Evaluation of histopathological findings of skin biopsies in various skin disorders

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ABSTRACT

Background : Skin conditions are among the most common health problems in India. Skin biopsy is the most common diagnostic technique for diagnosing skin disease. The interpretation of the skin biopsy require clinicopathological correlation.

Materials & Methods: The present study was undertaken in the department of Pathology, Kakatiya Medical College & MGM Hospital Warangal, Telangana to determine the incidence & age – sex distribution of various skin diseases, to study the various histopathological changes encountered in the course of study & to establish clinicopathological correlation. A total number of 249 biopsies retrieved from the archives during the period of January 2013 to June 2015 along with clinico - pathological correlation. On the basis of histopathological classification the skin disorders are divided into eight groups.

Results: Maximum number of cases belonged to group VI disorders i.e disorders showing tumors & cyst of dermis & subcutis 85 (34.1%), followed by group V disorders i.e disorders showing perivascular, diffuse & granulomatous infiltrates of the dermis 44 (17.6%). Out of 249 skin biopsies which came for histopathological evaluation, 197 (79.1%) cases were given definite diagnosis by microscopic examination of slides. Amongst 197 cases, clinico-pathological correlations was seen in 134 (54%)cases. Highest number of cases are seen in 21 - 30 yrs of age, with majority of cases were male than female

Conclusion: Our study showed most of cystic lesions of dermis,followed by benign tumors (capillary hemangioma) and carcinomas, calcinosis cutis emphasizing that enivironment had some role to play.

Keywords: Skin,Hemangioma,calcinosis cutis,eccrine poroma

INTRODUCTION

Skin conditions are among the most common health problems in India[1]. Skin biopsy is a biopsy technique in which a skin lesion is removed and sent to the pathologist to render a microscopic diagnosis. The histological diagnosis in turn is used by the clinicians to aid in the management of patients. The most accurate diagnosis is the one that most closely correlates with the clinical features and helps in planning the most appropriate clinical intervention. Thus there is a close relationship between diagnosis and prognosis. The interpretation of a skin biopsy requires clinicopathological correlation. The biopsy has four dimensions, namely length, breadth, depth and time[1,2]. Pathologist sees the first three dimensions. Clinician has advantage of fourth dimension, namely the Time, as only he can follow up the lesion. Hence clinico-pathological correlation and multiple biopsies provide all the four dimensions. Much work on skin disorders has been done by investigators outside India[3,4]. Lesser study has been done in our country especially south India in the field of dermatopathology. Hence this work has been undertaken, covering patients in and around Warangal, to study the spectrum of various skin disorders that affect our population.

MATERIALS AND METHODS

The study was undertaken in the department of Pathology, Kakatiya Medical College and MGM Hospital ,Warangal (Telangana). The cases retrieved from the archives during the period January 2013- June 2015 along with the histopathological evaluation during the period . The Histopathological slides of skin biopsies of all the cases were evaluated . Slides were stained with Hematoxylin and Eosin (H&E) stain, and were also subjected to Ziehl-Neelsen (ZN) stain where indicated.

This study included all the patients residing in and around warangal who came to Dermatologic Clinics at MGM Hospital having skin disorders
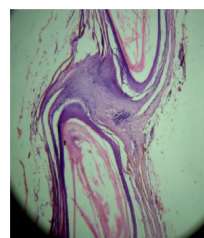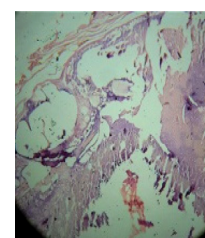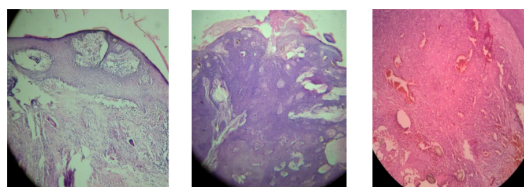

Figure 1

Figure 2

Figure 3   **Figure 4**   **Figure 5**

Figure 1: Sebeaceous cyst on back , commonest lesion ,showing cystic areas lined by stratified squamous epithelium.

