminates other epidermal changes such as excoriation, and demonstrates the morphology of scaling. In dermatoscopy it is apparent that fine fragments of scales are attached only at the periphery, with a tendency of peeling from the centre towards the edge. A major differential diagnosis of pityriasis rosea is tinea corporis, particularly when the patient presents with only one to two scaly macules.

Under digital epiluminescence dermatoscopy, the scales in pityriasis rosea appear more delicate. The direction of scaling is uniformly towards the edge, such that fragments of scales are attached at the periphery, hanging like curtains. By contrast, scales in tinea corporis are coarser, and the direction of scaling is chaotic. As a result, the thin rim of collarette scaling seen in pityriasis rosea is rarely seen in tinea corporis.

METHODOLOGY

SOURCE OF DATA:

A hospital-based, cross-sectional, analytic study to evaluate dermatoscopic features of papulosquamous disorders (psoriasis, lichen planus and pityriasis rosea) was conducted in the department of Dermatology, Venereology and Leprosy of B.L.D.E.U's Shri. B.M. Patil Medical College Hospital and Research Centre, Bijapur. Two hundred twenty patients suffering from papulosquamous disorders were recruited from the out-patient section of the department. The study was conducted between October 2012 to June 2014.

COLLECTION OF DATA:

INCLUSION CRITERIA:

- Cases who were clinically diagnosed as psoriasis, lichen planus and pityriasis rosea, and did not receive treatment for the past 1 month were included in the study.

EXCLUSION CRITERIA:

- Patients who were on treatment either with topical or systemic drugs for their cutaneous disorders during last 1 month and 6 months respectively were excluded from the study.
- Patients with lesions located only on interdigital area and genital areas were not enrolled.

PROCEDURE

In this study, hand-held dermatoscope DELTA 20® was used. It has 10X magnification, achromatic lens with high resolution and 6 LED illuminations, which is close to daylight and 3 LED illuminations which was used for better contrast.

Informed consent was taken from all patients included in this study. All the patients were subjected to detailed history and clinical examination. Relevant investigations were carried out wherever necessary. Following clinical examination, dermatoscopic evaluation was done through following steps:

- Most recent skin lesion was selected.
- Ultrasound gel was applied to the surface of the lesion.
- Contact plate was sterilized with methylated spirit.
- The lesions were visualized by contact technique dermatoscopy.
- Clinical and dermatoscopic photographs were taken.

After recording the dermatoscopic features, punch biopsy of the same lesion was performed under local anaesthesia, and the samples were sent for histopathological examination.

The clinical findings, dermatoscopic findings, and histopathological findings were recorded.

Dermatoscopic examination included background (light red, dull red, and yellowish), pattern of vessels (patchy, peripheral, central, regular, clustered); types of vessels (dots, globules, linear); scale distribution (peripheral, central, diffuse, patchy); and scale colour (yellow, white). The definitions of the findings that were recorded in our study are charted in table 2.

Table 2: Definitions of the different morphological types of vascular patterns

Vascular structure	Definition
Dotted vessels	Small calibre reddish vessels that resemble a pin-head.
Globules	Large calibre reddish vessels
Glomerular vessels	Tortuous capillaries mimicking the glomerular apparatus of the kidney
Cork-screw vessels	Linear irregular spiral vessels areas containing atypical linear vessels

STATISTICAL ANALYSIS

The observations pertaining to the parameters undertaken for the study among the study subjects were expressed as percentage. The generated data (age and gender-related) were represented diagrammatically. Mean values and standard deviations were calculated. Chi square/Fisher's exact test was calculated. Univariate analysis including odds ratio (OR) and 95% confidence interval (CI) was done.

To compare the subjects of psoriasis, LP and PR were taken as controls. Similarly when comparison was done for LP, Ps and PR were considered as controls. And comparison of PR was done in which, LP and Ps were considered as controls.

ETHICAL CLEARANCE:

Institutional ethical committee clearance was undertaken for the study.

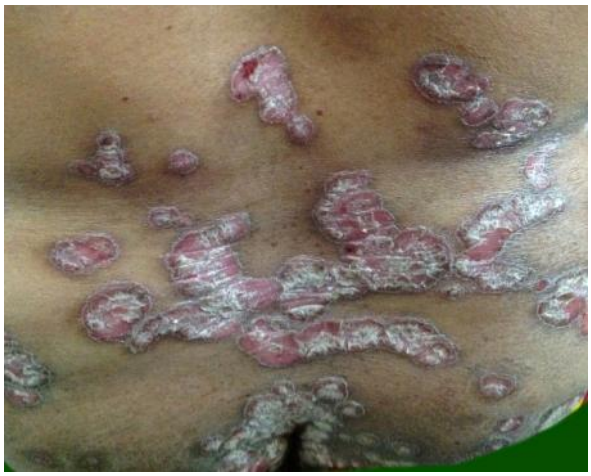


Figure4:Plaque psoriasis: Multiple erythematous plaques with loosely adherent silvery white scale present over lower back extending up to gluteal region

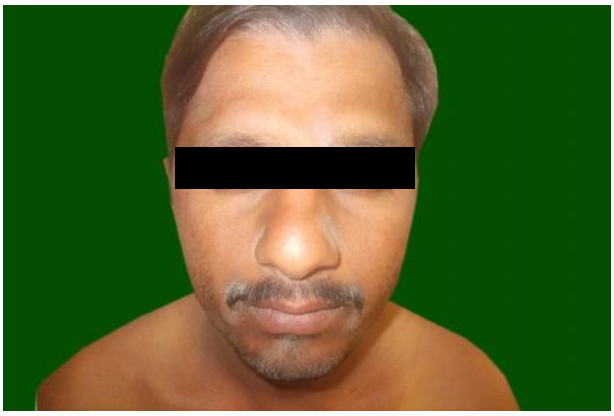


Figure 5:Sebo-psoriasis: Multiple erythematous plaques with silvery white scale present over seborrhoeic area of face.

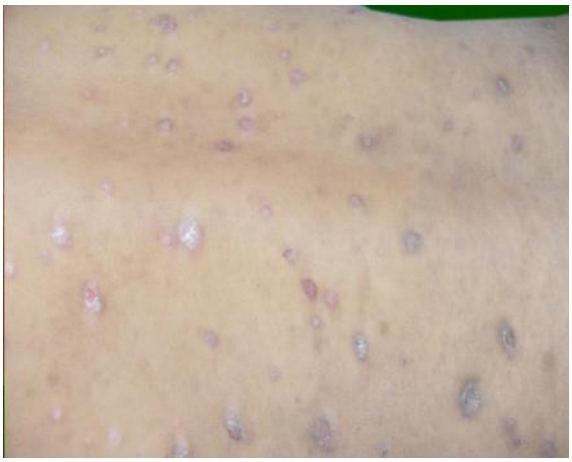


Figure 6:Guttate psoriasis: multiple erythematous plaques of variable size with silvery scales present over back.

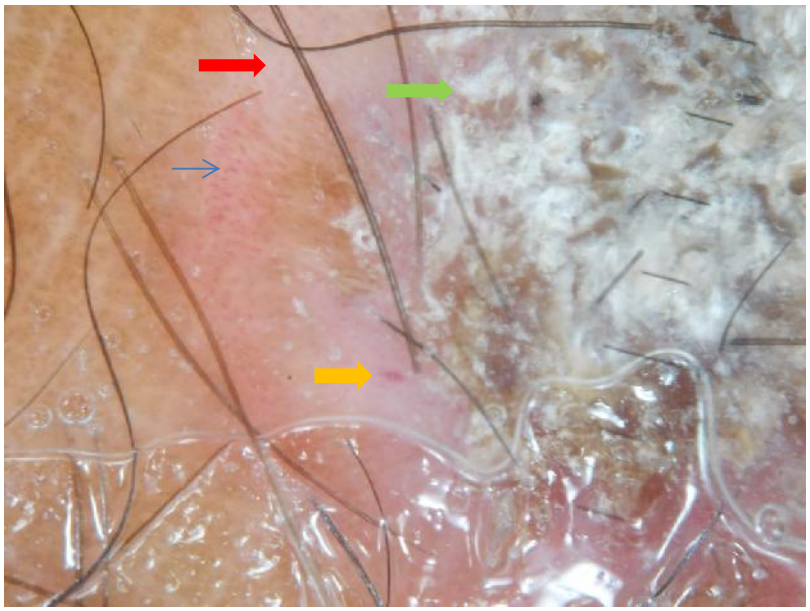


Figure 7:Dermatoscope of the lesion of psoriasis showing dull red background (red arrow), red dots (blue arrow), red globules (yellow arrow), and white scales (green arrow).

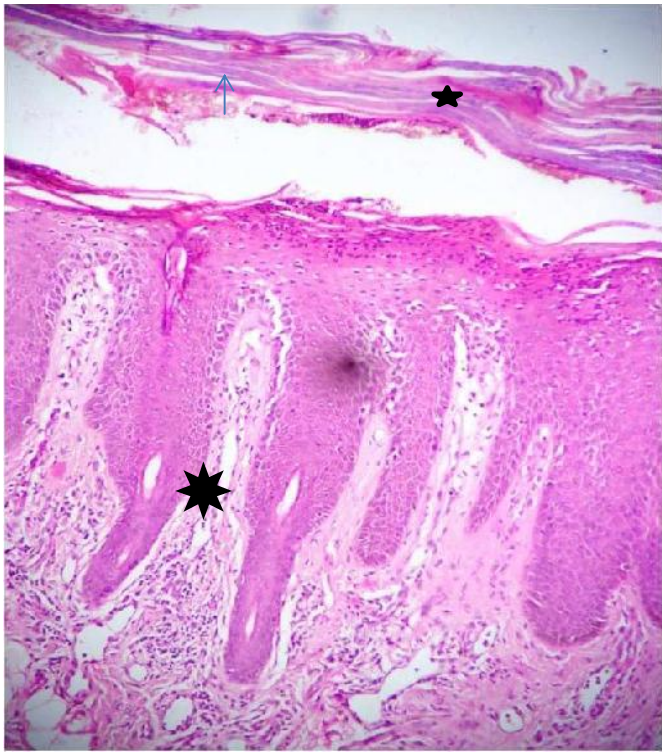


Figure 8: Photomicrograph of psoriasis showing parakeratosis (↑), Munro micro abscesses (★) and elongation of rete ridges(✸) (H&E,10X)

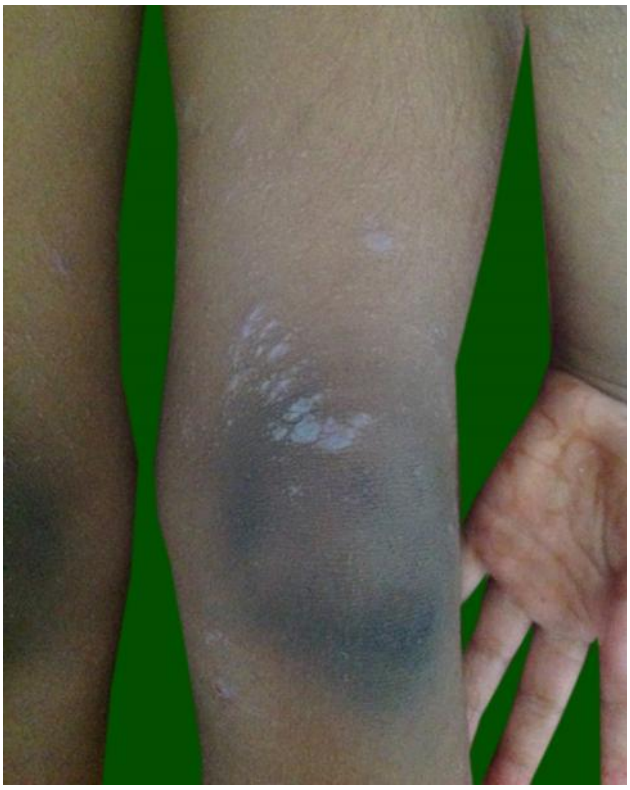


Figure9: Classical LP: multiple violaceous flat topped papules present over left extensor aspect of leg

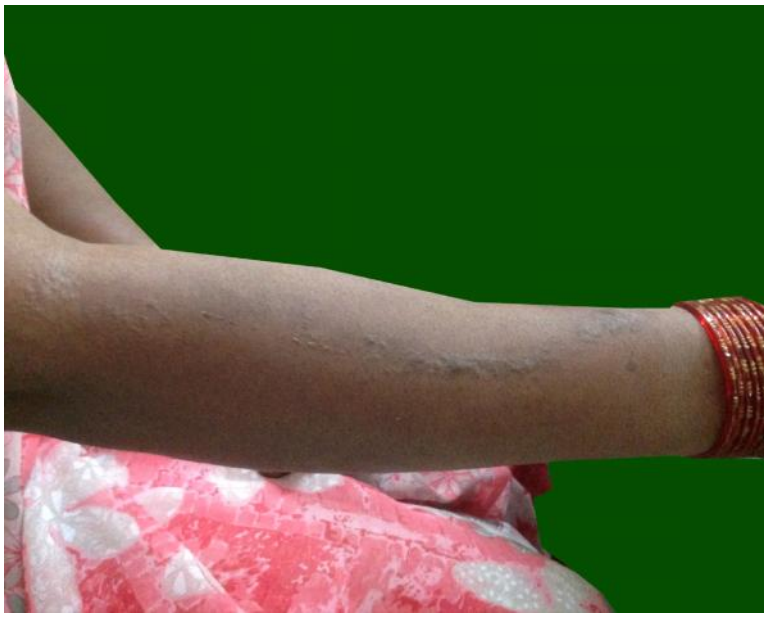


Figure 10: Classical LP: multiple violaceous flat topped papules present over left extensor aspect of leg.

