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RESEARCH ARTICLE

A CLINICO PATHOLOGICAL STUDY OF ERYTHRODERMA AT A TERTIARY CARE CENTER

A.Mahalaxmi Madhuri, B.Indira and Meda Susmitha

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Abstract

Erythroderma was first described by Hebra in 1868 , characterized by widespread redness of the skin.It typically presents with extensive erythema and scaling affecting more than 90% of the body surface area. The annual incidence is estimated to be 1 to 2 patients per 1 lakh population. The condition may arise from pre-existing dermatoses, drug reactions, malignancies, or may be idiopathic in origin. Identifying the underlying cause is essential for the effective management of erythroderma. A skin biopsy is a key component of the diagnostic process. Nevertheless, in erythroderma, histopathological features can be subtle and challenging to interpret. The present study is undertaken due to the availability of limited data from this region.

Introduction:-

Materials and Method:-

The study is a retrospective analysis of the clinical and histopathological findings of all cases diagnosed as erythroderma and treated at Rangaraaya medical college,Kakinada over a period of 5 years. Ethical clearance is taken before initiating the study.

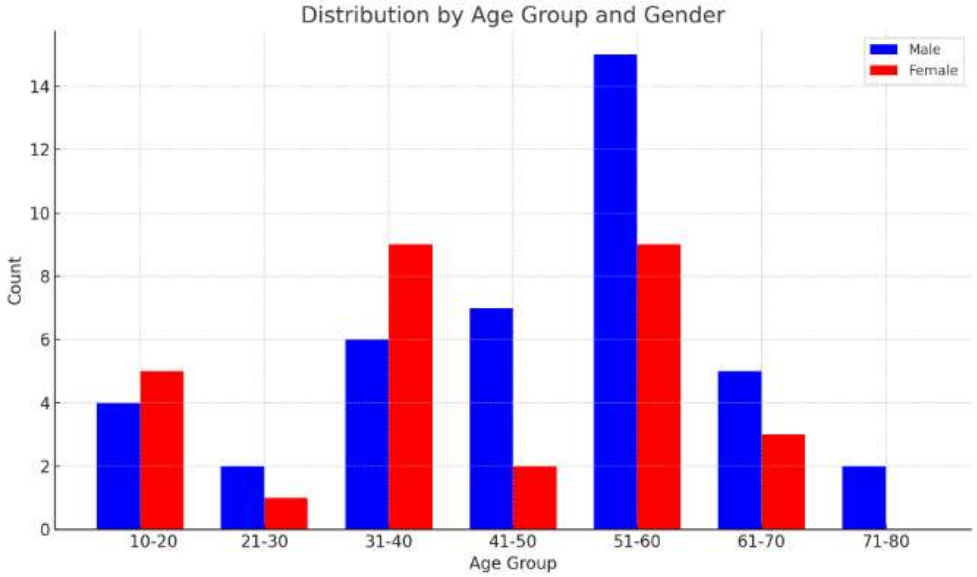
The following data of patient is collected from the patient files in medical records department: Demographic data , onset and progression to erythroderma, past medical history, drug intake, aggravating and relieving factors, any past history of erythroderma, physical examination of skin, mucosae, hair, nails and other systems. Results of skin biopsies taken from the patient were collected , Standard statistical methods and SPSS 20 were used for analysis .

Results:-

The retrospective analysis of data collected from all the erythroderma patients over a period of 5 years (from 2020 to 2024) admittedin the department of dermatology was done. 71 cases of Erythroderma were admitted during the 5 yearperiod .Males were predominantly affected with a total of 41 cases (58 %).

The age range was 10-80 years, most of the patients belonged to the age group of 51-60 years. .Age and gender distribution of patients is shown in fig.1

