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# Histopathological evaluation of inflammatory skin diseases with clinical correlation: A hospital based cross sectional study.

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**Abstract:**

**Background:** Skin diseases are diverse however, most of the conditions are diagnosed based on visual examination and clinical history[1.] Skin being the largest organ of the human body presents with diversity of diseases. Majority of the skin diseases can be diagnosed by history,clinical presentation and biochemical investigation without need of histopathology[2]. Clinical manifestations may vary with disease duration and may be ameliorated with treatment.[5] This situation provides us finding out diagnosis, stages of lesions, pathogenesis and even etiological factors of dermatological diseases. There are many techniques such as histopathology, immunopathology, and electron microscopy for diagnosis of disease after biopsy. Evaluating of all clinical and histopathological findings is important, Diagnosis of skin diseases is not based on just clinical findings but also on histopathological findings.

**Aim:**
To evaluate age, gender, clinical preliminary diagnoses of patients biopsied and to correlate these with histopathological diagnoses.

**Materials and methods:**
Study conducted for a period of two years on 107 skin biopsies received at department of pathology in a tertiary care centre. Detailed clinical history was taken and the biopsies were subjected to H&E with special stains and IHC support wherever required.

**Results**:
107patients were included in this study.55 patients were males (52%) and 52 patients (48%) were females. Among inflammatory skin lesions, lichen planus constituted 21 cases of lesions, followed by 22 cases of psoriasis, 8 cases ofdermatitis ,7 cases of lupus lesions.

**Key words:** Histopathological examination, clinical correlation , papulosquamaous disorders.

## Introduction:

Skin being the largest organ of the human body presents with a number ofdiverse diseases. Inflammatory disorders of the skin have typically been classified by etiology (suspected or confirmed), clinical features, histologic features (e.g., reaction patterns) & location(site) on the skin[2].

The integumentary system constitutes the skin (integument) together with its accessory

organs (hair, glands, and nails). The skin acts as a buffer against the external environment and thus is more vulnerable to a variety of disease-causing microorganisms and physical assaults[13]

The clinical presentation of skin diseases is restricted to only few changes, like hyperpigmentation, hypopigmentation, macules, papules, nodules, pustules and few others, the spectrum of histopathology of skin disorder varies widely[9]

The information recorded on the histopathology request form is a crucial data set provided by the treating dermatologist to the reporting pathologist.[6] Unlike other branches of medicine, dermatologists rely upon fewer investigations while making a diagnosis .Skin biopsy is often considered as confirmatory in case ofdiagnostic dilemma and is the most common investigation sought by a dermatologist. Hence a high diagnostic accuracy of this investigation ispursued.

It solves diagnostic dilemma, may confirm or exclude life-threatening conditions[3]. However histopathological examination still remains gold standard for helping the dermatologist in overcoming diagnostic dilemma.[13]

Inflammatory skin diseases are the commonest reason for patients to visit a dermatology clinic[16]

In many previous studies having clinicopathological consistency, it is observed that dermatologists have a significantly higher rate of clinical diagnostic accuracy compared to other specialties[6] Skin diseases are common and account for 10.73 to 27 % of medical complaints (1-3)[7].

This study has been undertaken to analyze the variety spectrum of skin diseases in our hospital, a tertiary care center.

## Materials & methods:

This prospective study was conducted in the Department of Pathology, during the time period of 1 year between May 2022 to May 2023. During this period, 107 skin biopsies were received in our histopathology department.

Clinical data was obtained for all 3mm-4mm skin punch biopsies which were diagnosed on 3-5 microns thick sections, stained with routine Hematoxylin and eosin and were examined under low power - 10x and high power - 40x.

Special stains like PAS, AFB, Mucicarmine ,fite farraco which were used wherever necessary .

The result was considered to be "consistent" when the histopathological diagnosis correlated with the provisional clinical diagnosis,

The result was " inconsistent " when the final diagnosis or histopathological diagnosis was not correlating with any of the diagnoses suggested by the provisional clinical diagnosis list, and also when there is mismatch between the histopathological diagnosis and final diagnosis.