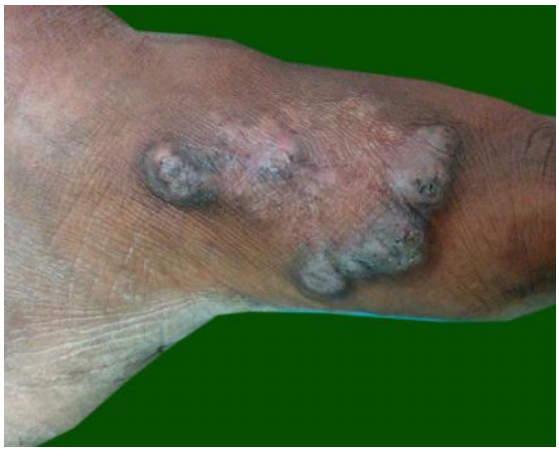


Figure 11: Hypertrophic LP: Multiple violaceous Hyperkeratotic plaques present over medial aspect of right foot

Figure 12:Actinic LP: multiple violaceous plaques present over sun-exposed area.

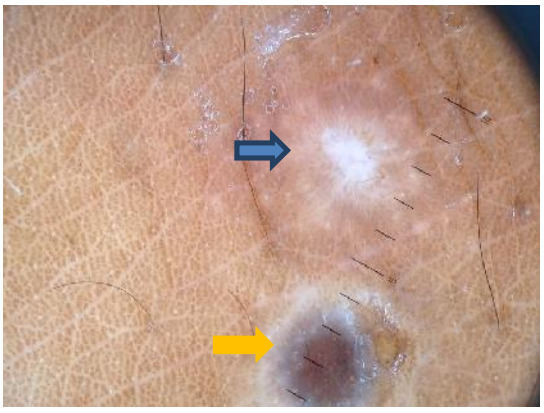


Figure 13:Dermatoscopic finding of WS (blue arrow) and comedone-like opening (yellow arrow)

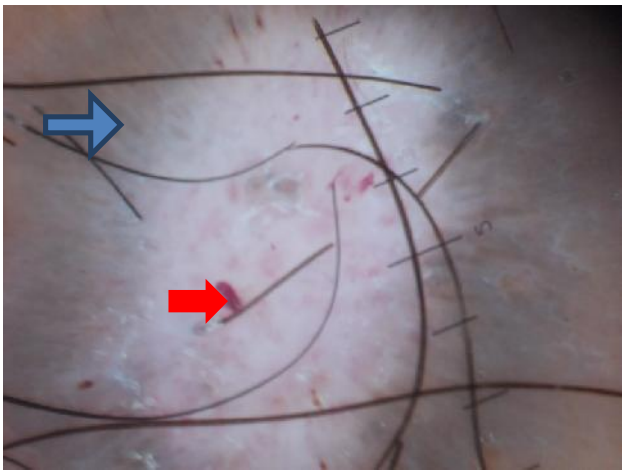


Figure 14: Dermatoscopic finding of WS (blue arrow) and globules (red arrow)

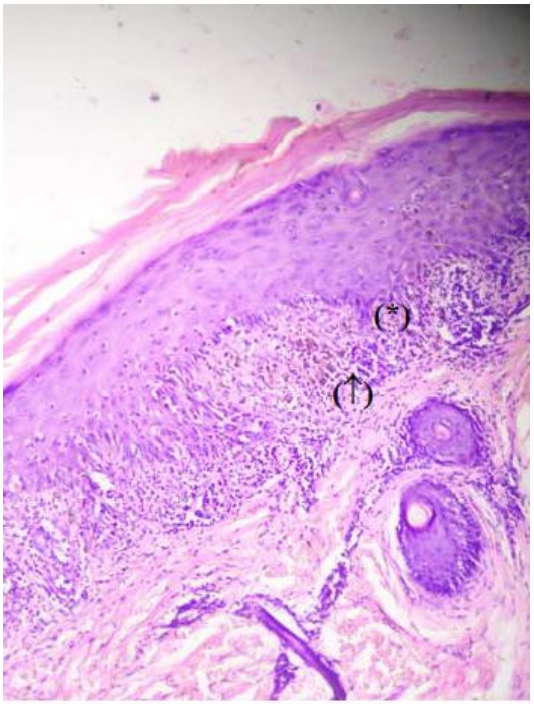


Figure 15: Photomicrograph showing band like lymphocytic infiltration (↑) and basal cell vacuolization (*) in LP (H&E, 10X)

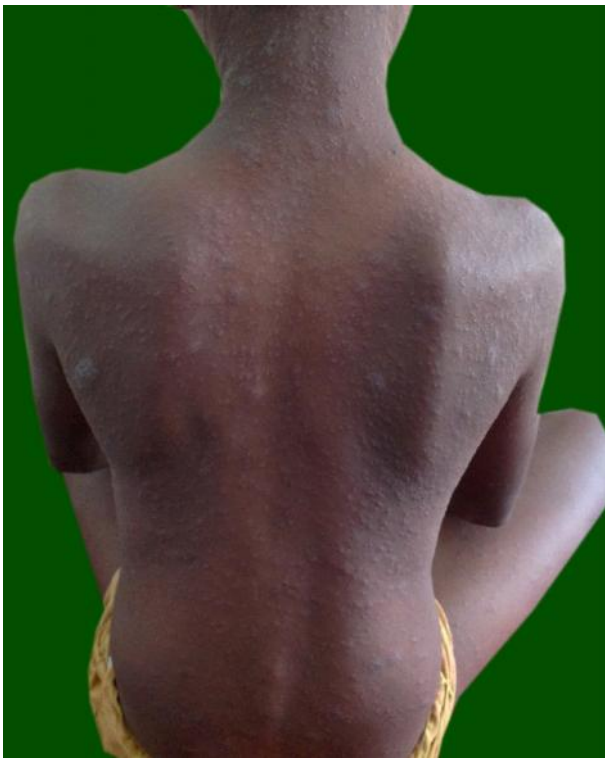


Figure 16: Christmas tree pattern in PR with multiple hyperpigmented plaques (Herald patch) present on the back and nape of neck

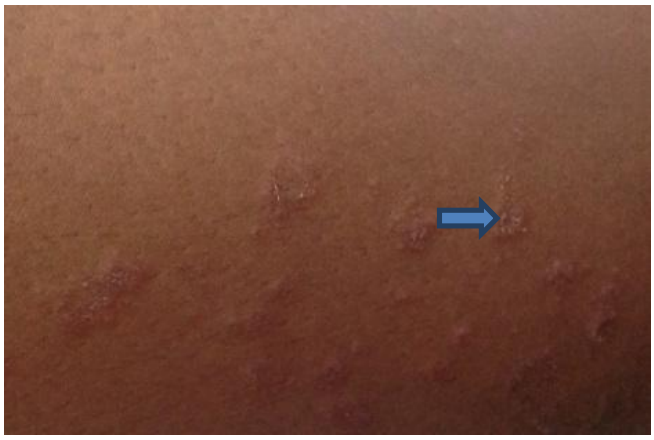


Figure 17: Multiple erythematous plaques of variable size with collarette of scales (blue arrow) distributed over right medial aspect of arm.

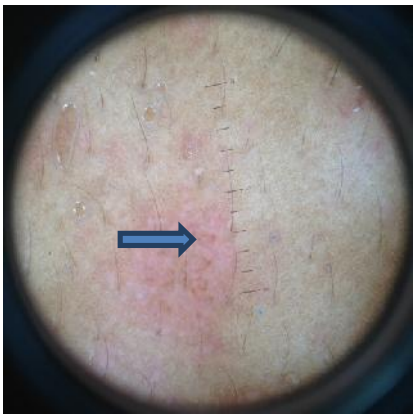


Figure 18: Dermatoscopic finding in PR lesion shows diffuse erythema (blue arrow).

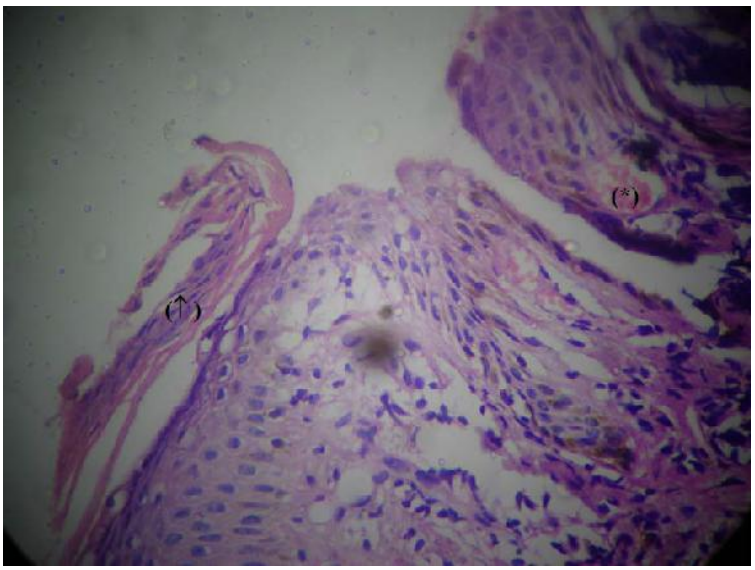


Figure 19: Photomicrograph showing parakeratosis (↑) and extravasation of RBCs (*) in Pityriasis rosea (H&E, 10X)

RESULTS

A total of 217 patients with papulosquamous disorders were examined during the study period. Out of them, 110 were affected with psoriasis, 66 with lichen planus, and 41 with pityriasis rosea. Clinical types of papulosquamous disorders have been presented in table 3.

Table 3: Clinical types of papulosquamous disorders

Clinical type	No of patients (%)
Psoriasis	110 (50.69)
LP	66 (30.41)
PR	41 (18.89)

Age incidence and gender distribution

The age of the study subjects ranged from 2 months to 73 years, with mean (±SD) age value of 32.78 (±17.83) years. There was male preponderance as compared to females in all the disease categories. Age and gender distribution of the patients included in this study has been presented in table 4 and graph 1 respectively.

Results related to individual disorders have been presented below.

