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Original Research Article

HISTOPATHOLOGICAL SPECTRUM OF SKIN LESIONS ANALYSED IN A TERTIARY CARE HOSPITAL: A RECORD BASED STUDY.

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ABSTRACT

BACKGROUND AND OBJECTIVES

Prevalence of skin diseases is common in developing countries. The pattern of distribution varies from country to other. Accurate diagnosis is needed for proper management of different skin disorders, which present with similar signs and symptoms. Hence, histopathological examination has become the valuable tool in the diagnosis of different skin lesions and in management of patient.

AIM OF THE STUDY:

To determine the incidence and distribution of various skin lesions based on histopathological observations.

METHODS: A retrospective study carried out in the Department of Pathology, Mandya Institute of Medical Sciences, Mandya, for a period of 24 months from January 2019 to December 2020. Relevant clinical data were collected by studying the medical records of the same. Formalin fixed biopsies were processed and stained with H&E and special stains done wherever required.

RESULTS: Out of 4434 biopsies, 334 were skin lesions, among which 310 (92.8%) had definitive diagnosis. Patients age range from 3 to 90 years with the mean of 43.7 years, with male predominance of 170 (54.8%). The biopsies received were divided into neoplastic and non-neoplastic lesion. Majority of them were non-neoplastic lesions (86.9%) with papulosquamous being the most common lesion.

CONCLUSION: Histopathology is a gold standard in the diagnosis of skin lesions. Non-neoplastic lesions being the most common among the cases taken for the study. Hence,

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a combination of good clinical expertise and histopathological confirmation helps in the proper management of the patient.

Key Words: Skin biopsy; Non-neoplastic lesions; Neoplastic lesions

1. INTRODUCTION:

The largest sensory organ of human body is the skin, which accounts for about 15% of total body weight. It is a complex organ having multiple functions. Primarily it acts as a barrier against various harmful environmental agents.[1]

Skin is the most exposed organ to Ultraviolet rays and is susceptible to a wide spectrum of disorders, ranging from inflammatory conditions to neoplastic lesions.[2, 3]

Dermatological disorders are one of the frequently encountered health disorders in tropical countries especially India with varied spectrum depending on geographical domicile.[4]The spectrum of cutaneous disorders varies in their severity ranging from benign forms to life-threatening lesions. Many factors contribute to this high incidence which includes environmental factors, social customs, economy and literacy.[5]Occasionally, some of the skin diseases may be the sole manifestation of systemic diseases such as diabetes mellitus and amyloidosis. [3] Skin diseases affect all ages from neonate to elderly.[5]Some of them requires medical attention and pose great psychological threat on the quality of life.

The spectrum of cutaneous disorders is highly variable however clinical presentation is restricted to a few changes such as hyperpigmentation, hypopigmentation, macules, papules, nodules etc. Each clinical presentation is common to different histopathological pictures and thus definitely requires histopathology for their confirmation. Hence, the standalone clinical diagnosis is often difficult for different entities.[6] Though the anatomical location, distribution and the pattern of skin lesions help the clinician to diagnose the disease, the histopathological study of the lesion remains as the gold standard method for confirming the diagnosis.[5]

There are various methods of procuring skin biopsies which include punch biopsy, shave biopsy, incisional biopsy, excisional biopsy, scalpel biopsy, and curettage biopsy. Biopsy of the skin lesion by any method followed by histological examination establishes the diagnosis of the lesion and aids in the treatment.[3]However, some of them requires additional diagnostic procedures to get added information to make final diagnosis. Some of them are potassium hydroxide preparation, Tzanck smear and examination under wood's lamp.[7]

Hence, the study was undertaken in this research institute at department of pathology aiming to provide essential data regarding skin lesions in surrounding community as well as describing the histopathological spectrum and analyse the clinicopathological correlation in various categories of skin lesions.

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2. OBJECTIVES OF THE STUDY:

To determine the incidence and distribution of various skin lesions based on histopathological observations.

3. MATERIALS AND METHODS:

All the skin biopsies sent to the Department of Pathology, during study periodof 24 months from January 2019 to December 2020, were taken as the study samples. Relevant clinical data were collected by studying the medical records of the same.

The slides prepared from the specimen received in histopathology section following standard procedure were studied in detail and the data wasanalyzed. The biopsied specimen received from Dermatology department were formalin-fixed, processed for paraffin embedding and 4 to 5 micron thick sections were obtained. Multiple sections were prepared and stained with haematoxylin and eosin (H&E) and special stains wherever needed (PAS, AFB stain, Fite-Faraco stain etc.) and reported with clinical correlation.

A prior approval was obtained from Institutional Ethics Committee for conducting the study.