Corresponding Author:- A.Mahalaxmi Madhuri

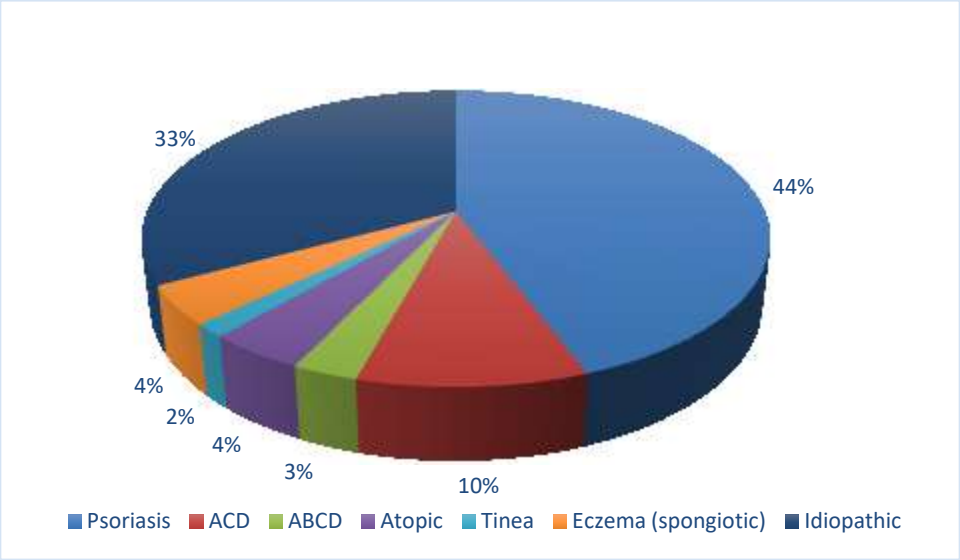


Erythema is seen in 71 (100%) of patients, oedema in 32 (45%), Fever in40(56%), Pruritus in 60(84%)Scaling in 71(100%,Lymphnode involvement in 25(35%) by palpation, Nail changes were seen in 16(22%) including nail pitting, discolouration, longitudinal ridging, subungalhyperkeratosis ,onychodystrophy and onycholysis. These symptoms are gradual in onset ,taking about 3 to 4 weeks to develop. Psoriasis was the most common disease 31(44%), followed by Allergic contact dermatitis 7(10%), Atopic dermatitis 3 (4%),Eczema 3 (4%) ,Air borne contact dermatitis 2 (3%),Tinea corporis 1 (1%), and Idiopathic 23 (32%) .Most of these diseases are pre existing dermatoses with history of irregular use of medication. 11 patients had past history of erythroderma (Psoriasis in 6, Air borne contact dermatitis in 2, Atopic dermatitis in 2,Idiopathic cause in 1).

Table 1: Epidemiological and clinical features of 71 patients according to etiology

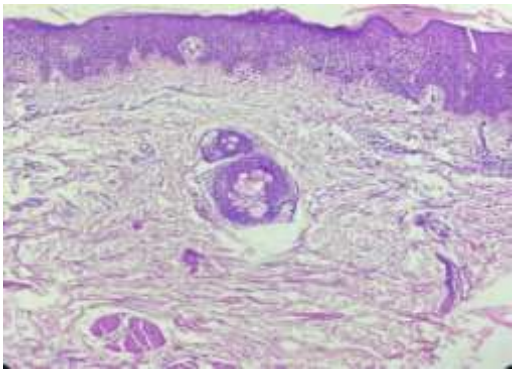
Etiology	**Psoriasis N= 31**	**Allergic contact dermatitis N=7**	**Air borne Contact dermatitis N=2**	**Atopic dermatitis N=3**	Tinea N=1	**Eczema N=3**	**Idiopathic N=23**	**Total N=71**
Max cases (Age range)	51-60	41-50	51-60	51-60	31-40	51-60	31-40	51-60
Male: Female ratio	2.1:1	4:3	2:1	2:1	1:0	0:3	1:1	2:1
Sudden /gradual onset	4/27	3/4	2/0	1/2	0/1	1/2	8/15	19/52
Pruritus	26	7	2	3	1	2	19	60
Fever	19	3	2	2	0	1	13	40
Edema	12	2	1	3	0	1	13	32
Tachycardia	2	0	0	1	0	0	1	4
Nail changes	10	0	0	0	1	1	4	16

Cause	No.of Cases	Percentage
Psoriasis	31	44.28
ACD	7	10
ABCD	2	2.85
Atopic	3	4.28
Tinea	1	1.42
Eczema (spongiotic)	3	4.28
Idiopathic	23	32.8

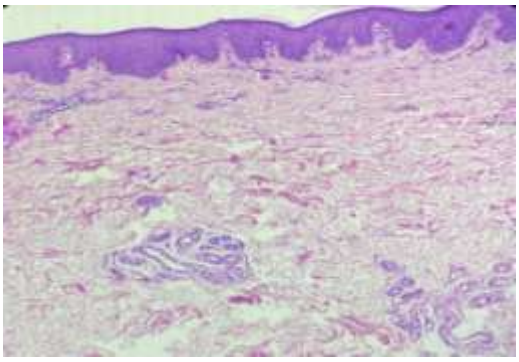


Comparison of other studies with present study for etiology of erythroderma.