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**Results:**

The present study is a retrospective study in which we included all the skin biopsies received at the histopathology section in Pathology department of our institute for the period of one year [2] A total of 107 skin biopsies were received in histopathology department during May 2022 to May 2023. 2 biopsies among these did not fill the adequacy criteria and hence were not included in the study.

Out of 107 biopsies studied 55 were females and 52 were males
There was a wide age distribution ranging from 0 years to 80 years,with a mean age group of 35.

Out of total 107 biopsies studied 55 were males and 52 were females. There was a wide age distribution ranging from 1.5 years to 78 years . Maximum of 22% of cases were seen in 31-40 yrs

31.7 % presented as dark rasied patches /lesions which is followed by dark patches around 14.9% then skin colored patched 13 % and 12 % of hypopigmented patches,11 with itchy, scaly lesions.
Definite histopathological diagnosis was possible in 105 cases (98.1%). Histopathology was noncontributory in only 2 cases (1.8%). A broad spectrum of histopathological diagnosis was seen comprising of Infectious disorders (11.2%),

eczematous disorders (10.2%), papulosquamous disorders (42.3%), Pigment disorders (10.2%), degenerative diseases (6.2%)

**TABLE 1**

| DIAGNOSIS | MALE | FEMALE | TOTAL | PERCENTAGE |
|---|---|---|---|---|
| **LICHEN PLANUS** | **12** | **9** | **21** | **19.6** |
| **PSORIASIS** | **15** | **7** | **22** | **20.5** |
| DERMATITIS | 1 | 7 | 8 | 7.4 |
| PEMPHIGUS | 2 | 4 | 6 | 5.6 |
| DERMAL NEVUS | 2 | 5 | 7 | 6.5 |
| SEBORRHIC KERATOSIS | 2 | 1 | 3 | 2.8 |
| PITYRIASIS ROSEA | 1 | 2 | 3 | 2.8 |
| LUPUS LESIONS | 1 | 4 | 5 | 4.6 |
| VASCULITIS | 2 | 2 | 4 | 3.7 |
| MORPHEA | 0 | 3 | 3 | 2.8 |
| **INFECTIOUS** | **13** | **4** | **17** | **15.8** |



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| | | | | |
|---|---|---|---|---|
| **&MISCELLANEOUS** | | | | |
| VERRUCA PLANA | 2 | 2 | 4 | 3.7 |
| ASHY DERMATOSIS | 1 | 3 | 4 | 3.7 |
| ALOPECIA AREATA | 1 | 1 | 1 | 1.8 |