Psoriasis:

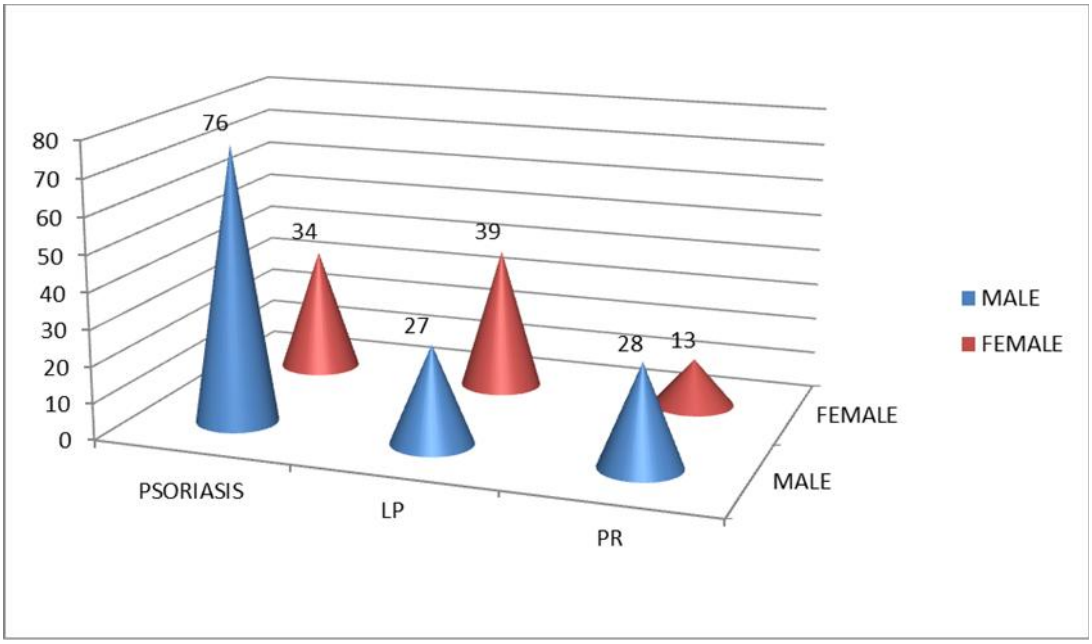
Total 110 (50.69%) patients were suffering from psoriasis. There was male preponderance (M=76, F=34), the ratio being 2.2:1 charted in figure 4.

Psoriatic patients with various morphological types were included in the study namely, plaque psoriasis (figure 4), sebopsoriasis (figure 5), guttate psoriasis (figure 6), ostraceous psoriasis, inverse psoriasis and psoriatic erythroderma. Koebnerization was also observed.

Table 4: Age distribution of the study subjects.

Disease category	Age-groups			
	0-16years	**16-64 years**	**>65 years**	**Mean(±SD) Age**
PSORIASIS	22	87	1	36.14 (±18.49)
LP	10	54	2	22.2 (±10.93)
PR	13	28	0	33.74 (±18.12)

Graph 1: Gender distribution of the study subjects.



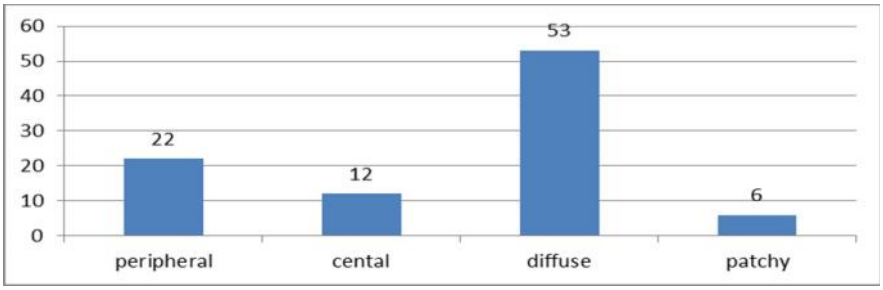
Pitting was the most common nail finding. Next frequent findings were longitudinal ridges, Beau's line, subungual hyperkeratosis (SUHK) and shiny nails as shown in table 5.

Table 5: Nail changes in study subjects with psoriasis.

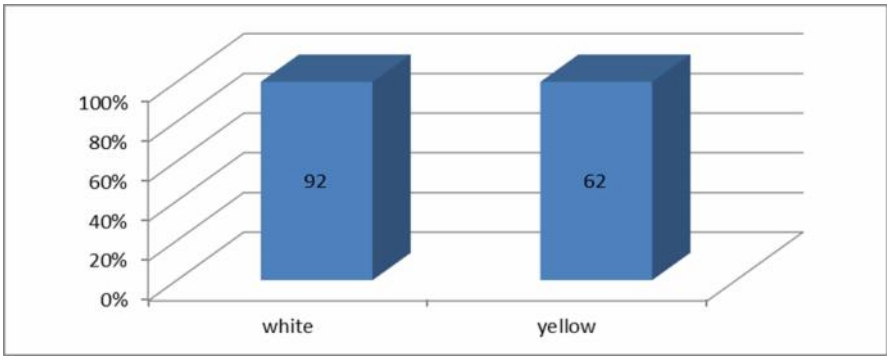
Nail changes	Number (%)
Pitting	49 (44.5)
Beau's line	13 (11.8)
SUHK	20 (18.18)
Shiny nails	3 (2.72)
Longitudinal ridges	25 (22.7)
Oil drop sign	1 (0.9)
Splinter haemorrhages	2 (1.88)

Figure 7 illustrates various dermatoscopic findings in psoriatic patients. More than half of the scale distribution was diffuse and rest was peripheral and central as in graph 2. White and yellow coloured scales were seen in almost all the cases as illustrated in graph 3.

Graph 2: Dermatoscopic findings of scale distribution in patients with psoriasis

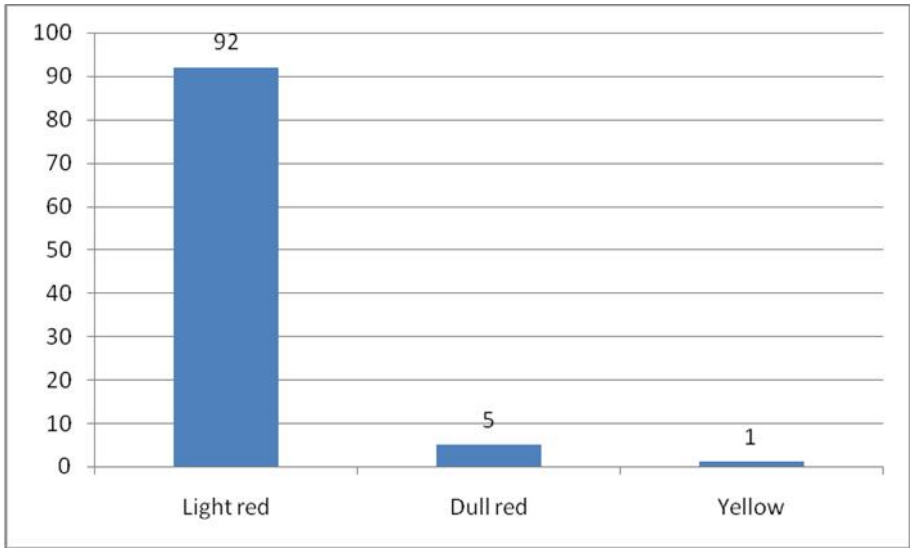


Graph 3: Dermatoscopic findings of scale colour in patients with psoriasis



The most common dermatoscopic lesional background finding was light red and a few lesions showed dull red and yellow background (graph 4).

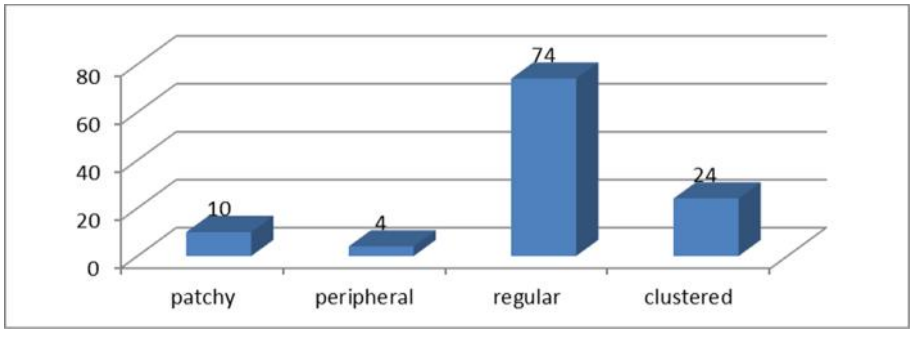
Graph 4: Dermatoscopic findings of the lesional background in patients with psoriasis.



Pattern of blood vessels observed were mostly regular, although clustered and patchy vessels were also seen (graph 5). Most common types of blood vessels visualised were red dots and globules (graph 6).

Out of 110 patients, 74 (67.27%) underwent histopathological examination (HPE). The various HPE findings are enumerated in the table 6. Histopathologically (figure 8) most common findings were parakaratosis, supra-papillary thinning, spongiform pustules of Kogoj, and capillary dilatation. Other findings were Munro micro abscess, acanthosis, inflammatory infiltrate and psoriasiform elongation of rete ridges.

Graph 5: Dermatoscopic findings of vascular pattern in patients with psoriasis



Graph 6: Dermatoscopic findings of types of blood vessels in patients with psoriasis

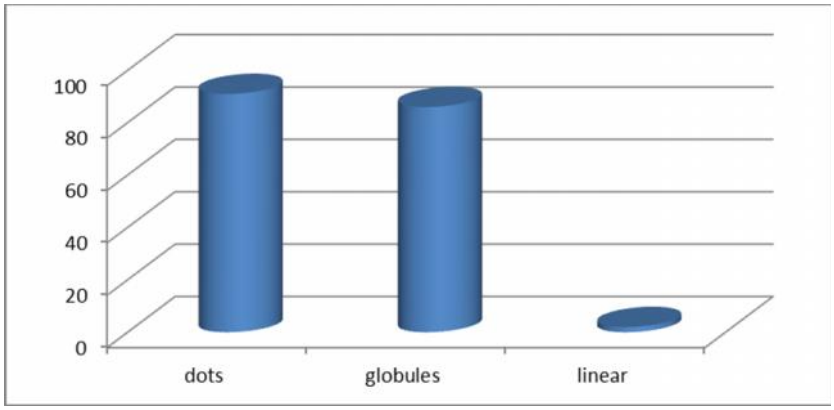


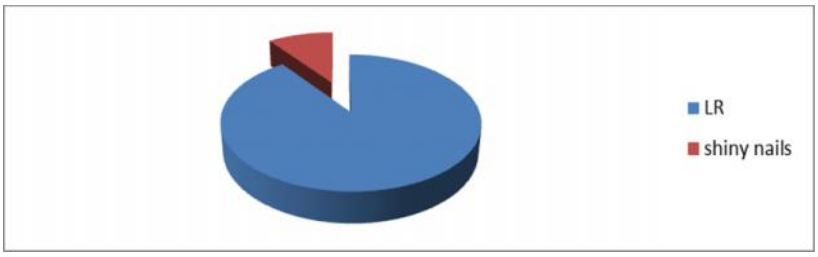
Table 6. Histopathological findings of psoriatic lesions

Histopathological findings	Number (n) n (%)
Parakeratosis	45 (60)
Munro micro abscess	23 (31.08)
Absence of granular layer	26 (35.13)
Acanthosis	27 (36.48)
Supra-papillary thinning	34 (45.9)
Spongiform pustules of Kogoj	36 (48.6)
Elongated rete ridges	26 (35.13)
Capillary dilatation	34 (45.9)
Inflammatory infiltrate	29 (39.1)

Lichen Planus:

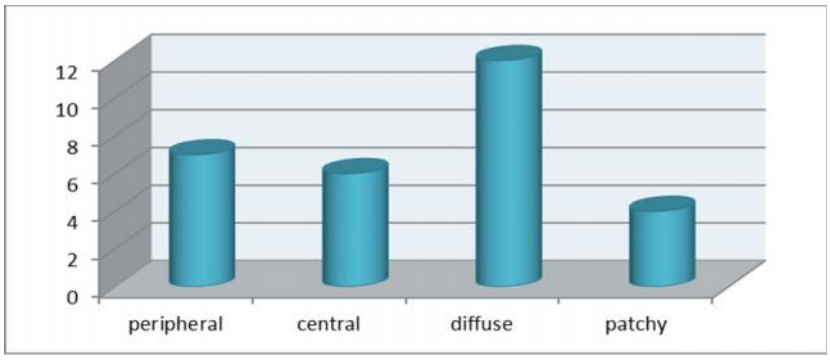
Sixty six patients were diagnosed with LP, with female preponderance (M=27, F=39). Classical LP, Linear LP, hypertrophic LP, and actinic LP were included in the study as seen in figures 9,10,11 and 12 respectively. Koebnerization was observed. The predominant nail changes were longitudinal ridges (LR) followed by shiny nails (graph 7).

