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### RESEARCH ARTICLE

#### HISTOPATHOLOGICAL STUDY OF PAPULO-SQUAMOUS SKIN LESIONS

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Lichen Planus, Psoriasis, Papulo-Squamous Lesion

#### Abstract

**Introduction:** The skin, largest organ in the body, has a limited number of reaction patterns to pathological stimuli. <sup>1</sup>Therefore, clinically different lesions may show similar histological patterns. A proper histopathological study is considered the gold standard in diagnosing dermatological lesions but it has its limitations and very often a definite specific diagnosis is not possible without clinical details. In these cases, correlation of histopathological findings with clinical findings makes the diagnosis possible. <sup>2</sup>

**Material And Methodology:** This was an observational study over a period of 2 years August 2020 to August 2022 in the Department of Pathology at tertiary care teaching hospital. A histopathological analysis of 190 papulo-squamous lesions were diagnosed microscopically after 24 hour formalin fixation, routine tissue processing and staining with H&E stain is included in the present study.

**Result:** Total 190 specimens were analyzed, specific histopathological diagnosis was made in all of cases. The most common papulo-squamous lesion was lichen planus which was seen in 53.6% of cases, followed by psoriasis which was seen in 25.7% cases.

**Conclusion:** As the papulo-squamous disorders are commonly encountered dermatological conditions, emphasize the role of clinicopathological correlation for accurate diagnosis, which aids in appropriate and effective clinical management and better clinical outcome.

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#### Introduction:-

The skin, largest organ in the body, has a limited number of reaction patterns to pathological stimuli. <sup>1</sup>Therefore, clinically different lesions may show similar histological patterns. A proper histopathological study is considered the gold standard in diagnosing dermatological lesions, but it has its limitations and very often a definite specific

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diagnosis is not possible without clinical details. In these cases, correlation of histopathological findings with clinical findings makes the diagnosis possible.<sup>2</sup>

The Papulo-squamous skin disorders are a heterogenous group of disorders which comprise the largest group of diseases seen by dermatologist. The nosology of these disorders is based on a descriptive morphology of clinical lesions characterized by scaly papules and plaques. The papulo-squamous disorders are complex to diagnose as they are difficult to identify and may resemble a similar disorder of the group. Hence these disorders are commonly misdiagnosed.<sup>3</sup>

### Aims And Objectives:-

1. To study the age and sex wise incidence of papulo-squamous disorders of skin.
2. To study the clinical findings of papulo-squamous disorders of skin.
3. To study the histopathological pattern of papulo-squamous disorders of skin.
4. To study the clinico-histopathological correlation of papulo-squamous disorders of skin.

### Material And Methodology:-

#### Study Period-

1<sup>st</sup> August 2020 to 31<sup>st</sup> August 2022

#### Inclusion criteria: -

All patients with papulo-squamous lesions undergoing skin biopsy at civil hospital, Ahmedabad and biopsy sample received at histopathology section, Pathology department, B.J.M.C, Civil Hospital, Ahmedabad.

#### Exclusion criteria :-

1. Inadequate biopsy material – Biopsy sample which is less than 2mm.
2. Poorly preserved biopsy – Biopsy which is completely autolyzed.