Inclusion criteria:

All skin biopsies (both punch and excision biopsies) with definitive diagnosis was included in the study.

Exclusion criteria:

Cases in which definitive diagnosis was not made and was reported with differential diagnosis was excluded from the study.

4. RESULTS:

Among 4434 biopsy specimen, a variety of skin lesions were seen across all age group and in both the genders (Table 2 and 3). A total of 334 skin biopsy specimens were received at our laboratory during the study period. Out of this 334 cases 310 (92.8%) cases were found to have a definitive histological diagnosis (Table 1).

Non neoplastic lesions (86.9%) were the most common followed by neoplastic lesions (5.9%) (Table 1).

TABLE 1: Distribution of the cases based on the histopathological diagnosis

Diagnosis	Total
Non neoplastic lesions	290 (86.9%)
Neoplastic lesions	20 (5.9%)
No specific diagnosis (correlate clinically)	24 (7.2%)
Total	334 (100%)

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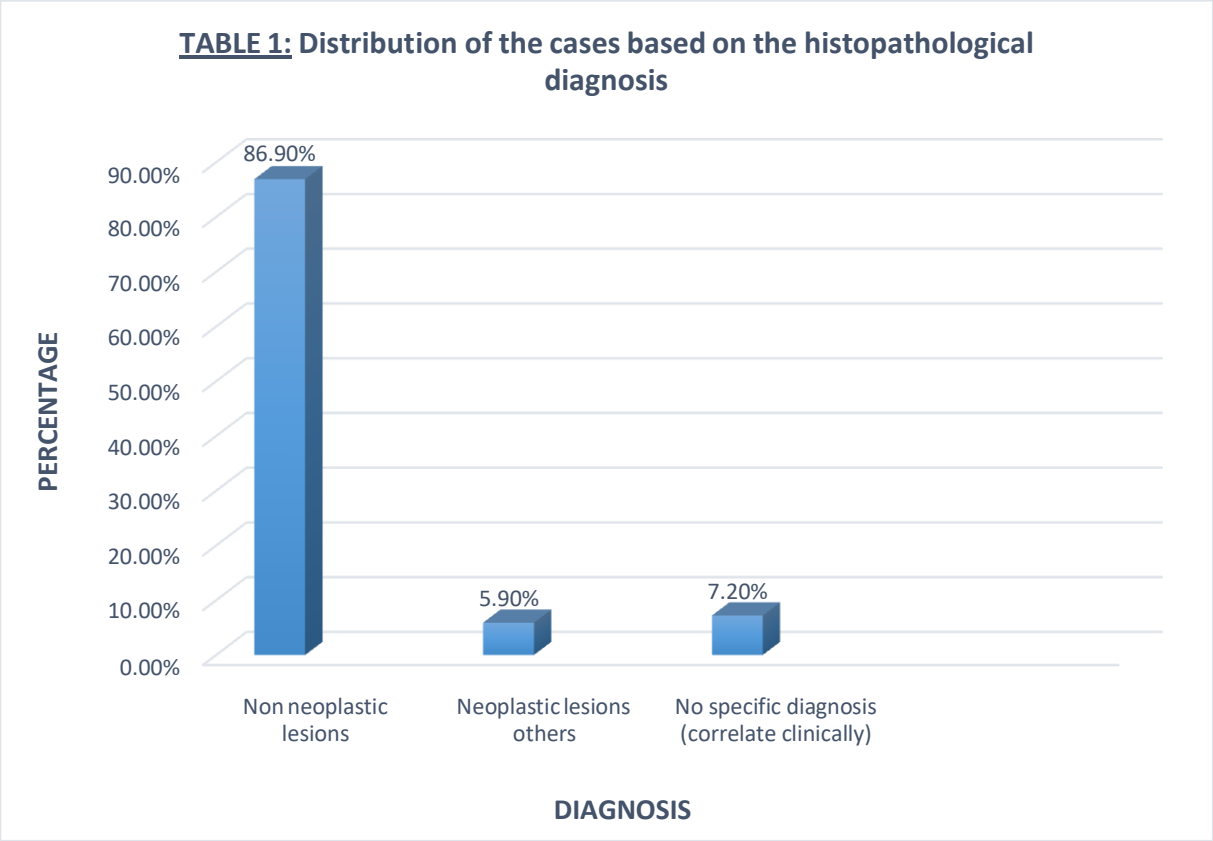

Study population constituted 170 (54.8%) males and 140 (45.2%) females, with a mean age of 43.7years and a ratio of 1.2:1 (Table 2). Most common dermatoses seen among females were papulosquamous lesion especially lichen planus. (Table 4).