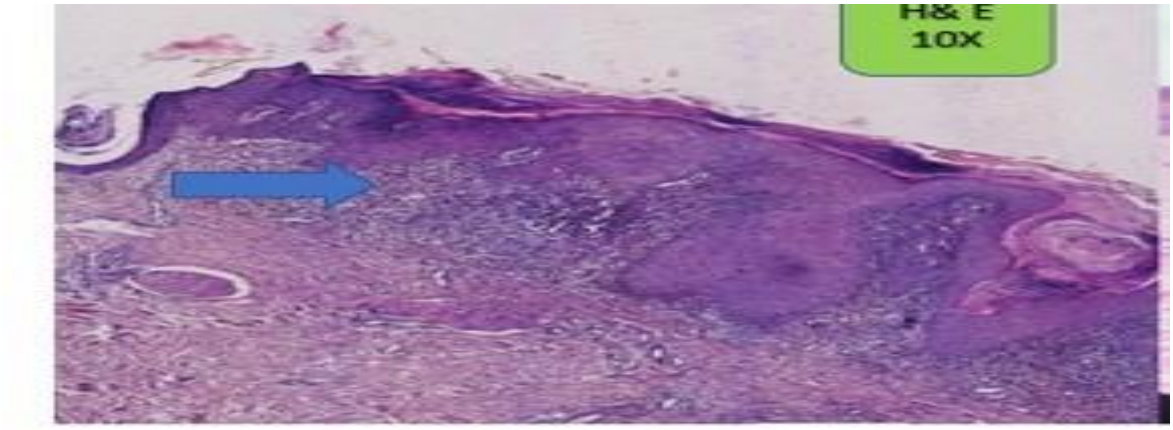
**Table 2**

| DISEASES | HISTOPATHOLOGICALDIAGNOSIS | CLINICAL AGREEMENT | CLINICAL DISAGRREMENT | PROPOSED CLINICAL DIAGNOSIS |
|---|---|---|---|---|
| **LICHEN PLANUS** | **21** | **20** | **1** | **LICHEN NIDITUS** |
| PSORIASIS | 22 | 22 | 0 | |
| **DERMATITIS** | **8** | **5** | **3** | **CHEMICAL LEUCODERMA ,** |
| DERMITITIS HERPITIFORMIS | 2 | 2 | 0 | |
| DERMAL NEVUS | 7 | | 0 | |
| SEBHORRIC KERATOSIS | 3 | 3 | 0 | |
| **LUPUS LESIONS** | **5** | **4** | **1** | **SARCOIDOSIS** |
| MORPHEA | 3 | 3 | 0 | |
| **MISCELLANEOUS** | **17** | **15** | **2** | **CONTACT DERMATITIS, ACNE COMEDONICUS.** |
| **ALOPECIA** | **2** | **2** | **0** | |

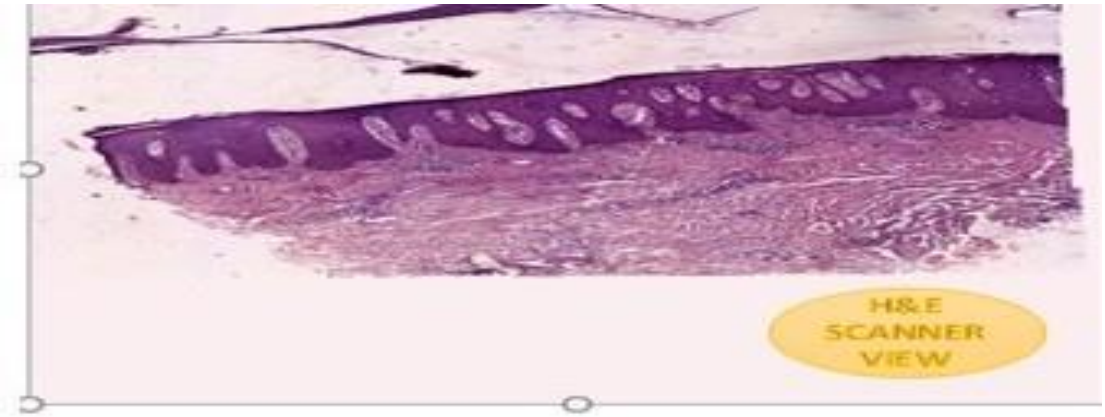
In our study an insight into correlation between clinical examination and histopathological diagnosis showed that histopathology confirmed the clinical diagnosis in 97 cases (92.51%) it gave the diagnosis different from the clinical diagnosis in 7cases (6.49%)

Proposed clinical diagnosis was lichen niditus in one case which was lichen planus on HPE, in 3 cases chemical leukoderma was the proposed clinical diagnosis which turned out to be dermatitis on HPE. Sarcoidosis was the clinical diagnosis which turned out to be lupus lesion on HPE.