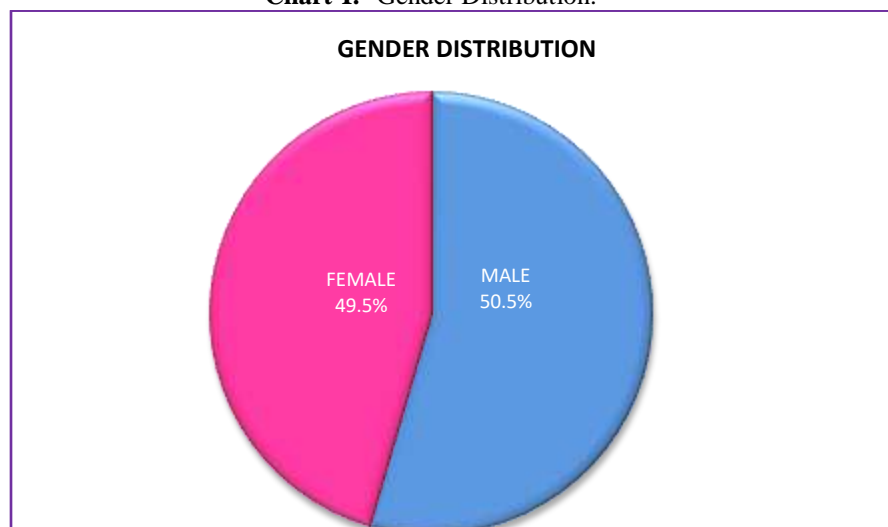
#### Procedure

1) Trucut biopsies were taken by residents from the Department of Dermatology, collected samples were kept in 10% formalin.

2) Routine paraffin processing: - Skin biopsy was preserved in 10% formalin for 24 hours for fixation. The skin biopsy was bisected and processed in auto-technicon for routine histopathological processing. Sections were embedded and paraffin blocks were prepared. Sections were stained with hematoxylin and eosin in automated slide stainer. Stained sections were examined and histopathological findings were noted.

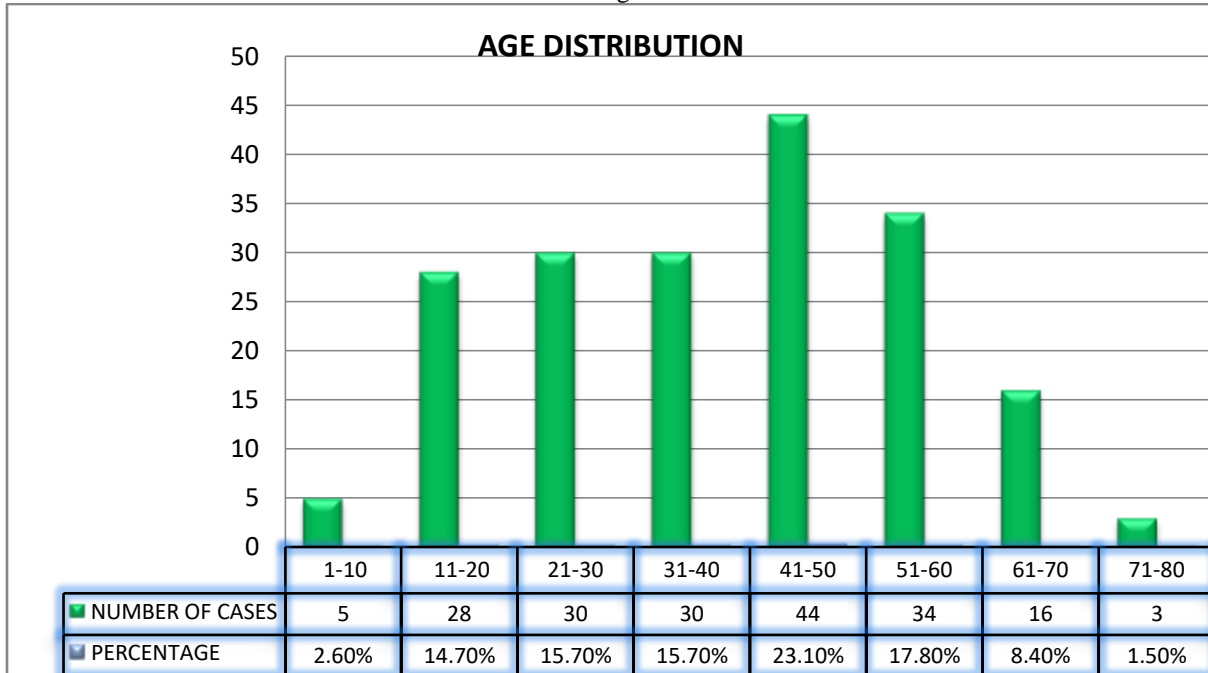
### Observation And Results:-

Chart-I:- Gender Distribution.