Table 2: Distribution of skin lesions based on the gender of the patient

DIAGNOSIS	MALE	FEMALE	TOTAL
Neoplastic lesions	14	6	**310**
Papulosquamous diseases	47	48	
Vestibulobulous and Pustular diseases	19	17	
Microbial diseases	42	18	
Cystic lesion	23	13	
Vascular diseases	7	4	
Connective tissue disease	3	3	
Metabolic disorders	0	3	
Inflammatory diseases of cutaneous adnexa	1	9	
Chronic Non-specific inflammation	5	3	
Benign epidermal tumors	1	2	
Photosensitivity disorder	1	1	
Others	7	13	

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TOTAL	170 (MALE)	140 (FEMALE)	
PERCENTAGE	54.8%	45.2%	100%

TABLE 2: DISTRIBUTION OF SKIN LESIONS BASED ON THE GENDER OF THE PATIENT

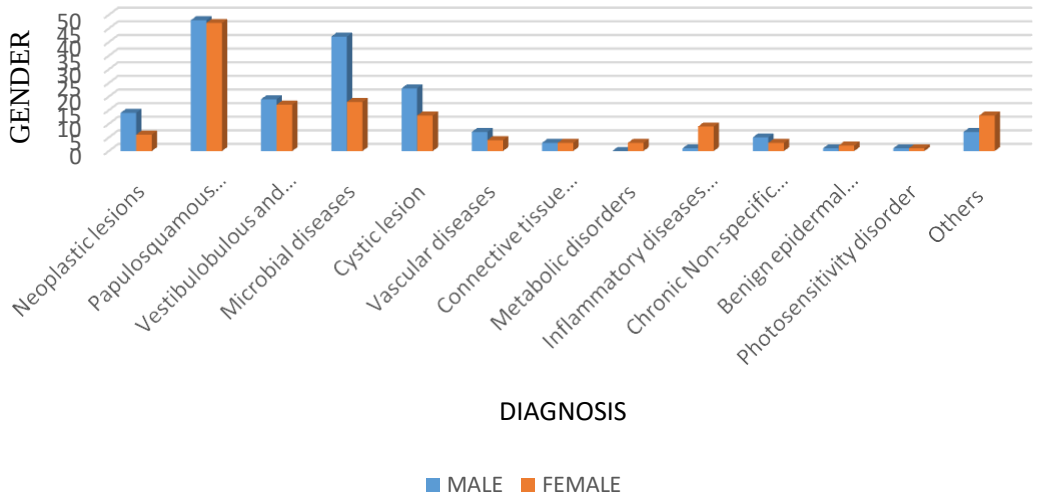

Table 3: Distribution of skin lesions based on the age of the patient								
	0-10 yrs.	**11-20 yrs.**	**21-30 yrs.**	**31-40 yrs.**	**41-50 yrs.**	**51-60 yrs.**	**61-70 yrs.**	**>71 yrs.**
Neoplastic lesions			2		4	4	7	3
Papulosquamous diseases	5	7	16	22	16	17	10	2
Vestibulobulous and Pustular diseases	2	1	3	4	12	8	5	1
Microbial diseases	1	4	8	12	15	12	3	5
Cystic lesion	1	4	8	6	8	3	6	
Vascular diseases		1	2	1	3	2	2	
Connective tissue disease				2	1	1	2	
Metabolic disorders			1	1	1			