Graph 7: Nail changes in patients with LP



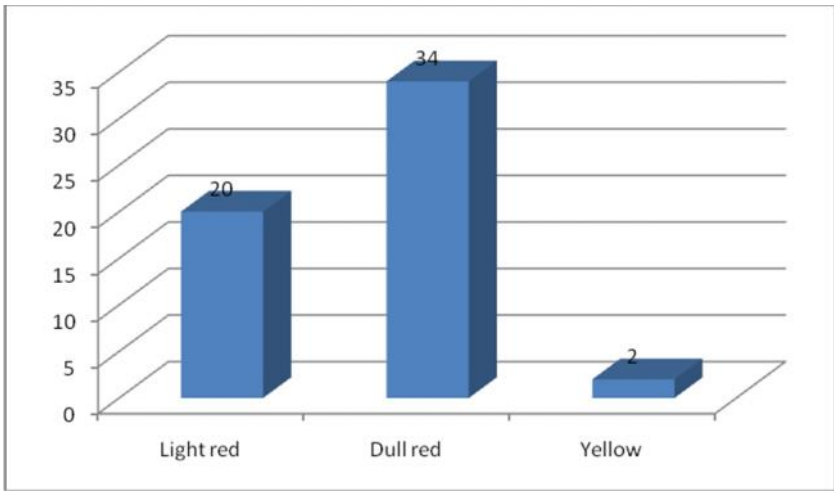
On dermatoscopic evaluation, diffuse distribution of the scales were predominately observed, as shown in graph 8 and white coloured scales were the most common finding (34.84%).

Graph 8: Dermatoscopic findings of scale distribution in patients with LP



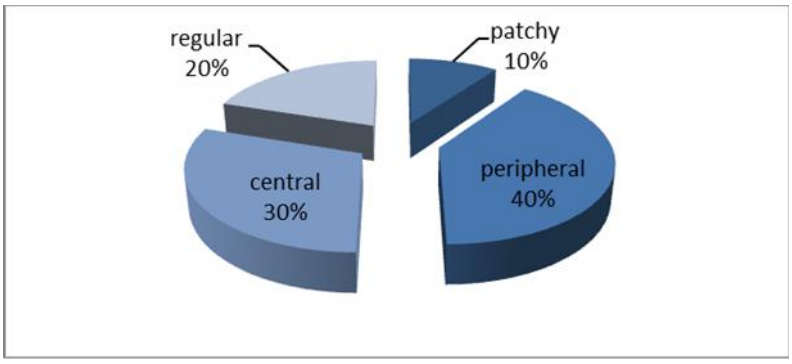
Dull red background was seen in more than half of the patients and the next was light red and yellow background under dermatoscope (graph 9).

Graph 9: Dermatoscopic findings of background colour in patients with LP

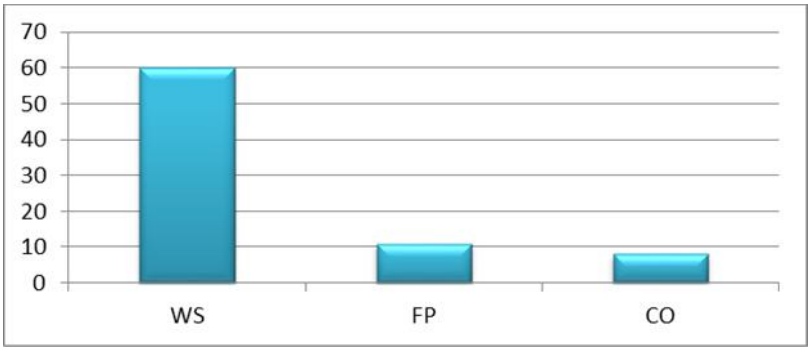


The pattern of distribution of vessels on dermatoscopic evaluation of LP were mostly peripheral (graph 10). Other dermatoscopic findings were Wickham's striae (WS), which is a pathognomic sign of LP (figure 13, and 14), along with follicular plugging (FP) and comedone-like opening (CO) (figure 13). Dermatoscopic findings of LP have been charted in graph 11.

Graph 10: Dermatoscopic findings of distribution of vessels in patients with LP



Graph 11: WS, FP, and CO as observed through dermatoscope



The various types of vessels observed in LP under dermatoscope have been shown in graph 12. The dermatoscopic finding of globules in LP has been shown in figure 14.

On histopathological examination (figure 15), which was performed on 51 study subjects (77.27%), the findings in decreasing order have been presented in table 7.

Graph 12: Dermatoscopic findings of types of vessels in subjects with LP

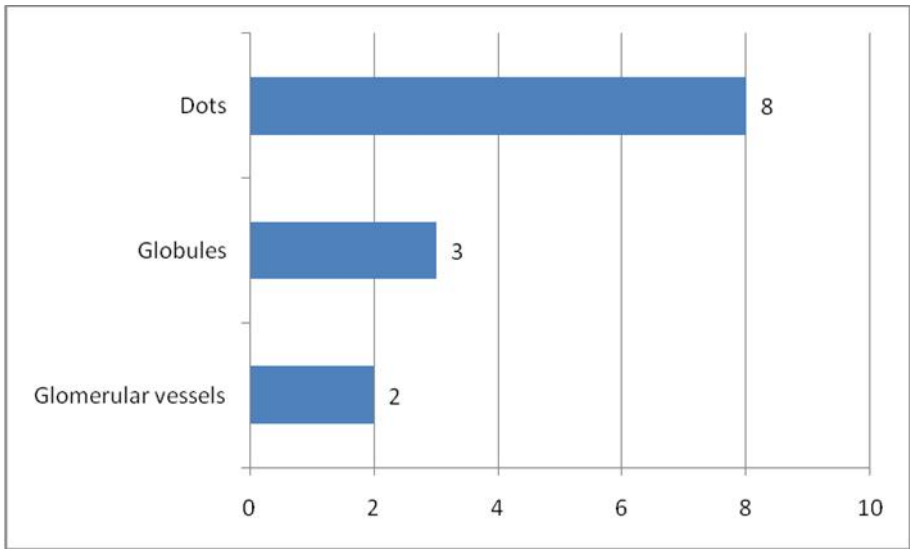


Table 7: Histopathological findings in patients with LP

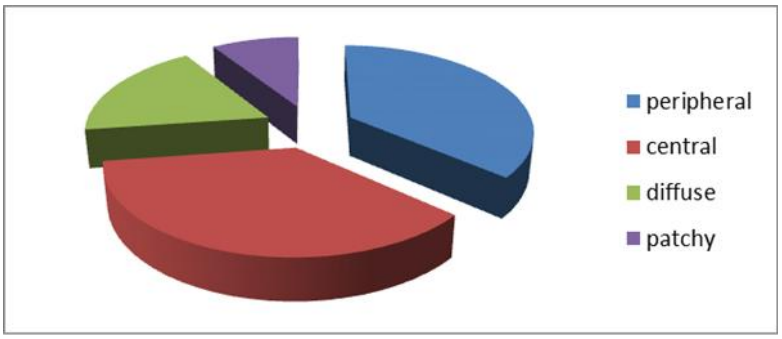
HPE findings	Number (%)
Compact hyperkeratosis	43 (84.31)
Basal layer vacuolisation	34 (66.6)
Pigment incontinence	32 (62.74)
Wedge-shaped hypergranulosis	23 (45.09)
Acanthosis	23 (45.09)
Band-like inflammatory infiltrate	23 (45.09)

Pityriasis Rosea

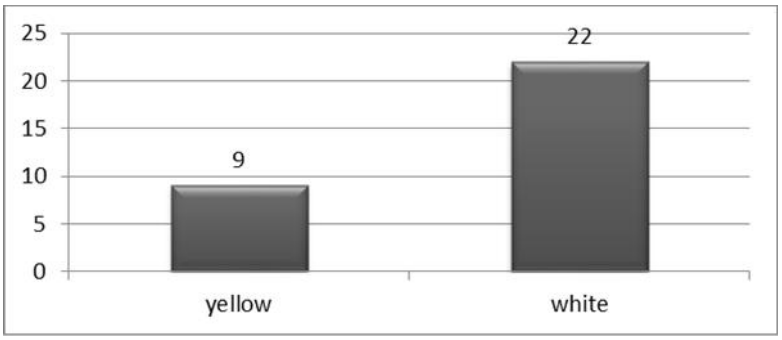
Forty one patients with PR were examined and there was male preponderance (M=27, F=14). In about two third of the scales in PR, central and peripheral arrangements were observed, the remaining being diffuse and patchy (graph 13). Types of PR that were included in the study were classical PR with Christmas tree pattern (figure 16) and inverse PR. White scales were predominantly seen in

dermatoscope (graph 14). These white scales correlated clinically to collarette of scales (figure 17).

Graph 13: Dermatoscopic findings of scale distribution in patients with PR

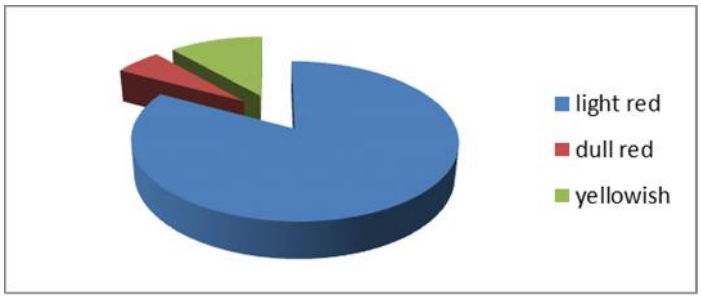


Graph 14: Dermatoscopic findings of scale colour in patients with PR



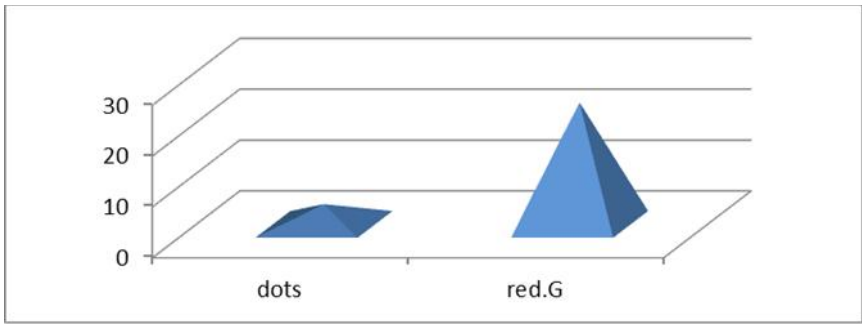
Most of the skin lesions on dermatoscopy, showed light red background followed by dull red and yellow background (graph 15). Unlike in psoriasis, common pattern of scales on dermatoscopy were irregular followed by patchy and regular. However few skin lesions of PR on dermatoscopic examination showed peripheral, central and clustered distribution of vessels (graph 16). Red globules were the commonest type vessels seen in PR (graph 17). In some lesions only erythema was predominate dermatoscopic finding (figure 18).

Graph 15: Dermatoscopic findings of background colour in patients with PR



Graph 16: Dermatoscopic findings of scale distribution in patients with PR

Graph 17: Dermatoscopic findings of types of vessels in patients with PR



Histopathologically (figure 19) parakarotosis, orthokeratosis, spongiosis, absent granular layer, and extravasation of red blood cells were seen with almost equal distribution (table 8).

Table 8. Histopathological findings of PR

HPE findings	Number (%)
Orthokeratosis	20 (76.92)
Extravasation of RBC	19 (73.07)
Parakeratosis	15 (57.6)
Absent granular layer	15 (57.6)
Spongiosis	14 (53.8)

Different variables of dermatoscopic findings (background colour, types and patterns of vessels and colour and distribution of scales) in psoriasis, LP, PR were calculated and *p* value generated (Table 9). The *p* value was statistically significant ($p< 0.05$) for light red background in psoriasis, dull red background in LP and yellowish background in PR. In pattern of vessels, the findings of patchy and peripheral distribution of vessels were statistically significant ($p=0.0359$). In patients with psoriasis regarding types of vessels, dots and globules were statistically significant ($p=0.0003$).