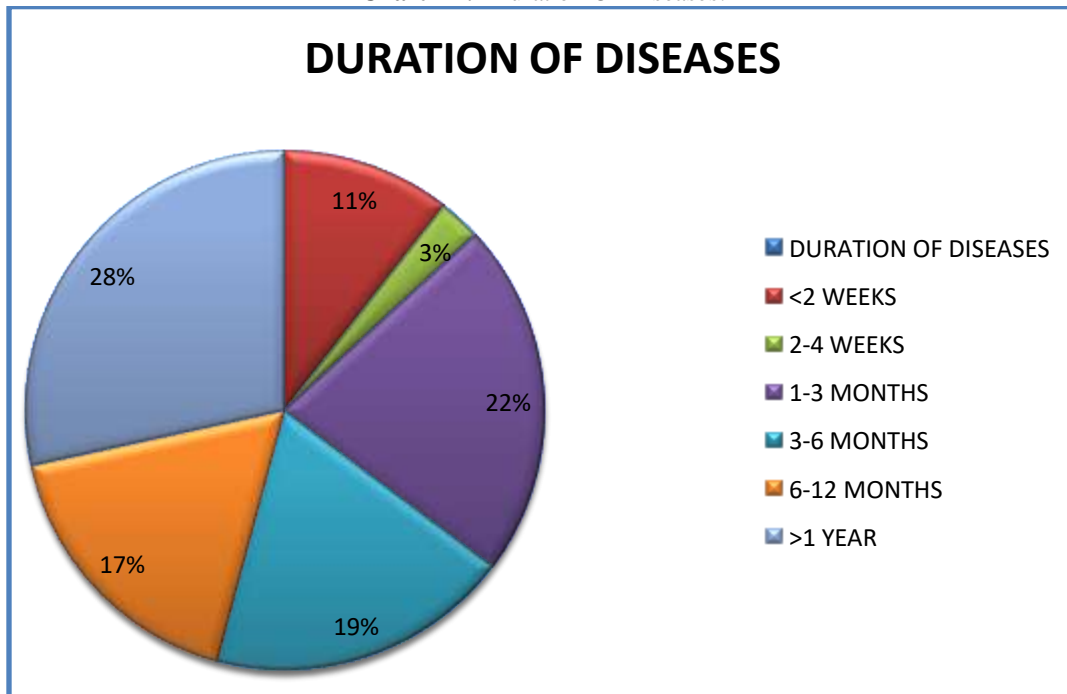
In the present study, male predominance was seen. The sex ratio is 1.02:1 (M:F).

Chart II:- Age Distribution.



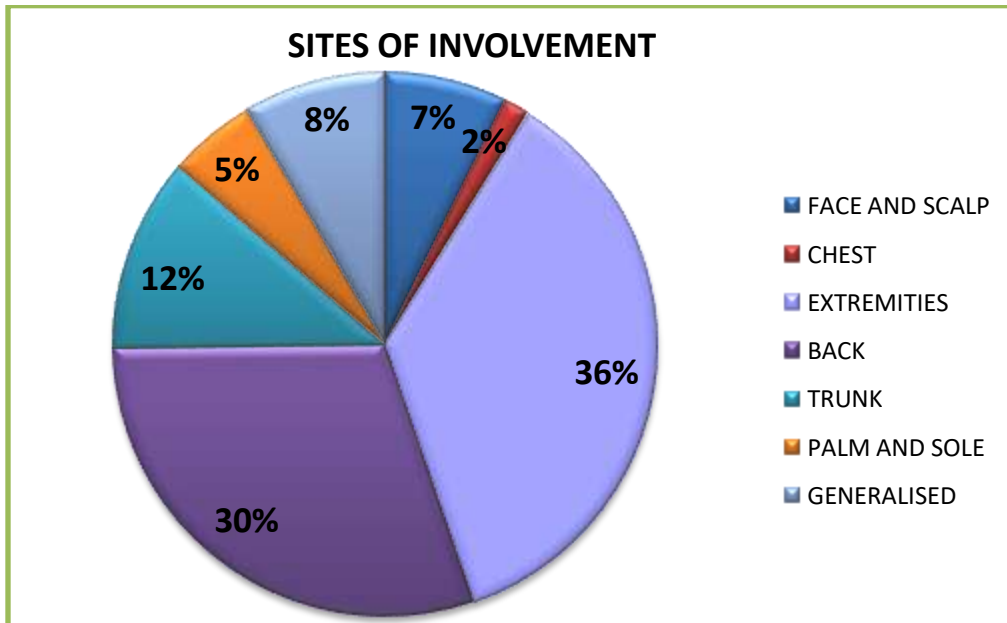
In the present study most common age of presentation was 41-50 years followed by patients in age group of 51-60.