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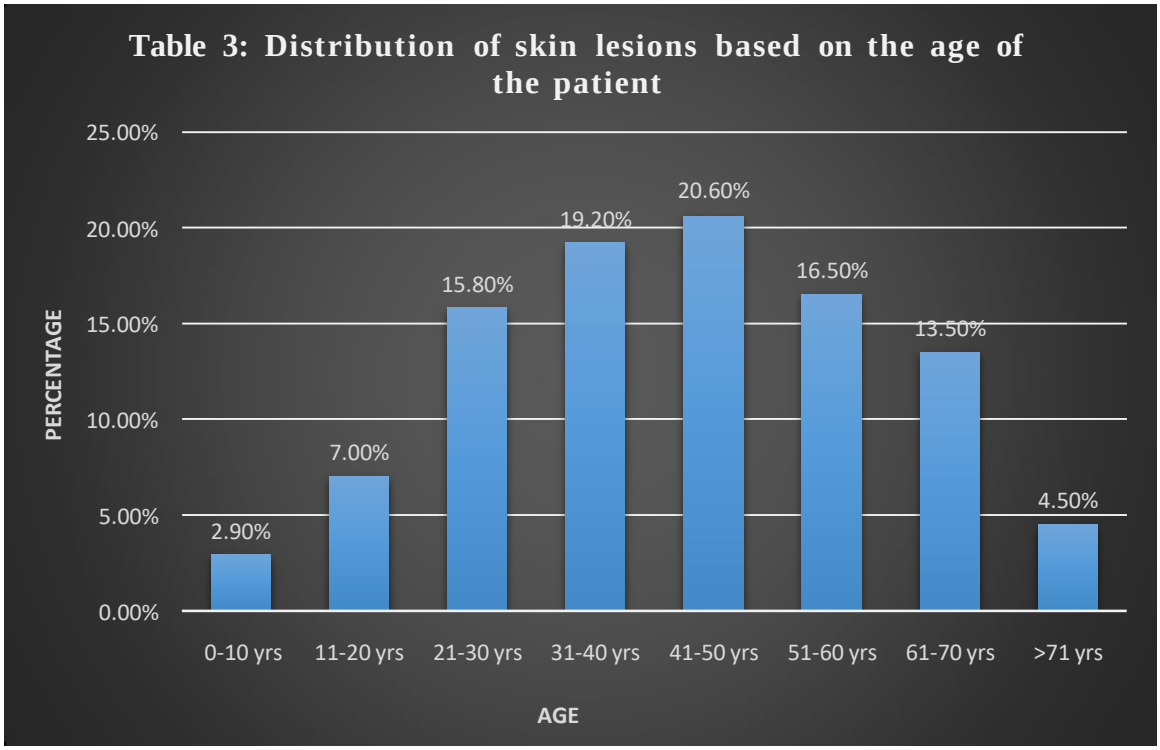
Inflammatory diseases of cutaneous adnexa			3	4	1		2	
Chronic Non-specific inflammation		1	1	1	1	1	3	
Benign epidermal tumors			1	1				1
Photosensitivity disorder			1				1	
Others		4	3	5	2	3	1	2
TOTAL	**9**	**22**	**49**	**59**	**64**	**51**	**42**	**14**
Percentage	2.9%	7.0%	15.8%	19.2%	20.6%	16.5%	13.5%	4.5%



The age group of 41 to 50 years constituted 20.6% of the total cases (Table 3).

Table 4 shows distribution of cases under broad category of dermatoses.

Among the non-neoplastic lesions, Papulosquamous (95 cases; 30.5%) was the most common skin lesions followed by microbial diseases (60 cases; 19.3%). Most common lesion under papulosquamous was lichen planus (50; 52.6%) followed by psoriasis (27; 28.4%).

Under microbial lesions, most common dermatoses noted was Leprosy especially Borderline Tuberculoid (16 cases; 11.2%) type followed by Borderline Lepromatous (15 cases; 10.5%).

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TABLE 4: TYPES OF VARIOUS LESIONS ENCOUNTERED IN THE BROAD CATEGORY OF DERMATOSES

Dermatoses	Types	Number of cases
Neoplastic lesions n=20 (6.30%)	Squmous cell carcinoma	09 (45%)
	Basal cell carcinoma	04 (20%)
	Keratoachantoma	02 (10%)
	Intradermal nevus	02 (10%)
	Malignant melanoma	01 (5%)
	Sebaceous carcinoma	01 (5%)
	Inflamatory linear verrucous eoidermal nevus	01 (5%)
Papulosquamous diseases n=95 (30.50%)	Plamoplantar psoriasis	25 (26.3%)
	Chronic plaque psoriasis	02 (2.1%)
	Lichen planus	50 (52.6%)
	Lichen nitidis	01 (1.1%)
	Pityriasis rosea	02 (2.1%)
	Pityriasis rubra pilaris	02 (2.1%)
	Lichen planus actinicus	01 (1.1%)
	Lichen planus pigmentosis	01 (1.1 %)
	Lichen striatus	01 (1.1%)
	Hypertropic lichen planus	07 (7.3%)
	Plurigo nodularis	01 (1.1%)
	Plurigo simplex	01 (1.1%)
	Erythema annular centrifugum	01 (1.1%)
Vesiculobullous and Pustular diseases n=36 (12.00%)	Bullous pemphigoid	04 (11.1%)
	Pemphigus foliaceous	12 (33.3%)
	Pemphigus vulagaris	05 (13.9%)
	Subcorneal pustular dermatosis	01 (2.8%)
	Eczema	02 (5.6%)
	Dermatitis herpitiformis	01 (2.8%)
	Linear IgA dermatosis	01 (2.8%)
	Allergic contact dermatitis	07 (2.8%)
	Atrophic dermatitis	01 (2.8%)
	Annular dermatitis	01 (2.8%)
	Airborne contact dermatitis	01 (2.8%)
Microbial diseases n=60 (19.30%)	Tuberculoid leprosy	06 (4.2%)
	Boderline tuberculoid leprosy	16 (11.2%)
	Boderline leprosy	05 (3.5%)
	Boderline lepromatous leprosy	15 (10.5%)
	Indeterminate leprosy	06 (10%)
	Mucosis fungoides	01 (1.7%)
	Plantar wart	01 (1.7%)
	Verruca vulgaris	02 (3.3%)