**LICHEN NIDITUS**




**PSORIASIS**



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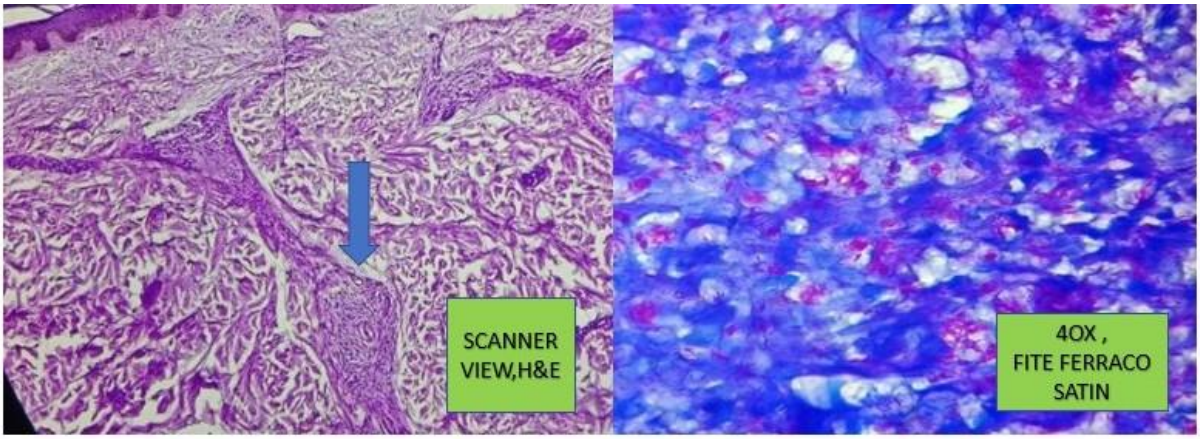
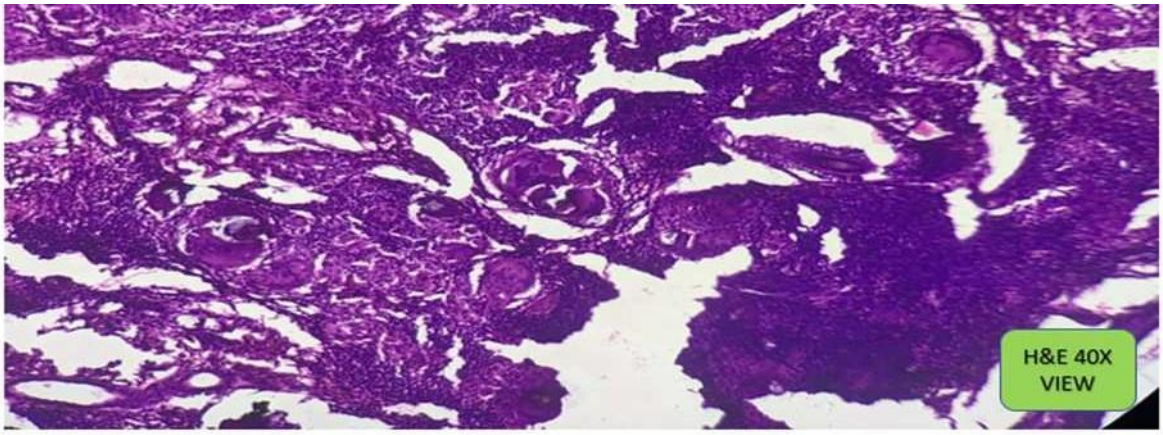
## FITE FERRACO STAIN




## GRANULOMATOUS LESION



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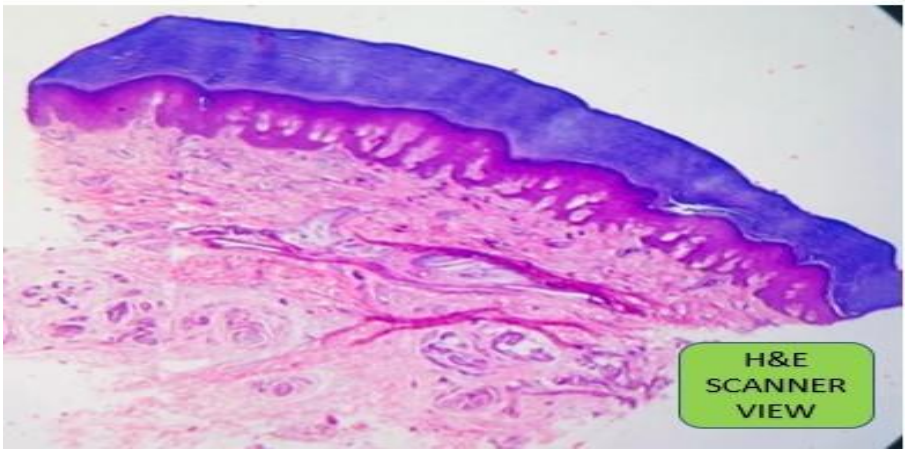
VERRUCA VULGARIS