Chart III:- Duration Of Diseases.



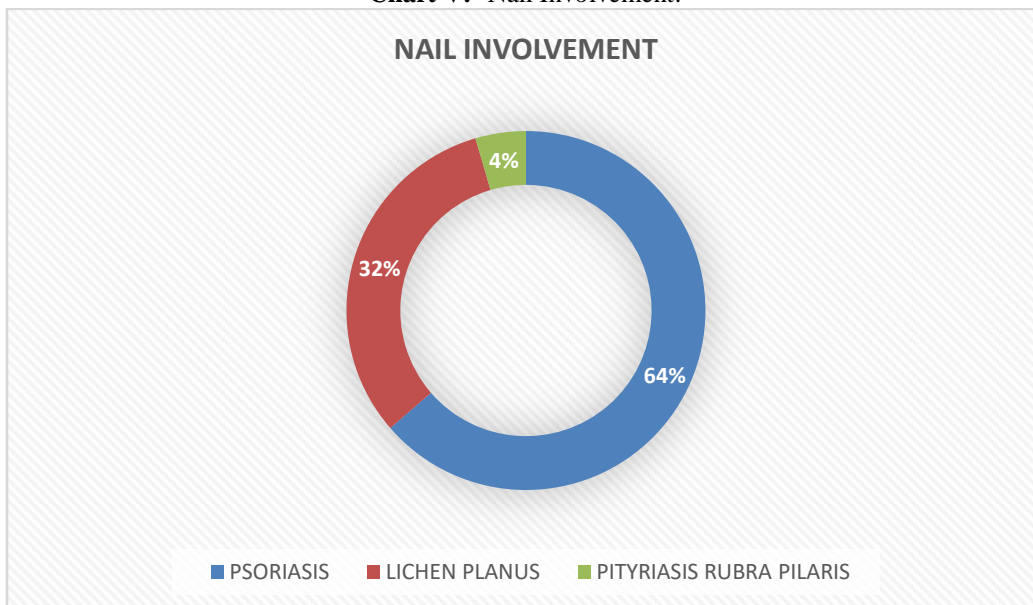
Most common duration of presentation was > 1 year (28%) followed by duration of 1-3 months in 22% patients.

Chart IV:- Sites Of Involvement.



Most common site of involvement was the extremities (36%) followed by back which was involved in 30% and least common site was chest in (1.5%).

Chart V:- Nail Involvement.



Nail involvement was noted in (11.6%) of the cases. Out of all, the most common condition in which nail involvement is noted is psoriasis (64%) followed by lichen planus (32%).