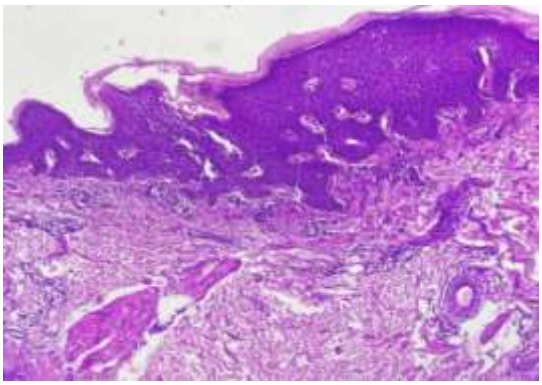
Name of disease	Pal et al[3] (n=90) (%)	Hulmani et al[4] (n=30) (%)	Rym et al[6] (n=80) (%)	Mathew et al[8] (n=370) (%)	Akhyani et al[7] (n=97) (%)	Present series (n=71) (%)
Pre-existing disease	74.4	63	72.5	74.6	59.8	60
Psoriasis	37.8	33.3	51.25	32.7	27.8	44.2
Atopic dermatitis	3.3	6.6	0	6.5	13.4	4.28
Contact dermatitis	3.3	20	2.5	15.9	3.1	12.8
Chronic atinic dermatitis	1.1	0	0	8.1	1	0
Drug induced	5.5	16.6	11.25	6.5	21.6	0
Idiopathic	14.6	16.6	7.5	15.7	7.2	32.8
Pityriasis rubra pilaris	2.2	3.3	1.25	3.2	8.2	0
Crusted scabies	2.2	0	1.25	0.3	1	0
Pemphigus foliaceus	5.6	0	6.25	1.4	1	0
Congenital icthyosiform erythroderma	7.8	0	0	0.5	1	0
Malignancy	5.5	3.3	8.75	3.2	11.3	0



Erythroderma secondary to psoriasis – Acanthosis with broadening of rete ridges ;Dermis – Perivascular, Periadnexal lymphomononuclear infiltrate.



Erythroderma secondary to Atopic dermatitis – Uniform elongation of rete ridges, Exocytosis of Lymphocytes. Dermis – Perivasculaar mixed Inflammatory Infiltrate.



Erythroderma secondary to Allergic contact dermatitis -Spongiosis, Perivascular Lymphocytes, Histiocytes, Plasma cells Pigment Incontinence.

Epidermal Changes seen in histopathology of patients with Erythroderma -

Feature	Count	Percentage(%)
1) Hyperkeratosis	27	38.57
2) Orthokeratosis	10	14.28
3) Parakeratosis	48	68.57
4) Acanthosis	36	51.42
5) Spongiosis	24	34.28
6) Wedge-shapedHypergranulosis	11	15.71
7) Broad rete ridges	8	11.4
8) Elongation of Reteridges	31	44.28
9)Neutrophilic exocytosis	10	14.28
10) Pigment incontinence	4	5.71
11) Focal vacuolar degeneration	4	5.71
12) Follicular plugging	2	2.85
13) Hypogranulosis	14	20.0

14) Fungal hyphae	1	1.42
15) Munroe's microabscess	2	2.85
16) Lymphocytic exocytosis	8	11.4
17) Increased basal layer melanin	1	1.42

Dermal Changes

Feature	Count	Percentage(%)
Lymphomononuclear infiltrate(Perivascular)	60	85
Lymphomononuclear infiltrate (Periadnexal)	20	28.57
Collagen deposition	5	7.14
Dilatation of blood vessels	4	5.71
Supra papillary thinning	6	8.57

Idiopathic cases -

Parakeratosis	7	30
Spongiosis	8	34.7
Acanthosis	5	21.7
Lymphomononuclearinfiltrate(Perivascular)	9	39.1
Lymphomononuclear infiltrate (Periadnexal)	8	34.7
Hyperkeratosis	6	26
Orthokeratosis	5	21.7

Discussion:-

Erythroderma is a rare exfoliative skin disease with variable incidence. In our retrospective study, we found that the mean age of incidence lies between 51-60 years and a male to female ratio of 2:1.This is comparable to most studies where the Male to female ratio ranges from 2:1 to 4:1 and mean age between 40-60 years age. Most common symptom in the present study is Pruritis 60(84%) similar to findings in Akhyani et al and Rym et al .

Identifying the etiologyof Erythroderma is the most challenging task in it's management. In most cases, an existing skin condition is responsible , with psoriasis being the most common trigger according to majority of previous studies. Sudden stoppage of topical and systemic corticosteroids, intake of drugs like lithium, infections ,burns, phototherapy are the most common precipitating factors.

Among the identified etiological categories, the majority of cases were attributed to pre-existing dermatoses. Psoriasis(44%) was the most frequently observed condition, followed by Non specific dermatitis (33.33%), corroborating findings from prior studies.

Although the clinical presentation of erythroderma tends to be relatively consistent, the histopathological features of the underlying lesions are typically distinct.Despite comprehensive evaluation, the underlying cause could not be established in 23 patients, who were consequently classified as having idiopathic erythroderma. Similar findings have been reported by Hulmani et al. Notably, all 23 patients exhibited a prolonged disease course.

Conclusion:-

Identifying the etiology is crucial for effective management, accurate prognosis, and prevention of complications of Erythroderma. A comprehensive patient history combined with appropriate diagnostic tests such as skin biopsies facilitates accurate diagnosis. Early biopsy is important in all cases, while repeated (sequential) biopsies may be necessary in idiopathic cases. Secondary erythroderma is more frequently reported in studies, with psoriasis being the most common cause.