**Discussion:**

The spectrum of dermatological diseases diagnosed histopathologically in our study is different from the pattern of dermatological diseases diagnosed on clinical basis inOPD.
Most of the inflammatory diseases show similar histopathological picture, Therefore special stains, immunofluorescence, and immunohistochemical techniques were used to increase the diagnostic accuracy but joint discussion of the clinical and histopathological findings in the presence of dermatologists and pathologists is essential5. Despite many developed instruments, it is still not easy to reach a definitive diagnosis in many cutaneous diseases because of unclear clinical findings.
Skin biopsy is easy, simple, inexpensive and outpatient procedure which provides adequate material for confirmation of the clinical diagnosis and further follow up.

In our study of 107 skin biopsies, male patients outnumbered females. The most common age group was between 31-40 years and the least affected was between 0-10 yrs. In a study of 200 cases by Reddy et al on non-infectious papulosquamous lesions, males were more affected and the most common age group was between 31-40 years.

In this study skin biopsies were categorized into 4 major groups. Among these papulosqumous disorders 42.8% were the most common with maximum cases of psoriasis, similar to papulosquamous disorders in JHA HK1 , POKHAREL ET AL study which was around 22.4%.
These findings are similar to the study by Reddy et al on noninfectious erythematous papulosquamous lesions, in which maximum cases were of Psoriasis(42.5%).

In this study clinical diagnosis & histopathological diagnosis discrepancy is seen in 7cases, similar discrepancy is seen in 18 cases in JHA HK1 , POKHAREL ET AL study
In our study an insight into correlation between clinical examination and histopathological diagnosis showed that histopathology confirmed the clinical diagnosis in 97 cases (92.51%) it gave the diagnosis different from the clinicaldiagnosis in 7cases (6.49%)

RUBY VENUGOPAL ET AL[6] observed a the pathological diagnosis was consistent with the



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first clinical diagnosis in the majority (47.4%) of cases. The pathological diagnosis was consistent with the second and third clinical diagnoses in 13.9% and 3.7% of the cases, respectively.

In a study done PRIYA GUPTA ET AL. histopathology confirmed clinical diagnosis in 85.8 % cases and was non-contributory in only 5.1% cases. It gave the diagnosis different from clinical diagnosis in 9.1% cases hence emphasizing its vital role in establishing a definite diagnosis for proper management and treatment.[2] Maximum clinicopathological agreement was seen in pigmentary disorders, followed by infectious inflammatory dermatoses. While the maximum number of non conclusive and inadequate biopsies was from non infectious inflammatory dermatoses, it emphasizes the importance of performing the skin biopsy at appropriate phase of thedisease, from proper site, of proper thickness.

**Conclusion :**

The diversity of clinical presentation of skin diseases makes histopathological examination necessary. It is also important in confirming an established clinicaldiagnosis. The skin acts as a buffer against the external environment and thus is more vulnerable to a variety of disease-causing microorganisms and physical assaults. Though in the past decade, the incidence and prevalence of disease has drastically reduced, yet it is still prevalent especially in rural areas and poorer sections of our society

In this study, A good clinical description of the lesion aided the histopathology diagnosis, in cases where differential diagnosis was not provided. The clinical description correlated with the final diagnosis histopathology confirmed clinical diagnosis in 98.1% cases and was noncontributory in only 1.8% cases.

It gave the diagnosis different from clinical diagnosis in 7.49 % cases henceemphasizing its vital role in establishing a definite diagnosis for proper management and treatment. Increasing the number of differentials did not improve the diagnostic accuracy, as evident in this study

Our study is unique because it highlights clinicopathological discrepancies which arose due to overlapping clinical features of various diseases, hence emphasizing the vital role of histopathology for proper diagnosis, management and treatment of the patient.

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