Figure 2 : Calcinosis cutis on buttock showing deposition of calcium in cystic spaces

Figure 3 : Shows lupus vulgaris with granulomatous lesion comprising of giant cell,necrosis & inflammatory cells. (known case of tuberculosis)

Figure 4 : Ecrine poroma of palm showing broad anastomosing bands of epithelial cells

Figure 5 : Capillary hemangioma on thigh showing proliferating capillaries lined by plump endothelium

RESULTS

The study was spread over 2.5 years period from January 2013 to June 2015. The Histo -pathological slides of skin biopsies of all the cases were evaluated and those which came in the department either to confirm diagnosis or to rule out lesion, in addition to H & E stain, were also subjected to ZN stain where ever needed. The following observation were made from analysis of 249 cases which were included in study

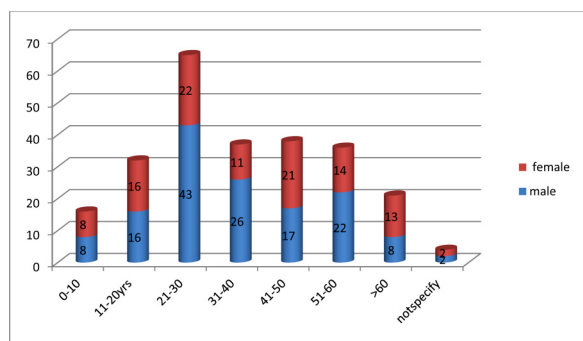**Figure 1 showing the age and sex distribution**

Figure 1 shows the age and sex wise distribution of 249 cases of skin biopsies. Amongst males, maximum cases belonged to

21-30 years followed by 31-40 years. Similarly in females, maximum number of cases belonged to 21-30 years followed by 41-50 years. Out of 249 cases, only 197 cases were clinically diagnosed. Rest of the biopsies were either inadequate for histopathological diagnosis or no clinical diagnosis was given to them. Amongst 197 case, clinicohistopathological correlation was seen in 134 (54%) cases. Most common symptom is soft,cystic swelling for long duration, followed by erthymatous or plaques. Skin lesions were classified into 8 groups based on the histological pattern [Table 1].

Table 1:- Skin diseases were classified into eight groups

Group I   :-   Disorders mostly limited to the epidermis & stratum corneum

Group II   :-   Localized superficial epidermal or melonocytic proliferations

Group III   :- Disorders of the superficial cutaneous reactive unit

Group IV   :- Acantholytic ,vesicular, & pustular disorders

Group V   :-   Perivascular, diffuse, & granulomatous infilterates of the reticular dermis

Group VI   :-   Tumours & cysts of the dermis & subcutis

Group VII   :- Inflammatory disorders of skin appendages

Group VIII :- Disorders of subcutis

Table 2 shows diagnosis wise distribution of cases.Cysts of dermis is most prevalent amongst all skin disorders 27 cases , followed by capillary hemangioma (15), and squamous cell carcinoma(14). Out of 197cases which were given definite diagnosis, maximum belonged to group VI disorders i.e tumors & cysts of dermis, followed by group V disorders i.e perivascular, diffuse & granulomatous infilterates in the reticular dermis and group II disorders i.e localized superficial epidermal or melanocytic proliferations. Least number of cases was of group of group VIII disorders i.e disorders of the subcutis

Table 2. Group wise distribution of cases

Group	Disease	Number	Group	Disease	Number
Group I	corn	3(1.52%)	Group V	scrofuloderma	1(0.50%)
	vitiligo	1(0.50%)		sarcoidosis	0
Group II	Seborrhoeic keratitis	5(2.53%)		Necrobiosis	0
	Benign squamous keratitis	2(1.01%)		Granulomatous lesion	3(1.52%)

Group	Disease	Number	Group	Disease	Number
	Junctional neavus	4(2.03%)		FB type of giant cell reaction	7(3.55%)
	wart	5(2.53%)		Keloid	3(1.52%)
	Molluscum contagiosum	2(1.01%)		Scleroderma	1(0.50%)
	Condyloma accumulata	2(1.01%)		Radiation induced dermatitis	2(1.01%)
	Benign papillomatous lesion	4(2.03%)		Calcinosis cutis	11(5.58%)
	Prurigo nodularis	3(1.52%)	Group VI	Squamous cell carcinoma	14(7.10%)
	Basal call carcinoma	4(2.03%)		Basisquamous cell carcinoma	3(1.52%)
	Verrucous carcinoma	3(1.52%)		Malonotic compound neavus withn atypia	1(0.50%)
Group III	lichen sclerosis etatrophicus	5(2.53%)		Neavus	5(2.53%)
	psoriasis	4(2.03%)		Eccrine dermal cylindroma	1(0.50%)
	Lichen planus	6(3.04%)		Clear cell myoepithelioma	1(0.50%)
Group IV	Phemphigus foliaceus	4(2.03%)		Chondroid syringoma	2(1.01%)
	Exposure dermatitis	1(0.50%)		Pilomatrixoma	4(2.03%)
	Pemphigus vulgaris	5(2.53%)		Metastic deposits	4(2.03%)
	Bullous pemphigoid	2(1.01%)		Xanthoma	2(1.01%)
Group V	Burn out lepsory	3(1.52%)		Inflammatory pseudotumor	4(2.03%)
	Lepromatous leprosy	1(0.50%)		Capillary hemangioma	15(7.61%)
	Histoid leprosy	1(0.50%)		Glomus tumor	1(0.50%)
	BT leprosy	1(0.50%)		Angiokeratoma	1(0.50%)
	Tuberculoid leprosy	0		Sebaceous cyst	27(13.7%)
	Lupus vulgaris	8 (4.06%)	Group VII	Discoid lupus erythematous	2(1.01%)
	tuberculosis	2(1.01%)	Group VIII	Erythema leprosum nodosum	1(0.50%)