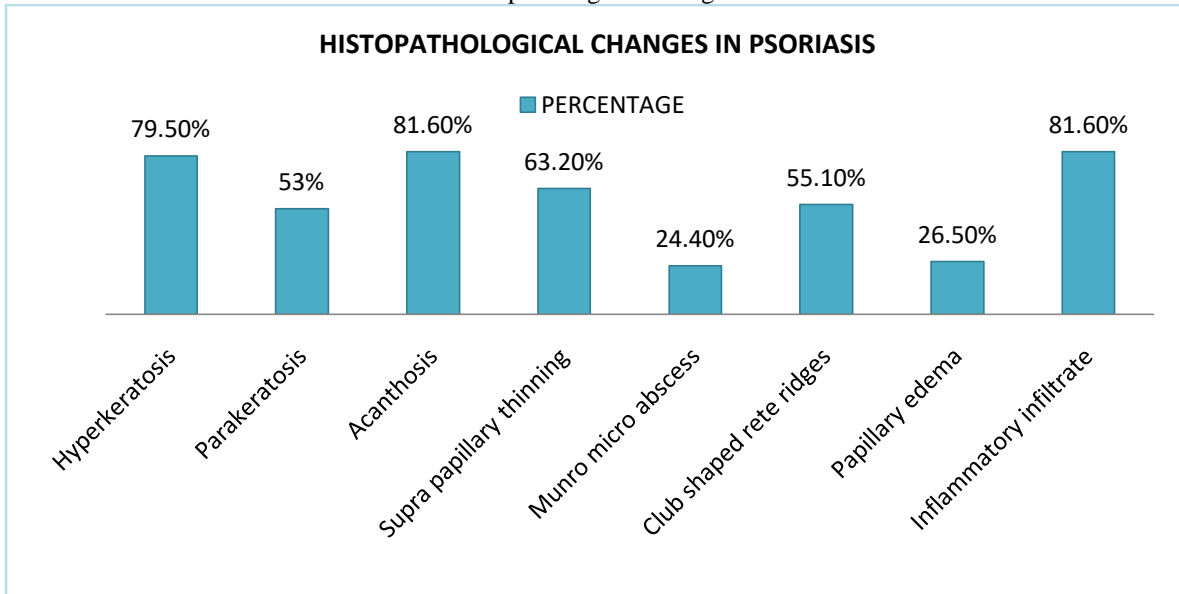
Table I:- Spectrum Of Distribution Of Diseases.

HISTOPATHOLOGICAL DIAGNOSIS	NO OF CASES	PERCENTAGE
Lichen planus	102	53.6 %
Psoriasis	49	25.78 %
Lupus Erythematosus	20	10.52 %
Parapsoriasis	10	5.26 %
Pityriasisrosea	5	2.6%

Seborrheic dermatitis	2	1.05 %
Pityriasisrubrapilaris	2	1.05 %
Total	190	100%

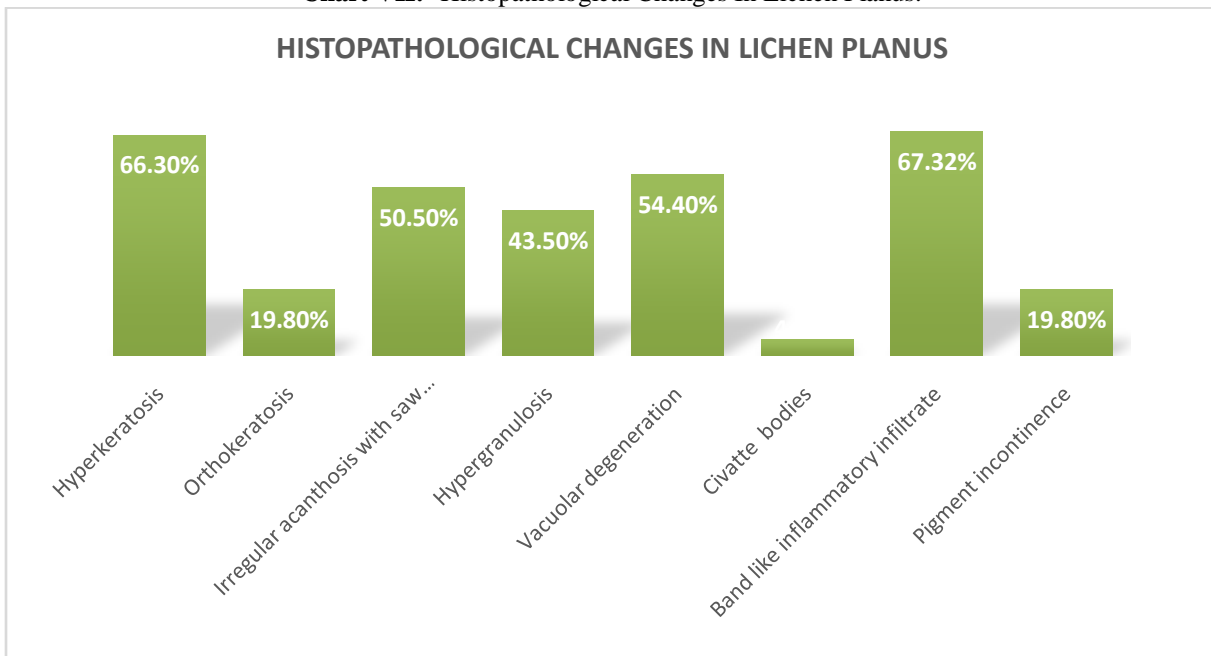
Lichen planus (55%) is the most common lesion seen in present study followed by psoriasis (26%) second most common and lupus erythematosus seen in 11% cases.