Distribution of the scales was statistically insignificant ($p=0.6021$). Statistical significance ($p=0.0006$) was seen with white colour of scales in psoriasis and PR.

Table 10, shows the odds ratio (OR) with 95% confidence interval (CI) in patients with psoriasis against control i.e. non-psoriasis patients. The light red background colour is most common when compared to other background colour and is statistically significant ($p<0.0001$). Light red background is likely to be 13.6 times more commonly seen in psoriasis as compared to LP and PR. Regular and clustered pattern of vessels seen on dermatoscopic examination of lesions of psoriasis are statistically significant ($p=0.015$) compared to peripheral and patchy pattern of vessels. The patchy and peripheral vessels seen on dermatoscopy were not enough to

differentiate between psoriasis and other skin lesions. Dots and globules pattern in vessels was almost exclusively seen in lesions of psoriasis. This appearance was statistically significant (p=0.0003). It was 6.4 times more likely to occur in psoriasis than LP and PR. Distribution of scales was diffuse and statistically significant (p=0.1459) in psoriasis. The occurrence of white scales was higher in psoriasis and it was also statistically significant (p=0.0017) when compared to LP and PR. The yellow scales were seen in both but no difference was elicited statistically.

Univariate analysis (table 11) of dermatoscopic findings in LP showed presence of dull red background colours was statistically significant (p<0.0001) in patients with LP compared to controls. Regarding pattern of vessels presence of patchy and regular types was statistically significant (p< 0.05) but not the central pattern. Glomerular vessels were statistically significant (p=0.0015) compared to controls, however dots were not statistically significant (p=0.1222). Again, as in psoriasis distribution of scales was not statistically significant (p=0.690). Presence of non-vascular patterns namely Wickham's striae, follicular plugging, comedone-like openings were statistically significant (p< 0.05) in LP patients as compared to controls.

Table 9: Frequency of dermatoscopic variables in psoriasis, LP and PR

Variants	**Psoriasis (n=110) n(%)**	**Lichen Planus (n=66) n(%)**	**Pityriasis Rosea (n=41) n(%)**	**Chi square and *p* value**
Background colour				
Light red	92(83.63)	20 (30.3)	29 (70.73)	$\chi 2=7.19$ $p<0.0001$
Dark red	5 (4.54)	34 (51.51)	2 (4.87)	
Yellow	1 (.09)	2 (3.03)	4 (9.75)	$\chi 2=15.4$ $p=0.0004$
Patterns of vessels				
Patchy	10 (9.09)	1 (1.51)	5 (12.91)	$\chi 2=6.654$ $p=0.0359$
Peripheral	4 (3.63)	4(6.06)	2 (4.87)	$\chi 2=8.039$ $p=0.0189$
Regular	74(67.27)	2 (3.03)	5 (12.19)	$\chi 2=3.413$ $p=0.1815$
Clustered	24(21.81)	0	2 (4.87)	
Type of vessels				
Dots	91(82.72)	8 (12.21)	4 (9.75)	$\chi 2=16.272$ $p=0.0003$
Globular vessels	86(78.18)	3 (7.31)	24 (58.53)	
Linear	2 (1.81)	0	0	$\chi 2=0.6245$ $p=0.7318$
Distribution of scales				
Peripheral	22(20)	7(10.06)	4 (9.75)	$\chi 2=1.015$ $p=0.6021$
Central	12 (10.9)	6(14.63)	4 (9.75)	$\chi 2=0.600$ $p=0.7408$
Diffuse	53(48.18)	12 (18.18)	2 (4.87)	$\chi 2=3.238$ $p=0.1981$
Patchy	6(5.45)	4(9.74)	1 (2.43)	
Colour of scales				
White	92 (83.63)	23(34.84)	22 (53.65)	$\chi 2=14.841$ $p=0.0006$
Yellow	62(56.36)	0	9 (1.95)	

Table 10: Dermatoscopic predictors of psoriasis.

Predictor	**Patients with Psoriasis (n=110) n(%)**	**Controls (n=107) n(%)**	***p* value**	**OR (95% CI)**
Background colour				
Light red	92 (83.63)	49 (45.79)	<0.0001	0.0739 (0.0272-0.2006)
Dark red	5 (4.54)	36 (33.6)		
Yellowish	1 (0.90)	6 (56.07)	1.0000	0.833 (0.0823-8.438)
Pattern of vessels				
Patchy	10 (9.09)	6 (56.07)	0.3177	2.057 (0.5513-7.677)
Peripheral	4 (3.63)	6 (56.07)	0.0485	5.143 (1.125-23.516)
Regular	74 (67.27)	14 (13.08)	0.015	0.1853 (0.049-0.688)
Clustered	24 (21.81)	7 (6.54)		
Types of vessels				
Dots	91 (82.72)	2 (1.86)	0.0103	0.1576 (0.03474-0.7246)
Globules	86 (78.28)	12 (11.21)		
Linear	2 (1.81)	27 (25.23)	<0.0001	96.750 (20.361-459.74)
Distribution of scales				
Peripheral	22 (20)	11 (10.2)	0.4921	0.60 (0.1494-2.410)
Central	2 (1.81)	10 (9.34)	1.00	1.00 (0.2337-4.280)
Diffuse	53(48.18)	16 (5.60)	0.1459	0.3623 (0.0975-1.3456)
Patchy	6 (5.45)	5 (4.67)		
Colour of scales				
White	92(83.63)	45 (42.05)	0.0017	0.2968 (0.1354-0.6506)
Yellow	62 (56.36)	9(8.41)		

Univariate analysis (table 12) of dermatoscopic findings in PR showed presence of light red and yellow background was statistically significant ($p< 0.05$). Finding of irregular distribution of vessels was statistically significant ($p<0.0001$) but rest of the pattern of vessels were not statistically significant ($p=0.6764$). Dotted vessels were statistically significant ($p=0.0002$). Like psoriasis and LP even in PR

distribution of scales was not statistically significant (p=0.7250). Presence of erythema was statistically significant ($p<0.0001$) in patients with PR, but yellow colour of the scales was not statistically significant (p=0.5160).

Table 11: Dermatoscopic predictors of LP

	Patients with LP (n=66) n (%)	**Control (n=151) n (%)**	***p* value**	**OR**	**95% CI**
Background colour					
Light red	20 (30.30)	121 (80.13)	<0.0001	29.38	11.464-75.324
Dull red	34(51.51)	7 (4.63)			
Yellowish	2 (3.03)	6 (3.97)	0.0025	14.571	2.419-87.769
Pattern of vessels					
Patchy	1 (1.51)	15 (9.93)	0.0549	10.00	0.9184-108.88
Peripheral	4 (6.06)	6 (3.97)			
Central	3 (4.54)	1 (0.66)	1.00	1.33	0.05708-31.145
Regular	2 (3.03)	71 (47.01)	0.0011	25.667	3.877-169.94
Type of vessels					
Dots	8 (12.12)	95 (62.91)	0.1222	0.3239	0.0835-1.256
Globules	3 (4.54)	110 (72.84)			
Glomerular vessels	2 (3.03)	0	0.0015	0.0063	0.00025-0.1583
Distribution of scales					
Peripheral	7 (10.6)	26 (17.21)	0.3149	2.122	0.4805-9.375
Central	6 (9.09)	16 (10.59)	0.690	1.524	0.3247-7.152
Diffuse	12 (18.18)	55 (36.42)	0.2225	2.619	0.6599-10.394
Patchy	4(6.06)	7 (4.63)			
Colour of scales					
White	23(34.84)	114 (75.49)			
Non-vascular features					
Wickham's striae	60 (90.90)	0	<0.0001	0.0057	0.00027-0.1187
Follicular plugging	11 (16.66)	0	0.0039	0.030	0.000138-0.6528
Comedone- like opening	8 (12.12)	0	0.0128	0.00407	0.0018-0.9002

Table 12: Dermatoscopic predictors of PR

	Patients with PR (n=41) n(%)	**Control (n=176) n(%)**	***p* value**	**OR**	**95% CI**
Background colour					
Light red	29 (70.73)	94 (53.40)	0.0060	0.1662	0.037-0.7310
Dull red	2 (4.87)	39 (22.15)			
Yellowish	10 (24.39)	3 (1.70)	0.0024	0.0384	0.0048-0.3031
Pattern of vessels					
Patchy	5 (12.19)	11 (6.25)	0.0851	0.1833	0.0306-1.097
Peripheral	2 (4.87)	8 (4.54)	0.3048	0.333	0.040-2.77
Central	1 (2.43)	3 (1.70)	0.3596	0.2500	0.017-3.663
Regular	5 (12.19)	76 (43.18)	0.6764	1.267	0.230-6.956
Clustered	2 (4.87)	24 (30.68)			
Irregular	18 (43.09)	0	<0.0001	0.0027	0.000124-0.06103
Type of vessels					
Dots	4 (9.75)	99 (56.25)	0.0002	0.1498	0.050-0.4487
Globules	24 (58.53)	89 (50.56)			
Distribution of scales					
Peripheral	4 (9.75)	29 (16.47)	1.000	0.7250	0.072-7.280
Central	4 (9.75)	18 (10.22)	0.6431	0.4500	0.044-4.598
Diffuse	2 (4.87)	65 (36.93)	0.3703	3.250	0.2690-39.265
Patchy	1 (2.43)	10 (5.68)			
Colour of scales					
Yellow	9 (21.95)	62 (35.22)	0.5160	1.318	0.5718-3.037
White	22 (53.65)	115 (65.34)			
Others					
Erythema	20 (48.78)	0	*<0.0001*	0.0047	0.00027-0.0815

DISCUSSION

The dermatoscope is a non-invasive device that is readily usable in daily clinical practice. Previously, use of dermatoscope was restricted only for differentiating malignant pigmentary disorders, but it has been extended for the diagnosis of non-pigmentary skin disorders by defining characteristic vasculature.

Our study suggests significant differences in the dermatoscopic patterns of Ps, LP and PR, which may help in clinical diagnosis of these conditions in atypical cases. Besides the vascular morphology, the vascular arrangement and other specific dermatoscopic clues are of equal importance in the diagnosis of non-pigmented skin lesions.

Psoriasis

Psoriasis is a chronic inflammatory skin disease with a strong genetic basis, characterized by erythematous scaly papules and plaques due to alteration in epidermal proliferation and differentiation.

Dotted vessels are a well-recognized dermatoscopic criterion for the diagnosis of Ps and were seen in all our patients with Ps. In the present study, psoriasis was twice more common in males (M:F=2.2:1). Pitting was the most common nail changes seen in patients with psoriasis. On dermatoscopic examination of the scales, diffuse distributions with white colour were the most common observation. Eighty four percent of the subjects with psoriasis showed light red background on dermatoscopic examination of the lesion. Predominately the types of vessels seen were red dotted vessels (91%) whose distributions were either patchy or peripheral and this finding was statistically significant ($p< 0.05$).

Vazquez-Lopez et al[22,25] had reported red globules as a consistent dermatoscopic finding in all cases with psoriasis included in their study; this finding

was observed in about 78.2% of the psoriasis patients in our study and it was statistically significant (p=0.0103) with the diagnosis of Ps.

The combination of regularly distributed dotted vessels over a light red background associated with diffuse white scales was a highly predictive dermatoscopic finding of Ps and this finding was comparable to that of Lallas et al.[23] Kim et al [31] had reported red dots and globules in 87% of their study subjects as compared to our study where red dots and globules were seen in 83% and 78% cases respectively.

In a study by Blum A,[35] the histopathological findings of psoriatic lesions were regularly elongated rete ridges, dilated capillaries in the dermal papillae and thin epidermal plates. In dermatoscopy the distribution of capillaries corresponded to these histopathologic features which were also observed in our study.

Zalaudek et al[36] and Lallas et al[40] observed that dermatoscopically characteristic regular distribution of red dots and the background colour were important clues in favoring the diagnosis of psoriasis, and this study had a similar finding.