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	Lupus vulgaris	02 (3.3%)
	Tinea incognito	01 (1.7%)
	Chromoblastomycosis	02 (3.3%)
	Tinea capitis	01 (1.7%)
	Tuberculosis verruca cutis	01 (1.7%)
	Sporotricosis	01 (1.7%)
Cystic lesion n=36(12.00%)	Epidermal cyst	20 (55.6%)
	Sebeceous cyst	06 (16.7%)
	Trichelimal cyst	04 (11.1%)
	Dermoid cyst	03 (8.3%)
	Mucous retension cyst	03 (8.3%)
Vascular diseases n=11(2.80%)	Leucocytoclastic vasculitis	07 (63.6%)
	Small vessel vasculitis	02 (18.2%)
	Late phase sweet syndrome	01 (9.1%)
	Urticarial vasculitis	01 (9.1%)
Connective tissue disease n=6 (1.50%)	Morphea	03 (50%)
	Discoid lupus erythomatosis	03 (50%)
Metabolic disorders n=3(1.10%)	Calcinosis cutis	02 (66.7%)
	Achanthosis nigricans	01 (33.3%)
Inflammatory diseases of cutaneous adnexa n=10 (3.30%)	Panniculitis	01 (10%)
	Keloid	06 (60%)
	Inflammatory atropic scar	01 (10%)
	Erythema nodosm	01 (10%)
	Telogen effluvium	01 (10%)
Chronic Non-specific inflammation n=8(2.50%)	Chronic non-specific inflammatory lesion	08 (100%)
Benign adnexal tumors n=3(1.10%)	Pilomatricoma	02 (66.7%)
	Cylindroma	01 (33.3%)
Photosensitivity disorder n=2(0.70%)	Polymorphous light eruption	02 (100%)

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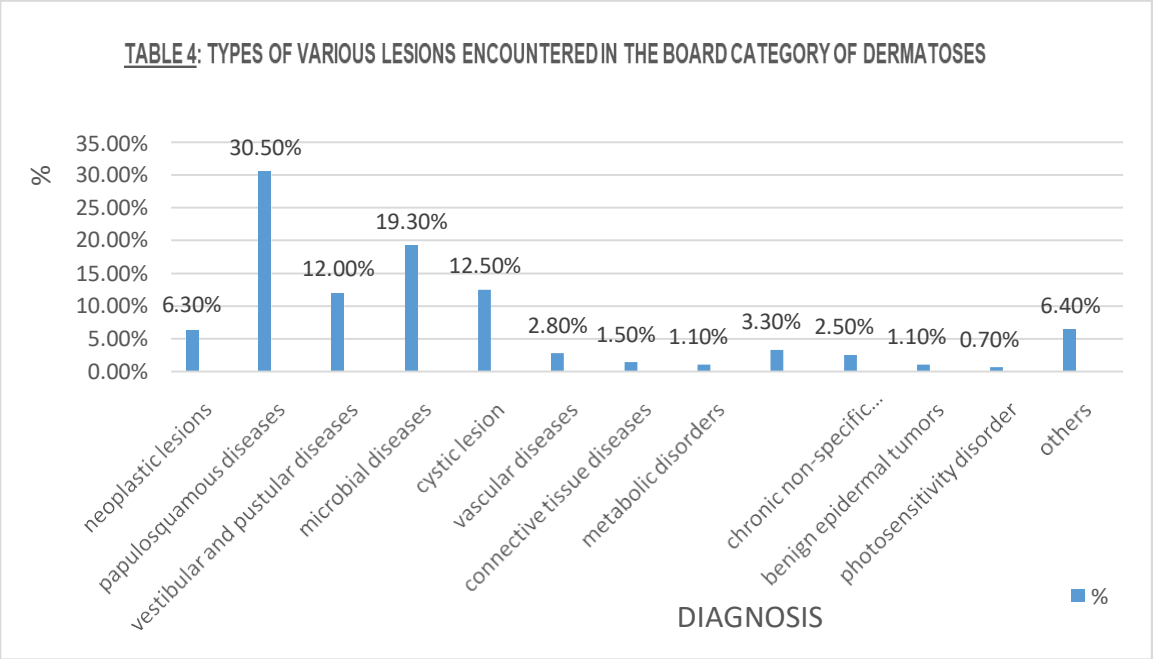
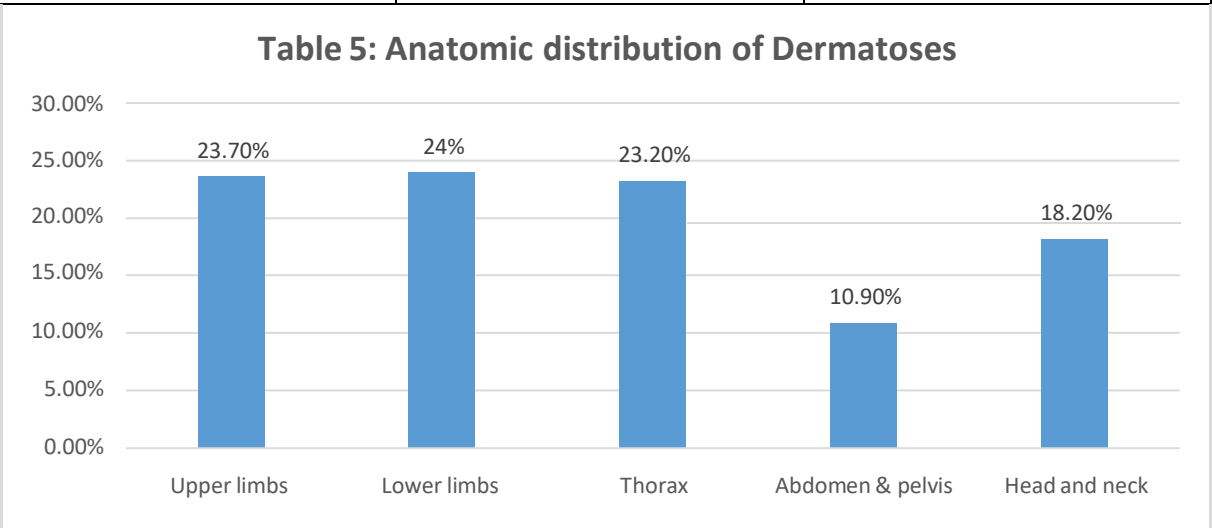