**Chart VI:- Histopathological Changes In Psoriasis.**



Acanthosis and inflammatory infiltrate were the most histopathological findings noted in (81.6%) of the cases, followed by suprapapillary thinning in (63.2%) cases and club shaped rete ridges in (55.1%) cases. The least common finding was Munro's micro abscess in only (24.4%) cases.

**Chart VII:- Histopathological Changes In Lichen Planus.**



Hyperkeratosis and band like inflammatory infiltrate (67%) were the most common findings in lichen planus, while Civatte bodies were found in only (4.9%) of the cases.

**Table-VIII:-** Clinico Histopathological Correlation.

Disease	Clinical diagnosis	Histopathological correlation			
		Positive correlation	%	Negative correlation	%
Lichen planus	102	86	84.3%	17	15.7 %
Psoriasis	49	42	86 %	7	14 %
Lupus Erythematosus	20	18	90 %	2	10 %
Pityriasisrubrapilaris	2	2	100 %	0	0 %
Parapsoriasis	10	9	90 %	1	10 %
Pityriasisrosea	5	5	100%	0	0%
Seborrheic dermatitis	2	2	100 %	0	0 %
Total	190	163	85.7 %	27	14.3 %

Out of 190 cases 163(85.7%) cases were correlated positively while 14.3 % were not correlated. Lichen planus show 83.5% positive correlation, psoriasis show 86% positive correlation, pityriasisrubrapilaris show positive correlation of 100% lupus erythematosus show positive correlation of 90% ,parapsoriasis show 90% positive correlation while pityriasisrosea and seborrheic dermatitis showed 100% positive correlation.

## Discussion

**Table III:-** Age And Sex Distribution In Various Studies.

Parameters	Raja sekhar Reddy et al <sup>5</sup> (2014)	S.D. Chavhan et al <sup>4</sup> (2014)	Present study
Age	31-40 years	21-40years	31-50 years
M:F Ratio	Male predominance	Male predominance	Male predominance

According to Raja sekhar Reddy et al<sup>5</sup> S.D. Chavhan et al<sup>4</sup> study most common age group was 3<sup>rd</sup> to 4<sup>th</sup> decade and male predominance was found, similar findings were noted in present study.

**Table IV:-** Incidence Of Various Papulosquamous Skin Lesions In Various Studies.

Disease	Sushilchichani et al <sup>6</sup> (2016 )	S.D. Chavhan et al <sup>4</sup> (2014)	Chaudhary et al <sup>7</sup> (2015)	Present study
Lichen Planus	25(32%)	35(57%)	42(23%)	102(53.6%)
Psoriasis	40(51%)	20(33%)	27(15%)	49(25.7%)
Pityriasisrubrapilaris	6(8%)	NI	11(6%)	2(1.05%)
Lupus erythematosus	NI	NI	10(6%)	20(10.5%)
Parapsoriasis	4(5%)	NI	6(3%)	15(7.8%)
Other	3(4%)	6(10%)	83(47%)	2(1.05%)
Total	78(100%)	61(100%)	179(100%)	190(100%)

According to S.D. Chavhan et al<sup>4</sup> and Chaudhary et al<sup>7</sup> (2015) lichen planus cases constituted the largest group of papulo-squamous lesions. In the present study also largest group of cases are of lichen planus(53.6%).