Dermatoscopic examination of the psoriatic lesions at baseline revealed only red dots and globules. During follow-up the red globules were found to be persistent in psoriatic plaques, with variation in size and distribution. The patients who over-used topical steroids, red linear lines were the dermatoscopic finding. On the other hand, in the patients who responded well to treatment, there was loss of erythema and in very few cases blackish dots in place of red dots and globules were noticed.

The dermatoscopic features like red dots and globules corresponded to the histopathological findings, like tortuous and dilated blood vessels within the elongated dermal papillae, and these are the characteristic features of psoriasis. These

vascular features represent the Auspitz sign clinically. The scales correlated to parakeratosis histopathologically.

Lichen planus:

Lichen planus is a papulosquamous disorder of unknown etiology, that affects skin, hair, nail and mucous membrane, characterized by violaceous, flat topped, polygonal, pruritic, papules.

On dermatoscopic examination of the lesions of lichen planus a dull red background colour was displayed that was statistically significant ($p<0.0001$) for the diagnosis of LP. None of the other features like pattern of blood vessels, type of blood vessels and colour of scales were specific to LP. The only vascular finding, i.e. glomerular vessels were statistically significant ($p=0.0015$) for the diagnosis of LP. However the Wickham's striae, comedone-like opening and follicular plugging were seen exclusively in LP, which makes it a significant finding ($p<0.05$) for the diagnosis of LP.

A comparison of the dermatoscopic findings of LP in present study and that conducted by Vazquez-Lopez,[22] have been presented in table13.

The present study and that by Lallas et al,[23] has shown that WS was the exclusive dermatoscopic finding in LP. This highlights the importance of finding WS while dermatoscopic examination of the lesions of LP.

In a study by Vazquez-Lopez et al,[25] vascular patterns, like red homogenous lines and other rare features like radial capillaries were observed but these were not recorded in our study.

Table 13: Comparison of dermatoscopic findings of LP in the present study to that by Vazquez-Lopez et al[22]

Dermatoscopic findings	Vazquez-Lopez et al[22]	Present study
Non-vascular findings		
WS	92%	91%
Comedone-like opening	16%	12%
Vascular findings		
Red dots	80%	12%
Globules	12%	5%

In our study, dermatoscopic findings of WS with patchy and regular distribution of vessels was statistically significant ($p< 0.05$) with the diagnosis of LP. In a case report by Zalaudek et al,[45] WS and red globules were seen at the periphery of LP lesions. Hence, these dermatoscopic findings are suggestive of the diagnosis of LP.

It has been observed that non-vascular findings were the predominant dermatoscopic feature of LP in our study and it was comparable to that of Vazquez-Lopez et al.[46] However, percentage-wise observation of the vascular findings, like red dots and globules was comparatively lower in our study.

It has been observed that complete evolution and regression of LP lesions can be followed-up by non-invasive dermatoscopic examination, adding information to the clinical examination. Initial papules showed rounded WS devoid of any vascular features. In mature violaceous lesions of LP annular WS was observed.

The dermatoscopic vascular findings could be correlated with histopathological findings of LP, i.e., red dots corresponded to normal papillary

vessels. Non-vascular features, i.e., WS were the most characteristic dermatoscopic feature of LP and it corresponded to wedge shaped hypergranulosis histopathologically. The comedone-like openings were correlated to histopathological features of epidermal hyperplasia with orthokeratosis.

Pityriasis rosea

Pityriasis rosea is a self-limiting papulosquamous disorder of unknown etiology, manifested by appearance of herald patch followed by generalized crops of lesions with collarette of scales.

The dermatoscopic findings in subjects with PR were similar to psoriasis and LP in most of the variables which were compared. However the in pattern of blood vessels irregular type was statistically significant (p=0.0027) finding. The diffuse erythema was exclusively seen in PR and this was a statistically significant ($p<0.0001$) finding. These dermatoscopic variables may be the hallmark of this condition.

In a dermatoscopic study by Vazquez-Lopez et al,[23] in the lesions of PR, dotted vessels were most commonly associated with a yellowish background colour (13 ⁄20; 65%) and a peripheral arrangement of scales (14 ⁄20; 70%).In the present study there was statistically significant association ($p<0.05$) with light red and yellowish background, irregular pattern of vessels, dots type of vessels and erythema.

In the present study, mixed vascular findings (more than one vascular findings like, dots and globules) were seen in about 5% cases whereas in a study by Vazquez-Lopez et al,[25] mixed vascular findings were demonstrated in 90% cases.

The dermatoscopic findings, erythema and yellow coloured scales corresponded histopathologically to extravasation of red blood cells and parakeratosis respectively.

CONCLUSION

Papulosquamous disorders namely Ps, LP, and PR are chronic relapsing and remitting skin conditions with varied and overlapping clinical manifestations leading to confusion in clinical diagnosis. Frequently skin biopsy with histopathological examination of the atypical lesions is performed to arrive at accurate diagnosis. However, skin biopsy is an invasive technique, often inviting refusal from paediatric patients and occasionally from adult patients as well. Moreover, interpretation of histopathological examination is time-consuming, resulting in delay in decision making.

Since the invention of dermatoscope, its use has been explored in various dermatological illnesses including papulosquamous disorders. Dermatoscope is a simple, easy-to-use instrument that can be used in the out-patient department.

In our study it has been observed that papulosquamous disorders have specific dermatoscopic features which help, in diagnosing the atypical cases. In psoriasis, the presence of red dots with globules with a light red background with diffuse distribution of white coloured scales, clinch the diagnosis. Presence of non-vascular features (Wickham's striae, comedone-like opening and follicular plugging) were the predominant findings in LP. The principal dermatoscopic findings in PR were erythema and irregular pattern of vessels. These specific dermatoscopic findings correlated well to the histopathological features of respective papulosquamous disorders, thus suggesting its equivalence in diagnosing the clinically atypical lesions even without performing HPE. In addition to the diagnostic value, serial dermatoscopic examination of skin lesions of papulosquamous disorders help in monitoring treatment response and identifying chronicity of lesions.

Hence, it can be concluded that use of dermatoscope may substitute the invasive and time-consuming skin biopsy and histopathological examination in a busy out-patient department.

SUMMARY

A hospital-based, cross-sectional, analytic study to evaluate dermatoscopic features of papulosquamous disorders (psoriasis, lichen planus and pityriasis rosea) was conducted during the period of October 2012 to June 2014. Cases clinically diagnosed as psoriasis, lichen planus and pityriasis rosea, and who did not receive treatment for the past 1 month were included in the study. Each patient was subjected to a complete systemic, cutaneous, and dermatoscopic examination. The skin lesion which was examined with dermatoscope was biopsied and sent for histopathological examination. Other relevant investigations were carried out wherever necessary.

Following are the salient findings of this study:

- Dermatoscopic findings are specific for particular papulosquamous disorders namely, Ps, LP, and PR.
- In subjects with psoriasis, statistically significant values were observed in light red background ($p<0.0001$), with regular pattern of vessels ($p=0.015$), red dots ($p=0.01$), linear vessels ($p<0.0001$) and yellow scales ($p=0.0017$) and favoured the diagnosis of Ps.
- Demonstration of dull red background, with either patchy or regular pattern of vessels, glomerular vessels as vascular structure were suggestive of LP and these were statistically significant ($p<0.05$) finding. But visualisation of non-vascular features namely WS, FP, and CO, is exclusive of LP.
- Presence of yellowish background was a statistically significant ($p=0.002$) finding in PR. Red dots were also statistically significant ($p=0.0002$) finding. The irregular pattern of vessels with predominant erythema were exclusively seen in PR and was suggestive of the diagnosis of PR.

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APPENDIX – I

B.L.D.E. UNIVERSITY'S
SHRI.B.M.PATIL MEDICAL COLLEGE, BIJAPUR-586 103
INSTITUTIONAL ETHICAL COMMITTEE

INSTITUTIONAL ETHICAL CLEARANCE CERTIFICATE

The Ethical Committee of this college met on 18-10-2012 at 3-30pm to scrutinize the Synopsis of Postgraduate Students of this college from Ethical Clearance point of view. After scrutiny the following original/corrected & revised version synopsis of the Thesis has been accorded Ethical Clearance.

Title A Hospital-Based Cross Sectional Study to evaluate dermatoscopic features of papulesquamous disorders (psoriasis, lichen planus & pityriasis rosea)

Name of P.G. student Dr. Meghana. S. Murgude
Dermatology

Name of Guide/Co-investigator Dr. Arun. C. Inamadar
Prof & HOD. Dermatology

DR.TEJASWINI. VALLABHA
CHAIRMAN
INSTITUTIONAL ETHICAL COMMITTEE
BLDEU'S, SHRI.B.M.PATIL
MEDICAL COLLEGE, BIJAPUR.

Following documents were placed before E.C. for Scrutinization
1) Copy of Synopsis/Research project.
2) Copy of informed consent form
3) Any other relevant documents.

APPENDIX – II

SAMPLE INFORMED CONSENT FORM

BLDEU'S SHRI B. M. PATIL MEDICAL COLLEGE HOSPITAL AND RESEARCH CENTRE,-BIJAPUR-586 103

RESEARCH INFORMED CONSENT FORM

TITLE OF THE PROJECT: - "A STUDY TO EVALUATE DERMATOSCOPIC FEATURES OF PAPULOSQUAMOUS DISORDERS (PSORIASIS, LICHEN PLANUS AND PITYRIASIS ROSEA"

PG GUIDE **:-** DR.ARUN C. INAMADAR

PG STUDENT **:-** DR. MEGHANA S MURGUDE.

PURPOSE OF RESEARCH:-

I have been informed that this project will study the dermatoscopic evaluation of papulosquamous disorders namely psoriasis, lichen planus and pityriasis rosea in patients with skin type IV and V.

BENEFITS

I understand that my/my child's participation in this study will help the investigator to understand the disease better and will help in the management of the disease.

PROCEDURE

I understand that relevant history will be taken and I/my child will undergo detailed clinical examination after which necessary investigation will be done whenever required.

RISK AND DISCOMFORTS

I understand there is no risk involved and I/my child will experience minimal pain during the procedures performed.

CONFIDENTIALITY

I understand that medical information produced by this study will become a part of my child's 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. The researcher 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/my child's 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 the researcher may terminate my/my child's participation in this study at any time after he has explained the reasons for doing so and has helped arrange for my/my child's continued care by my own physician if this is appropriate.

INJURY STATEMENT

I understand that in the unlikely event of injury to me/ my child resulting directly from my/ my child's 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/my child's participation in this study, I am not waiving any of my legal rights.

I have explained to (patient/ parent/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/my child will 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/my consent for my child's participation as a subject in this research project.

_____ _____

Participant / guardian Date

_____ _____

Witness to signature Date

APPENDIX – III

PROFORMA

B.L.D.E.U'S SHRI B. M. PATIL MEDICAL COLLEGE HOSPITAL

AND RESEARCH CENTRE, BIJAPUR.

DEPARTMENT OF DERMATOLOGY, VENEREOLOGY AND LEPROSY.