The anatomic distribution pattern revealed that extremities were involved in majority of the cases especially the lower limbs followed by upper limbs and thorax (Table 5).

Table 5: Anatomic distribution of Dermatoses		
Site	**Number**	**Percentage**
Upper limbs	94	23.7%
Lower limbs	95	24%
Thorax	92	23.2%
Abdomen & pelvis	43	10.9%
Head and neck	72	18.2%
Total	396	100%



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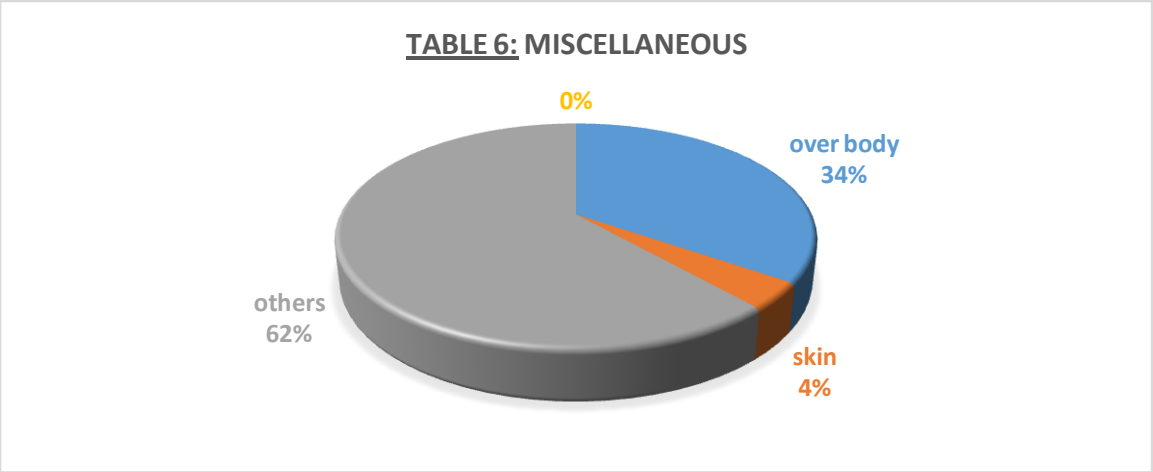
Few cases were sent without any specific sites and those were labeled under miscellaneous sites. (Table 6)

Table 6: Miscellaneous		
SITE	**NO. OF CASES**	**%**
over body	9	34.60%
skin	1	3.80%
others	16	61.60%



5. DISCUSSION:

Histopathological examination plays a very important role in diagnosis of many skin lesions due to the overlapping clinical presentation. Skin biopsy are simple, easy, cost effective and is an outpatient procedure which provides adequate material for the confirmation of the diagnosis and for further management of the patient.[7]

The present study was a retrospective study in which we have included all the skin biopsies received in Pathology department for the period of two years. A total of 334 cases were included in the study, out of this 310 had definitive diagnosis and in rest of cases a definite diagnosis was not given and differential diagnosis was made. Out of this 310 cases, 170 were males and 140 were females.