DISCUSSION

This being an analysis of clinical presentation and its histopathological correlation. Biopsy specimen is expected to provide a fairly good estimate of patterns of skin disorders. The study is retrospective & prospective in nature. A total number of 249 biopsies were included in the study. In the present study, maximum number of cases belonged to 21-30 years age group with males predominating the group (43 cases i.e 17.26%) (Graph 1) .This is different in comparison to study conducted by Grover et al[5] in which 11- 20 years age group suffered most from skin disorders with males comprising the majority of the group (68%). In the present study, skin diseases were classified into 8 groups based on the Histopathological features (Table 1).

Group VI i.e tumors & cysts of dermis and subcutis were most common (34.16%). Amongst group VI , Sabeaceous cyst (13%) was most common. Group V diseases showing perivascular, diffuse and granulomatous infilterates of the reticular dermis constituted next common group (17.6%).This is different from study done by Das S et al[6] in which they classified the skin diseases into 13 groups based on etiology and clinical features with infective dermatoses (Group I, 36.41%) being the commonest, followed by allergic disorders of the skin (Group II, 29.88%).

Among Group I diseases, in the present study, only 4 cases were reported, out of which 3 were diagnosed as corn and 1 as vitiligo. In Group II diseases, Verruca Vulgaris (Wart) and seborrhoiec keratosis was equally commonly disorders

(14.7%), followed by junctional neavus & benign pappillomatous lesion. This is quite low as compared to findings of Das KK et al[7] in which Verruca Vulgaris (Wart) (41.44%) was the commonest disorder due to viral infections.

Among group-III diseases, these disorders were constituting about 7.61% of cases psoriasis contributing 4 cases (26.6%). This is quite high as compared to findings of Rao G S et al[8] in which Psoriasis and other papulosquamous disorders constituted 2.43% of the cases. Group-IV diseases, in the present study, Vesicobullous diseases were diagnosed in 5.58% of cases, out of which Pemphigus vulgaris was the most common (41.6%), followed by Pemphigus foliaceus (33.3%) and bullous pemphigoid (16.6%) . This is similar to the findings of Das KK et al[7] in which Vesicobullous diseases constituted 0.68% of the cases with Pemphigus vulgaris constituting 40.83% of the cases, followed by Dermatitis Herpetiformis (36.22%) and bullous pemphigoid (15.91%). Group-V diseases. In the present study, Leprosy was diagnosed in 17.55% of the total cases.This disagrees with the findings in the study by Das S et al[6], in which Leprosy accounted for 5.64% of the total cases. Group VI diseases.

In the present study, malignant disorders of the skin constituted 14.7% of the cases with Squamous cell carcinoma being most common followed by metastatic deposits in the skin & pilomatrixoma. This disagrees with the findings in the study by Das et al[3] in which malignant diseases of the skin constituted 0.94% of the cases. Ziehl Neelsen stain was done on 53 biopsies out of which 50(95.12%) biopsies were negative for acid fast bacilli while 3(4.87%) biopsies were positive for acid fast bacilli. This is slightly lower as compared to findings of Veena S et al[9] in which AFB were found in 2 (6.45%) out of 31 skin biopsies. Clinico histo-pathological correlation: Out of 249 cases, only 134 cases were clinically diagnosed. Rest of the biopsies were either inadequate for histopathological evaluation or no clinical diagnosis was given to them. Amongst 197 cases, clinico histopathological correlation was seen in 134 cases while in 63 cases clinicopathological correlation was not seen.

This is lowest as compared to finding of Decosta Grace F et al[10]. who conducted the study in pediatric age group & found clinicopathological correlation in 56.07% patients. The variations in the present study as compared to studies carried out by Kruger C, Schallreuter K U elsewhere in the past could be due to difference in the geographical distribution of the several etiological factors responsible for causation of these conditions.

CONCLUSION

Skin biopsy is an effective technique if proper precautions are taken. If properly done, it is most specific test to diagnose skin disorder especially in cases of infectious diseases where it is a confirmatory test. In the present study, benign cyst is still most common disease thereby emphasizing

that enivironment had some role in skin lesion. 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. Other diseases are comparatively less but nevertheless cannot be ignored. Our present study is unique on account of the fact that for the first time histopathological classification was used to analyze the pattern of the skin diseases while previous studies have used clinical and etiologic classification.

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