SL.NO: Date: Sex: Male/Female

Name: Age:

Father's/husband name: Phone number:

Address :

History:

General Physical Examination:

Weight- Height-

Pallor- Cyanosis- Clubbing-

Icterus - Edema - Lymphadenopathy-

Vital parameters:

Temperature:

Pulse rate:

Respiratory rate:

Blood pressure:

Systemic examination:

Cardiovascular system:

Respiratory system:

Per abdomen:

Central nervous system:

Cutaneous examination:

Dermatoscopic Findings:

Background color	
Light red	
Dull red	
Yellowish	

Pattern of vessels	
Patchy	
Peripheral/Radial	
Central	
Regular	
Clustered	
String of pearls	
Irregular	
Branching	
Rope-ladder pattern	
Wickham's Striae	

Type of vessels	
Dotted	
Linear	
Red globules	
Red dots	
Glomerular vessels	
Arborizing vessels or telangiectasias	
Crown vessels	
Comma vessels	
Corkscrew vessels	
Milky-red areas/globules	
Strawberry pattern	
Linear irregular Vessels	
Polymorphous vessels	

Scale distribution	
Peripheral	
Central	
Diffuse	
Patchy	

scale color	
Yellow	
White	

Clinical diagnosis:

Dermatoscopic diagnosis:

Biopsy: Done/ not done

Histopathological diagnosis:

KEY TO MASTER CHART

Sl. No	–	Serial number
M	–	Male
F	–	Female
Ps	–	Psoriasis
LP	–	Lichen planus
PR	–	Pityriasis rosea
L RED	-	Light red
D RED	-	Dull red
WS	-	Wickham striae
FP	-	Follicular plugging
CO	-	Comedone-like opening
GV	-	glomerular vessels
Linear V	-	Linear vessels
SUHK	-	Subungual hyperkeratosis
L R	-	Longitudinal ridges
D O	-	distal onycholysis
S N	-	shiny nails
B L	-	Beau's lines
O D S	-	oil drop sign
S H	-	Splinter haemorrhage
P K	-	Parakeratosis
O K	-	orthokeratosis
S P T	-	Supra-papillary thinning
P O K	–	pustules of Kogoj

E R R	–	elongated rete ridges
C D	–	capillary dilatation
G L	-	granular layer
E. RBC’s	-	extravasation of RBC’s
BLV	-	basal layer vacuolisation
Band-like I	-	Band-like infiltration
P I	–	Pigment incontinence
MMA	-	Munro micro abscess
HPE	-	Histopathological Examination

MASTER CHART (CLINICAL PARAMETERS)

PSORIASIS

Sl. No	Age/Yrs	Sex	L Red	D Red	Yellowish	Patchy	Peripheral	Regular	Clustered	Dots	Globules	linear V	Peripheral	Central	Diffuse	Patchy	White	Yellow	HPE	Pitting	B l	SUHK	S N	L R	O D S	S H
1.	0.2	F	0	1	0	0	1	1	0	1	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0
2.	3	M	1	0	0	1	0	1	0	1	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0
3.	3	M	1	0	0	0	0	0	1	1	1	0	1	0	0	0	1	0	1	1	0	0	0	0	0	0
4.	4	F	0	1	0	0	0	0	1	1	0	0	0	1	0	1	0	1	1	0	0	0	0	0	0	0
5.	6	M	1	0	0	1	0	0	1	1	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0
6.	8	F	1	0	0	0	0	1	1	1	1	0	0	0	1	0	1	0	1	1	0	0	0	0	0	1
7.	9	F	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0
8.	10	M	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1	1	0	0	0	1	0	0
9.	11	M	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1	1	1	0	0	0	0	0
10.	11	F	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1	1	1	0	0	0	0	0
11.	11	F	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0
12.	11	F	1	0	0	0	0	1	0	1	1	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0
13.	12	F	1	0	0	0	0	1	0	1	1	1	0	1	0	0	1	0	1	0	0	0	0	0	0	0
14.	12	F	0	1	0	1	0	1	0	1	1	0	1	1	0	0	1	0	1	0	1	0	0	0	0	0
15.	12	F	0	1	0	0	0	1	0	1	1	0	1	1	0	0	1	1	1	0	0	0	0	0	0	0
16.	12	F	1	0	0	0	0	1	1	1	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0
17.	13	F	1	0	0	1	0	0	1	1	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0
18.	15	M	1	0	0	0	0	1	0	1	1	0	1	0	0	0	1	0	1	1	0	0	0	1	0	0
19.	15	F	1	0	0	0	0	0	1	1	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0
20.	15	F	0	1	0	1	0	0	1	1	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0
21.	16	M	1	1	0	1	1	1	0	1	1	1	1	0	1	0	1	0	1	1	0	0	0	0	0	0
22.	16	F	1	0	0	0	0	0	1	1	1	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0
23.	18	M	1	0	0	1	0	1	0	1	1	0	0	0	1	0	1	1	1	0	0	0	0	0	0	0
24.	18	M	1	0	0	0	0	1	0	1	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0
25.	19	M	1	0	0	1	0	1	0	1	1	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0
26.	20	F	0	1	0	0	1	1	0	1	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0

27.	22	M	0	1	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0
28.	22	M	1	0	0	0	0	1	1	1	1	0	0	0	1	0	1	0	0	1	1	0	0	0	0
29.	23	F	1	0	0	0	0	0	1	1	1	0	0	0	1	0	1	1	0	0	0	0	0	0	0
30.	23	M	1	0	0	0	0	1	0	1	0	0	0	0	1	0	1	0	1	0	0	0	0	1	0
31.	24	M	1	0	0	0	0	0	1	1	1	0	0	0	0	1	1	0	1	1	0	0	0	0	0
32.	24	M	0	1	0	0	0	0	1	1	1	0	0	0	1	0	1	0	0	1	0	0	0	1	0
33.	25	M	1	0	0	0	0	1	0	1	1	0	1	0	0	0	1	0	1	1	1	0	0	0	0
34.	25	M	1	0	1	0	0	1	0	1	1	0	0	0	1	0	1	0	1	1	0	1	0	0	0
35.	27	M	0	1	0	1	1	1	0	1	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0
36.	27	M	1	0	0	0	0	1	1	1	1	0	0	0	1	0	1	1	0	0	0	1	0	1	0
37.	28	F	0	1	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1	0	0	0	0	1	0
38.	29	M	1	0	0	0	1	0	0	1	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0
39.	29	F	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0
40.	29	M	1	1	0	1	0	0	0	1	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0
41.	30	M	1	0	0	1	0	1	0	1	1	0	0	0	1	0	1	0	1	1	0	1	0	1	1
42.	30	M	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1	1	1	1	1	0	0
43.	30	M	1	0	0	0	0	1	1	1	1	0	0	0	1	0	1	0	1	1	0	1	0	1	0
44.	30	F	1	0	0	0	0	1	0	1	1	0	0	0	1	0	0	1	1	1	0	0	1	1	0
45.	30	F	1	0	0	0	0	1	1	1	0	0	0	1	0	0	1	0	0	1	1	0	0	0	0
46.	30	F	1	0	0	0	0	1	1	1	1	0	0	0	1	0	1	0	1	1	1	0	0	0	0
47.	32	M	1	0	0	0	0	0	1	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0
48.	33	M	1	0	0	0	0	1	0	1	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0
49.	33	M	0	1	0	0	0	1	1	1	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0
50.	34	M	0	1	0	0	0	1	1	1	1	0	0	0	1	0	1	0	1	1	0	1	1	0	0
51.	34	M	1	0	0	0	0	1	0	1	1	0	0	0	1	0	0	1	1	1	0	0	0	1	0
52.	35	M	1	0	0	0	0	1	0	1	1	0	1	0	0	0	1	0	1	1	0	0	0	1	0
53.	35	M	1	0	0	0	0	1	1	1	1	0	0	0	1	0	1	0	1	0	0	0	0	1	0
54.	35	M	1	0	0	0	0	1	0	1	1	0	1	0	0	0	1	0	1	0	0	0	0	1	0
55.	35	M	1	0	0	0	0	1	1	1	1	0	0	0	1	0	1	0	0	1	0	1	0	0	0
56.	36	M	1	0	0	0	0	1	1	1	1	0	0	0	1	0	1	0	1	1	1	0	0	0	0
57.	37	M	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1	1	0	0	0	0	0

58.	38	M	1	0	0	0	0	1	0	1	1	0	0	0	1	0	0	1	1	0	0	0	0	0	0
59.	38	F	1	0	0	1	0	1	0	1	1	0	1	0	0	0	1	0	1	1	0	0	0	0	0
60.	38	M	1	0	0	0	0	1	1	1	1	0	0	1	0	0	1	0	1	0	0	0	0	1	0	0
61.	39	M	1	0	0	0	0	0	1	1	1	0	0	0	0	1	1	0	1	0	0	0	0	1	0	0
62.	40	F	1	0	0	0	0	0	1	1	1	0	0	0	1	0	1	0	1	1	0	0	0	0	0	0
63.	40	M	1	0	0	0	1	1	0	1	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	0
64.	40	M	0	1	0	0	0	1	1	1	1	0	0	0	1	0	0	1	1	1	0	0	0	1	0	0
65.	40	F	1	0	0	0	0	1	0	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0
66.	40	M	0	1	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1	1	0	0	0	0	0	0
67.	40	F	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1	1	0	0	0	0	0	0
68.	40	M	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0
69.	43	M	1	0	0	0	0	1	1	1	1	0	0	0	1	0	1	0	1	0	0	0	0	0	0	1
70.	44	M	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0
71.	44	1	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0
72.	45	F	1	0	0	0	0	0	1	1	1	0	0	0	1	0	1	0	1	1	0	1	0	0	0	0
73.	45	M	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1	1	0	0	0	1	0	
74.	45	M	1	0	0	0	0	1	0	1	1	0	1	0	0	0	1	0	0	1	1	0	0	0	0	0
75.	45	M	1	0	0	0	0	1	1	1	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
76.	47	M	1	0	0	0	0	1	1	1	1	0	1	0	1	0	1	0	1	1	0	0	0	1	0	0
77.	50	F	0	1	0	1	0	1	0	1	1	0	0	0	0	1	1	0	1	1	0	1	0	0	0	0
78.	50	M	1	0	0	1	0	0	0	1	1	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0
79.	50	M	1	0	0	0	0	1	0	1	1	0	1	0	0	0	1	0	1	0	0	0	0	1	0	0
80.	50	M	1	0	0	0	0	1	0	1	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0
81.	50	F	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1		0	1	0	0	0	0
82.	50	M	1	0	0	1	0	0	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	0	0	0
83.	50	F	1	0	0	0	0	1	1	1	1	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0
84.	52	F	0	1	0	0	1	1	0	1	1	0	1	0	0	0	1	0	1	1	0	0	1	0	0	0
85.	52	M	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1	1	0	1	0	0	0	0
86.	53	F	1	0	0	0	1	1	0	1	1	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0
87.	55	M	0	1	0	0	0	1	1	1	1	0	0	1	0	0	1	0	1	0	0	1	0	1	0	0
88.	55	M	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1	1	0	1	0	1	0	0

89.	55	M	1	0	0	0	0	1	1	1	1	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0
90.	58	M	1	0	0	0	0	1	0	1	1	0	0	0	1	0	0	1	1	1	0	0	0	1	0	0
91.	58	M	1	0	0	0	0	0	1	1	1	0	1	0	0	0	1	0	1	1	0	0	0	0	0	0
92.	58	M	1	0	0	0	0	1	0	1	1	0	0	0	0	1	1	0	1	1	0	0	0	0	0	0
93.	58	M	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0
94.	60	M	1	0	0	0	0	0	1	1	1	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0
95.	60	M	0	1	0	0	0	0	1	1	1	0	0	0	0	1	1	0	1	0	0	1	0	0	0	0
96.	60	F	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1	1	0	0	0	1	0	0
97.	60	M	1	0	0	0	0	1	0	1	1	0	0	0	1	0	1	0	1	0	1	0	0	0	0	0
98.	60	M	1	0	0	0	0	0	1	1	1	0	1	0	0	0	1	0	1	0	1	1	0	1	0	0
99.	60	M	1	0	0	0	0	1	1	1	1	0	0	0	1	0	1	0		1	0	0	0	0	0	0
100.	60	M	1	0	0	0	0	1	1	1	1	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0
101.	60	M	1	0	0	0	0	1	0	1	1	0	0	0	1	0	0	1	1	1	0	1	0	0	0	0
102.	60	F	1	0	0	0	0	0	1	1	1	0	1	0	0	0	1	0	1	1	0	0	0	1	0	0
103.	62	M	1	0	0	0	0	1	1	1	1	0	1	0	0	0	1	0	1	0	0	0	0	1	0	0
104.	65	M	1	0	0	0	0	1	1	1	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0
105.	65	M	1	0	0	0	0	1	1	1	1	0	0	0	1	0	1	0	1	1	1	1	0	1	0	0
106.	65	M	0	1	0	1	1	1	1	1	1	0	0	0	1	0	1	0		1	1	0	1	0	0	0
107.	65	F	1	0	0	0	0	0	1	1	1	0	0	0	1	0	0	1	0	1	1	0	0	0	0	0
108.	65	M	1	0	0	0	0	1	0	1	0	0	0	0	1	0	1	0	1	1	0	0	0	1	0	0
109.	65	M	1	0	0	0	0	1	1	1	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0
110.	73	F	0	1	0	1	0	1	0	1	1	0	1	1	0	0	1	0	1	1	0	1	0	0	0	0