In our study maximum number of cases belonged to 41-50 years of age. This is similar to the study conducted by Sanat Chalise et al[8].The current study shows male predominance which is similar to the study conducted by Vivek Kumar et al[9], Dr Akshi Patel et al[10]and Yalla ASD et al[11].

In our present study, out of 310 cases, 95 cases were diagnosed as papulosquamous diseases (30.5%), this was similar to the study conducted by Chowdari Balaji et al[12]. Among this papuloquamous lesion most common lesion was lichen planus and its variants followed by psoriasis. However, the study conducted by Vivek Kumar[9], Dr Akshi Patel[10]and Yalla ASD[11]revealed microbial lesions as the most common cause of the dermatoses, which was second most common lesion in our study followed by vesiculobullous and cystic lesions. Among the microbial lesions (19.3%) the Hansens's disease was the most common infectiveskin lesion (Table 7).

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Table 7: Comparison of our study with various other similar studies

	Our study (2019-20)	Sanat Chalise et al[8](2020)	Vivek Kumar et al[9](2018)	Dr Akshi Patel et al[10](2020)	Yalla ASD et al[11](2019)	Chowdari Balaji et al[12](2018)
Total cases	334	133	232	100	150	108
Period	24 months	6 months	12 months	22 months	24 months	24 months
Male : Female	1.2:1	M<F	3:2	1.32:1	3:2	0.89:1
Age	41-50	41-50	21-30	61-70	31-40	21-30
Papulosquamous lesion	30.5% (Lichen planus 52.6%)	23.4%	11.2%	2%	10.68%	Only papulosquamous lesions were taken in the study. Among this lichen planus (47.22%) was the most common dermatoses followed by psoriasis (31.48%)
Microbial lesion	19.3% (Leprosy 39.4%)	24.5% (Leprosy 7.8%)	30.6% (leprosy)	41% (leprosy)	33.3% (leprosy)	
Vesiculobullous lesion	12.0% (Pemphigus foliaceous 33.3%)	46.6%	12.5%	15%	8%	
Cystic lesion	12.0% (Epidermal cyst 55.6%)	Not taken in the study sample	Not taken in the study sample	Not taken in the study sample	Not taken in the study sample	
Neoplastic lesion	6.3% (SCC 45%)	27.8%	Only non-neoplastic lesions were included	Not taken in the study sample	3.33%	
Site	Extremities	Extremities	Not mentioned	Not mentioned	Not mentioned	