According to Sushilchichaniet al<sup>6</sup> psoriasis was the most common lesion.The variation in our study was due to geographical distribution of papulo-squamous skin disorder.

**Table V:-** Clinical Feature And Histopathological Picture Of Lichen Planus In Various Studies.

Parameters	Karumbaiah K.P. et al <sup>9</sup> (2017)	Raja sekhar Reddy et al <sup>5</sup> (2014)	S.D. Chavhan et al <sup>4</sup> (2014)	Present study
Incidence	34%	30%	57%	55%

Age	31-40 years	31-40 years	41-50 years	31-40 years
Male female ratio	Common in males	Males =Females	Common in males	Common in males
Irregular acanthosis with saw toothed rete ridges	76 %	100 %	66 %	50.5%
Hyperkeratosis and parakeratosis	100 %	100 %	29 %	67 %
Vacuolar degeneration	100 %	100 %	83 %	54.4 %
Band like inflammatory infiltrate	75 %	75 %	89 %	67.3%

According to S.D. Chavhan et al<sup>4</sup> study lichen planus was the most common papulosquamous disorder (55%), similar findings were noted in the present study.

According to S.D. Chavhan et al<sup>4</sup> study , irregular acanthosis and with saw toothed rete ridges, hyperkeratosis and parakeratosis were the predominant histopathological features, similar findings were noted in the present study.

**Table VI:- Clinical And Histopathological Correlation In Various Studies.**

Parameters	SushmaHosamane et al <sup>10</sup> (2016)	ChaudharyRaju.R et al <sup>6</sup> (2015)	Present study
Lichen planus	48 %	93 %	84.3%
Psoriasis	45%	74 %	86%
Lupus Erythematosus	-	60%	90%
Pityriasisrubrapilaris	60%	72 %	100 %
Parapsoriasis	0%	50%	90%
Pityriasisrosea	0%	0%	100%

According to ChaudharyRaju.R et al<sup>6</sup> study positive correlation in lichen planus cases was noted in 93% cases ,the present study is in accordance to it, whereas in the Sushma Hosamane<sup>10</sup> et al study clinicopathological correlation was 48%. This may be due to variation in selection of cases.

According to ChaudharyRaju.R et al<sup>6</sup> study positive correlation in psoriasis cases was noted in 74% cases ,the present study is in accordance to it but slightly on a higher side, whereas in the Sushma Hosamane<sup>10</sup> et al study clinicopathological correlation was 48%.This might be due to inter observer variation and variation in selection of cases.

According to ChaudharyRaju.R et al<sup>6</sup> study ,in lupus erythematosus, clinico pathological correlation was 60%,similar findings were noted in present study but higher positive correlation in noted.

According to ChaudharyRaju.R et al<sup>6</sup> study and SushmaHosamane et al<sup>10</sup>study,in pityriasisrubrapilaris, positive clinicopathological correlation was 72% and 60% respectively,whilepresent study shows 100% correlation.Thisvariation might be due to less no of cases.

According to ChaudharyRaju.R et al<sup>6</sup>study,inparapsoriasis, positive clinicopathological correlation is 50%,while present study shows 90% correlation.This variation might be due to less no of cases.

### Conclusion:-

1. The clinical pattern and histological features of papulo-squamous skin disorders overlap.
2. In such circumstances attempting a conclusive histopathological diagnosis by clinicopathological correlation serves as an ideal approach.
3. Contribution of histopathology is definitely significant in overcoming clinical diagnostic dilemma in certain cases.

4. Some of the histological features overlap in lesions like pityriasis rosea, parapsoriasis. However, some of the histological features are specific and characteristic for each entity
5. As the papulo-squamous disorders are commonly encountered dermatological conditions, we emphasize the role of clinicopathological correlation for accurate diagnosis, which aids in appropriate and effective clinical management and better clinical outcome.
6. The pathologist's ability to render an accurate diagnosis depends on the available clinical information.
7. Biopsy specimens of these lesions submitted for histopathology with clinical information & differential diagnosis and a clinic-pathological correlation is key to better patient care..

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