LICHEN PLANUS

Sl.No	Age/Yrs	Sex	L RED	D RED	Yellowish	Patchy	Peripheral	Central	Regular	WS	FP	CO	Dots	Globules	GV	Diffuse	Patchy	White	L R	S N	HPE
1.	4	F	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
2.	7	M	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
3.	8	F	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1
4.	8	F	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1
5.	9	F	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	0	1
6.	13	F	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
7.	13	M	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
8.	13	F	0	1	0	0	0	1	0	1	0	0	1	1	0	0	1	0	0	0	1
9.	15	M	0	1	0	0	0	0	0	1	1	0	0	0	0	1	1	1	0	0	1
10.	15	M	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
11.	17	M	0	1	0	0	0	0	0	1	0	0	0	1	0	1	1	1	0	0	1
12.	17	F	1	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	1
13.	17	F	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
14.	18	M	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
15.	18	F	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	1
16.	18	F	0	1	0	0	0	0	0	1	1	0	0	0	0	1	0	1	1	0	1
17.	19	F	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	1
18.	19	F	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1
19.	20	M	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	1
20.	21	F	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
21.	22	F	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
22.	22	M	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1	1
23.	22	M	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
24.	23	M	0	1	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	1
25.	25	M	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1
26.	25	F	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
27.	26	F	0	1	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0
28.	26	M	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	1

29.	28	F	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
30.	28	M	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	0	1
31.	28	M	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
32.	29	M	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
33.	30	F	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	1
34.	30	F	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
35.	30	F	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
36.	32	F	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
37.	35	M	0	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1
38.	35	M	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
39.	36	M	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1
40.	38	M	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	1	1	0	1
41.	38	F	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0
42.	40	F	1	0	0	0	1	0	0	1	0	0	1	0	0	1	0	1	0	0	1
43.	40	F	1	0	0	0	0	0	1	1	0	0	1	0	0	1	0	1	0	0	1
44.	40	M	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	1
45.	40	F	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	1
46.	43	F	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
47.	44	M	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1
48.	46	M	0	1	0	1	0	0	0	1	0	0	1	0	0	1	0	1	0	0	1
49.	48	F	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	1
50.	48	F	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	1
51.	48	F	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
52.	50	M	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
53.	50	M	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	0
54.	52	M	1	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0	0	1
55.	55	F	1	0	0	0	0	0	0	1	0	0	0	0	0	1	0	1	0	0	1
56.	55	F	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1
57.	56	F	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
58.	58	F	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0
59.	60	F	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1

60.	62	M	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
61.	65	F	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
62.	65	F	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
63.	65	M	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
64.	65	F	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
65.	65	M	0	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1
66.	70	F	0	1	0	0	1	0	0	1	0	0	1	1	0	0	0	0	1	0	0

PITYRIASIS ROSEA

Sl. No	Age/Yrs	Sex	L RED	D RED	yellowish	patchy	peripheral	central	regular	clustered	irregular	dots	globules	peripheral	diffuse	patchy	yellow	white	erythema	HPE	L R	S N
1.	3	M	1	0	0	0	1	0	0	0	0	1	0	1	0	0	1	0	1	0	0	0
2.	3	M	0	0	0	1	0	0	0	0	0	1	0	1	0	0	1	0	1	0	0	0
3.	6	M	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	1	0	1	0	0
4.	6	F	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0
5.	6	F	0	0	0	1	0	0	0	0	0	1	0	1	0	0	1	0	1	0	0	0
6.	12	M	1	0	0	0	0	0	1	0	0	1	0	1	0	0	0	1	0	1	0	0
7.	12	F	1	0	0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	1	0	0
8.	12	M	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0
9.	13	F	1	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	1	1	0
10.	13	M	0	0	1	0	0	0	1	0	0	1	0	1	0	0	0	1	1	0	0	0
11.	14	M	1	0	0	0	1	0	0	0	0	1	0	1	0	0	0	1	1	1	0	
12.	14	M	0	1	0	0	0	0	1	0	0	1	1	1	0	0	1	0	0	1	0	0
13.	16	M	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0
14.	18	M	1	0	0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	1	0	0
15.	19	M	1	0	0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	1	0	0
16.	20	M	1	0	0	0	1	0	0	0	0	1	0	1	0	0	1	0	0	1	0	0
17.	20	F	0	1	0	0	1	0	0	0	0	1	0	1	0	0	0	1	1	1	0	0
18.	20	F	1	0	0	0	0	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0
19.	21	F	1	0	0	1	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	1
20.	22	F	0	1	0	0	1	0	0	0	0	1	0	1	0	0	1	0	1	1	0	0
21.	23	M	1	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0
22.	24	M	1	0	0	1	0	0	1	0	0	1	0	1	0	0	1	0	0	1	0	0
23.	25	F	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0
24.	26	M	0	0	1	0	1	0	0	0	0	0	0	1	0	1	0	1	1	0	0	0
25.	26	M	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0
26.	26	F	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0
27.	27	M	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	1	1	1	0	0
28.	27	M	1	0	0	0	1	0	0	0	0	0	1	1	0	0	0	1	1	1	0	0

29.	27	M	1	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0
30.	27	M	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0
31.	28	F	1	0	0	0	0	0	1	0	0	1	1	0	1	0	1	0	0	1	0	0
32.	28	M	1	0	0	0	0	0	0	1	0	1	0	1	0	0	0	1	0	0	0	0
33.	30	M	0	0	1	0	1	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0
34.	30	M	0	0	1	0	1	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0
35.	34	F	0	0	0	1	0	0	0	0	0	1	0	1	0	0	0	1	1	1	0	0
36.	34	F	0	0	1	1	0	0	0	0	0	1	0	1	0	0	1	0	1	0	0	0
37.	36	M	1	0	0	0	0	1	0	0	0	1	0	1	0	0	0	1	0	1	0	0
38.	38	M	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	1	1	1	1	0
39.	40	F	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0
40.	41	M	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	1	0	1	0	0
41.	44	M	1	0	0	1	0	0	0	0	0	1	1	0	0	0	0	1	0	1	1	0

MASTER CHARTS (HISTOPATHOLOGICAL PARAMETERS)

PSORIASIS

SLIDE NO	ACANTHOSIS	P K	MMA	ABSENT G L	S P T	P O K	ERR	C D	INFLAMMATORY INFILTRATE
720/12	0	1	1	0	1	1	0	1	1
5958	1	0	0	0	0	0	0	0	0
6040	1	1	1	0	1	1	1	0	0
5756	1	1	0	0	0	0	0	0	0
6011	1	1	1	1	1	0	1	0	0
4705	1	1	0	0	0	0	0	0	0
4844	1	1	0	0	0	1	0	0	1
5971	1	1	0	0	0	0	1	0	0
5874	1	1	0	0	0	1	0	0	1
377/13	0	1	0	0	1	1	1	1	1
406	1	1	1	0	1	1	1	1	1
753/13	0	1	1	0	0	1	0	1	0
867	1	1	1	1	0	1	0	0	0
964	1	1	0	0	1	1	0	0	1
1211	0	1	1	1	1	1	1	1	1
1513	0	1	0	0	1	1	0	1	0
1906	0	1	1	0	1	1	1	1	0
1987	0	1	0	1	1	1	1	0	0
2017	0	1	1	1	1	0	1	1	1
3009	1	1	1	1	1	1	1	1	1
2034	0	1	0	1	1	1	0	1	0
2303	0	1	0	1	1	1	1	1	1
2337	1	1	0	1	1	1	1	1	0
2336	0	1	1	1	1	1	0	1	1
2442	0	1	1	1	1	1	0	0	0

2299	0	1	0	1	0	1	0	1	1
2901	1	1	0	1	0	1	0	1	1
3071	1	0	1	0	1	0	1	0	1
3445	0	1	0	1	0	1	0	1	0
3733	0	1	0	0	1	0	0	0	1
3899	1	1	1	0	0	0	0	0	1
4010	0	1	0	1	1	1	1	1	1
4554	0	1	0	0	1	1	1	1	1
4756	0	1	0	0	0	0	0	1	1
4178	1	1	0	0	1	1	1	1	1
4796	1	1	1	1	1	1	1	1	1
4218	1	1	0	1	1	0	1	1	0
4129	0	1	1	0	1	1	0	1	1
5562/14	1	1	0	1	0	0	1	1	1
5810	0	1	0	1	1	1	1	0	1
6205	0	1	0	1	0	1	0	1	0
6309	0	1	1	1	0	1	0	1	0
825	0	1	0	1	1	1	0	1	0
1374	1	1	1	0	1	1	1	1	1
1573	1	0	1	0	1	0	0	0	0
1584	0	0	0	0	1	1	1	0	1
6074	1	0	0	0	0	1	1	1	1
6078	0	0	1	1	1	1	0	1	1
5274	1	1	1	1	1	1	1	1	0
5286	1	0	1	0	1	0	1	1	1
6361	1	1	0	1	1	0	1	1	0
1581	1	1	1	1	0	0	0	1	0

LICHEN PLANUS

SLIDE NO	COMPACT O K	WEDGE SHAPE GL	ACANTHOSIS	BLV	BAND-LIKE I	P I
4300	1	0	1	1	1	1
4904	1	0	1	0	1	1
4296	1	0	1	1	1	1
4044	1	0	1	0	1	1
4052	1	0	1	1	0	1
3850	1	1	0	1	0	0
4127	1	1	0	1	1	1
3868	1	0	0	0	1	1
3817	1	1	1	1	1	0
3012	1	0	1	1	1	0
2612	1	1	0	1	0	1
2408	1	1	0	1	0	1
2347	1	0	0	1	0	1
2026	1	0	1	1	0	1
351/13	0	0	1	0	0	0
2005	1	1	0	1	0	1
1881	0	1	1	1	0	1
1136	1	1	1	1	1	1
839	1	1	0	1	0	1
804	0	0	1	1	0	1
267	1	1	1	1	0	1
212	1	1	0	1	0	1
701	1	1	0	1	0	1
4138	0	0	0	1	0	1
3130	1	0	0	1	0	1

5576/12	1	1	1	0	1	1
5390/12	1	0	0	1	0	1
4300	1	0	0	0	0	0
4052	1	0	0	1	1	0
3513	1	0	0	0	0	0
3187	1	1	0	0	0	0
3012/13	1	1	0	0	0	0
2612	0	0	0	1	1	1
1881	1	1	0	0	0	0
1104/13	0	0	1	1	0	0
309	1	0	1	0	1	0
134	1	1	0	1	1	0
70	1	0	1	1	1	0
5874	1	0	1	0	1	0
3779/13	1	0	0	0	0	1
5520/14	1	0	1	0	0	1
5656	1	1	1	1	1	1
5606	0	0	1	1	1	1
5774	1	1	0	1	1	0
5819	1	1	0	0	1	1
6312	1	0	1	1	1	1
444	1	1	0	0	0	0
656	1	1	0	1	0	1
1473	1	0	1	1	1	1
1599	1	1	0	1	1	0

PITYRIASIS ROSEA

SLIDE NO	P K	O K	SPONGIOSIS	ABSENT GL	EXOCYTOSIS	E. RBC'S
4936/12	1	1	0	0	0	1
6092/12	1	0	1	0	1	0
4256/13	0	1	1	1	0	0
4363	0	1	1	1	0	1
983	1	1	1	1	1	1
243	0	1	1	1	0	1
1	1	1	1	1	1	1
3179	0	0	1	0	0	1
6009	0	1	1	1	0	1
3920	0	1	1	1	1	1
3965	0	1	1	1	1	1
3160	0	1	0	1	0	1
2197/A	1	1	1	1	1	1
2197/B	1	1	1	1	1	1
2305	0	1	0	1	0	1
1967	1	1	1	1	1	1
4681	1	0	0	0	0	0
4256	0	1	0	1	0	1
3783	0	0	0	0	0	0
3965	1	0	0	0	0	1
2454	1	0	0	0	0	1
1011	1	1	0	0	0	0
604	1	1	0	0	0	0
4450	1	1	0	0	0	0
6100	1	1	0	0	0	1