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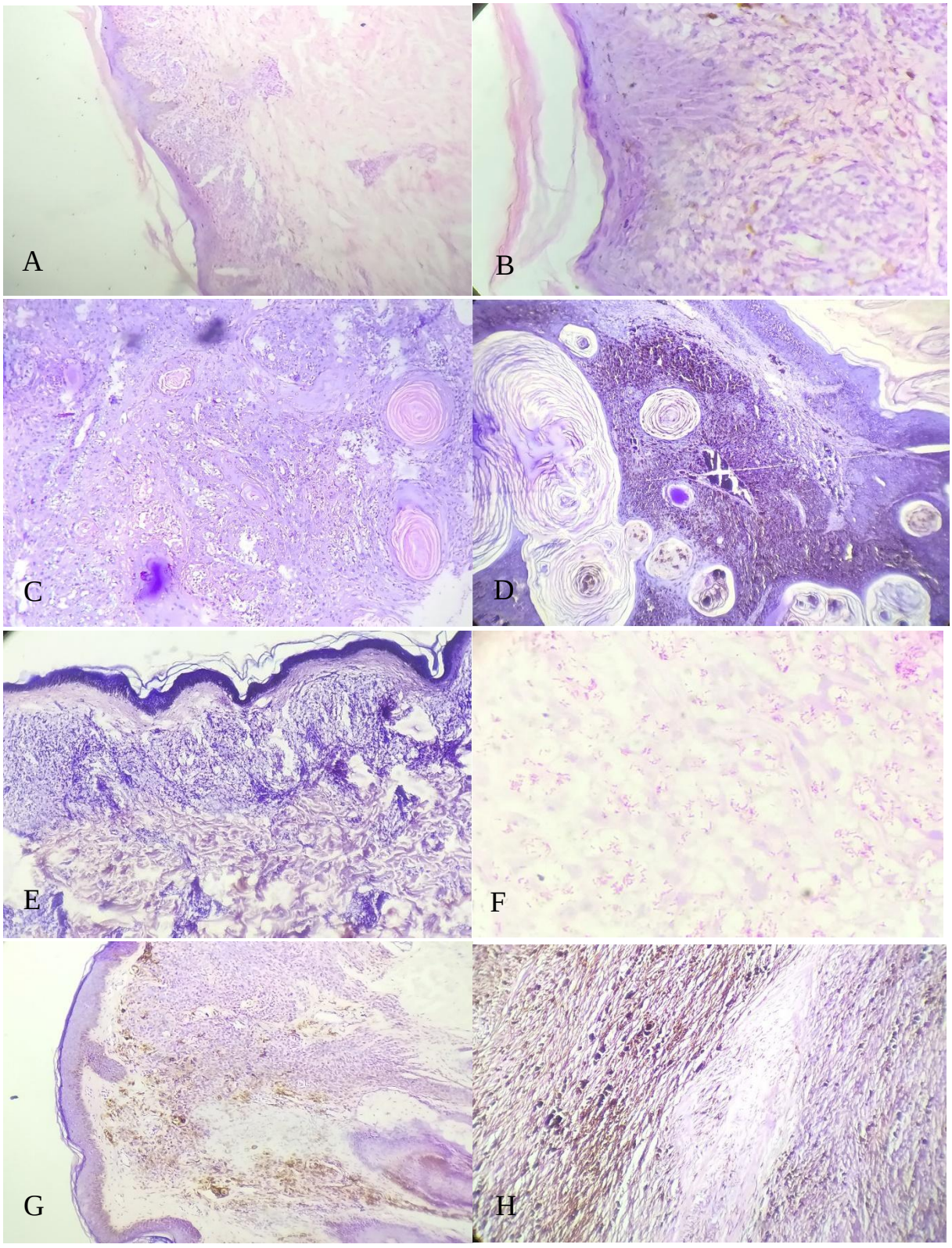

FIG 7:A & B Lichen Planus (10X&40X) displaying acanthosis, parakeratosis and subepidermal inflammatory cell infiltrate composed of lymphocytes, **C.** Squamous cell carcinoma (10X) displaying tumour cells arranged in sheets and few keratin pearls, **D.** Seborrheic keratosis (40X) displaying hyperkeratosis and keratin horn cyst, **E.** Lepromatous leprosy (10X) displaying grenz zone few macrophages are noted, **F.** Fite Faraco stain (100X) displaying plenty of rod shaped eosinophilic bacilli, **G.** Intradermal nevus (10X) displaying tumour cells in the upper dermis and variable degree of pigmentation seen in the dermis, **H.** Melanoma (40X) displaying dysplastic melanocytes with prominent pigmentation,

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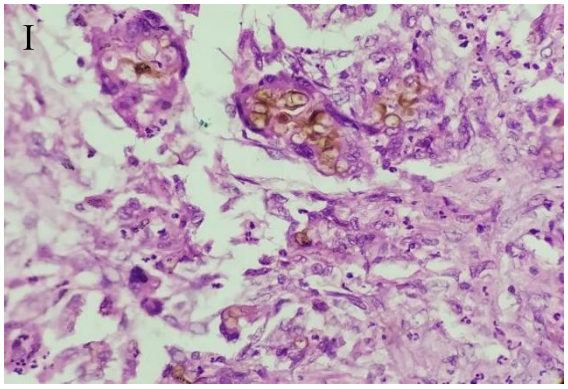

FIG 7. I Chromoblastomycosis (40X) plenty of brown sclerotic bodies called "copper penny" bodies arenoted.

6. CONCLUSION:

Skin biopsy is easy, simple and inexpensive and outpatient procedure which provides adequate material for confirmation of the clinical diagnosis and further management. A combination of good clinical expertise and histopathological confirmation helps in the proper management of the patients. This study has evaluated the prevalence of various skin diseases in our hospital. Most of the skin lesions were in the 41-50 years age group with male predominance. Non-neoplastic lesions outnumbered neoplasms. The histological spectrum of skin lesions is very heterogeneous and diverse as seen in our study. Histopathological examination of the skin biopsy in correlation with, clinical history, aids in the accurate diagnosis of the majority of the skin lesions. In spite of all efforts as pathologists, there are some limitations, wherein a few cases have to be categorized as non-specific. Follow up and re-biopsy from a representative site could overcome this limitation.

7. DECLARATION OF INTEREST:

No conflicts of interest.

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