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Original Article

Dermatology Section

A Clinical Study of Patients with Erythroderma Attending a Tertiary Care Hospital in Eastern India

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ABSTRACT

Introduction: Erythroderma is characterised by erythema and scaling over more than 90% of the body surface, a morphological reaction pattern of skin having innumerable underlying causes. Morbidity related to erythroderma is considerably high. The importance of finding the aetiology with special emphasis on histopathology allow early and appropriate intervention for each case.

Aim: To observe aetiological factors of erythroderma through appropriate haematological, biochemical investigations and histopathological examination.

Materials and Methods: An observational cross-sectional clinical study was done in the Department of Dermatology and Venereology, NRS Medical College, Kolkata, West Bengal, India, from March 2016 to February 2017 on 37 successive admitted erythrodermic patients. Detailed clinical history recording with laboratory tests were performed. Clinical and laboratory data was analysed by percentage using MedCalc version 7.0.0.2 software. Chi-square test was used for data analysis and p-value <0.05 was considered as statistically significant.

Results: Of the 37 erythrodermic patients, most common age group was 40 to 60 years present in 16 (43.24%) cases with Male:Female (M:F) ratio 2.1:1, duration of illness in majority from one to six months (22/59.45%). Chronic dermatitis was the most common cause of erythroderma, followed by Drug Induced erythroderma, Idiopathic and Malignancy in descending order. Psoriasis was the most common aetiology 12 (32.43%). Combination of clinical and histopathological evaluation, diagnosed in 31 (83.78%) cases.

Conclusion: Erythroderma has high morbidity with low mortality rate. Combination of good clinical history with histopathological evaluation confirms majority of cases and guide for proper management.

Keywords: Aetiology of erythroderma, Biochemical investigations, Exfoliative dermatitis, Histopathological correlation

INTRODUCTION

Erythroderma or Exfoliative Dermatitis (ED) is an inflammatory disorder characterised by erythema and scaling in a generalised distribution involving more than 90% of the body surface [1]. It is a morphological reaction pattern of skin having innumerable underlying causes [2].

It poses significant risk of morbidity and mortality, in addition to the risks inherent to the underlying disease and its therapy. ED can be fatal, even when properly managed. The main cause of death in these patients are metabolic and electrolyte disturbances. The pathogenesis of ED is unclear. Currently, it is believed that the ED condition is secondary to an intricate interaction of cytokines and cellular adhesion molecules, including interleukins-1, 2 and 8, Intercellular Adhesion Molecule-1 (ICAM-1), and Tumor Necrosis Factor (TNF-α). These interactions result in a dramatic increase in the epidermal turnover rate, causing a higher than normal mitotic rate and an increase in the absolute number of germinative skin cells [3]. Morbidity related to ED is considerably high as it is often a chronic disease, with debilitating signs and symptoms such as intense pruritus and scaling [4]. Thus the importance of trying to find the aetiology with special emphasis on histopathology allows early and appropriate intervention for each case.

Most of the earlier studies are from the western countries [1,4,5] and other parts of India [6,7]. There is a paucity of studies on ED in Eastern India in the recent past, hence this study was undertaken to identify and analyse causes of ED in eastern region. The aim of the present study was to observe the clinical profile of erythroderma patients from history and clinical features and to determine the aetiological factors of the disease in those patients, through appropriate haematological, biochemical investigations and histopathological analysis.

MATERIALS AND METHODS

This was an observational cross-sectional clinical study, done in the Department of Dermatology and Venereology, NRS Medical College, a tertiary level hospital in Kolkata, West Bengal, India. It was approved by Institutional Ethics Committee, No/NMC/111, and conducted for a period of twelve months, from March 2016 to February 2017. In total, 37 successive erythrodermic patients were admitted during the study period were included in the study.

Inclusion criteria: Patients clinically diagnosed and admitted with erythema and scaling involving more than 90% of body surface, and willing to adhere to the study, agreeing to do all investigations.

Exclusion criteria: Patients, who refused to give consent to participate in the study, were excluded.

Study Procedure

Demographic data was recorded. Detail history about onset and progression of erythroderma, prior skin diseases or associated illness if any, past episodes of ED, aggravating factors including drug intake was taken. Clinical examination was done. Thorough clinical examination including general and systemic examination, cutaneous examination, nail examination and hair examination using densitometry per sq. cm of scalp (PROSmart 5X) was done.

Laboratory investigations such as complete haemogram, blood glucose, urea, creatinine, liver function tests and serum electrolytes were performed. Abdominal ultrasound, chest radiograph, Fine Needle Aspiration Cytology (FNAC) of lymphnodes, peripheral smear, tzanck smear and patch testing was done in all cases. Skin biopsy from the most characteristic area for histopathological examination was performed in all the cases.

STATISTICAL ANALYSIS

Data was compiled electronically into Excel programme sheet. Clinical and laboratory data was analysed by percentage using MedCalc version 7.0.0.2 software and included in table and text. Chi-square test was used for data analysis and p-value <0.05 was considered as statistically significant.

RESULTS

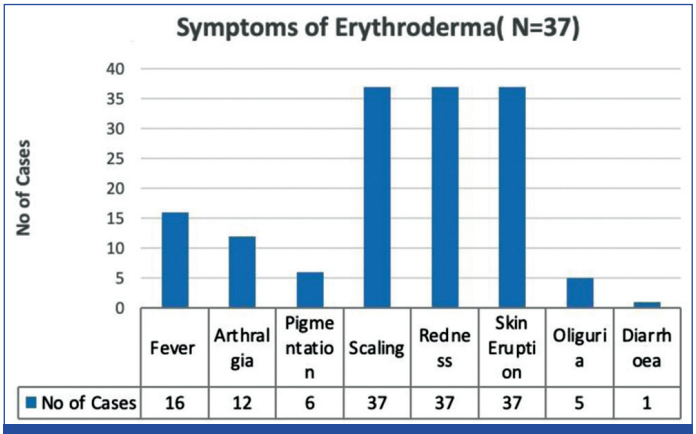
Out of the 37 ED patients, age ranged from 1 year to 80 years, with average age being 47.7±18.09 years. Most common age group was 40 to 60 years i.e., 16 (43.24%) cases followed by above 60 years group 10 (27.03%). Total 25 patients were male and 12 were female (M:F 2.1:1).

The duration of illness ranged from two weeks to as long as 12 months, majority from 1-6 months (22/59.45%). Seven cases of drug induced ED and two cases of pemphigus related ED were of less than one month duration [Table/Fig-1]. Provides the aetiology and duration of disease. Mycosis fungoides (Cutaneous T-Cell Lymphoma) presented with history of more than six months duration (one case).

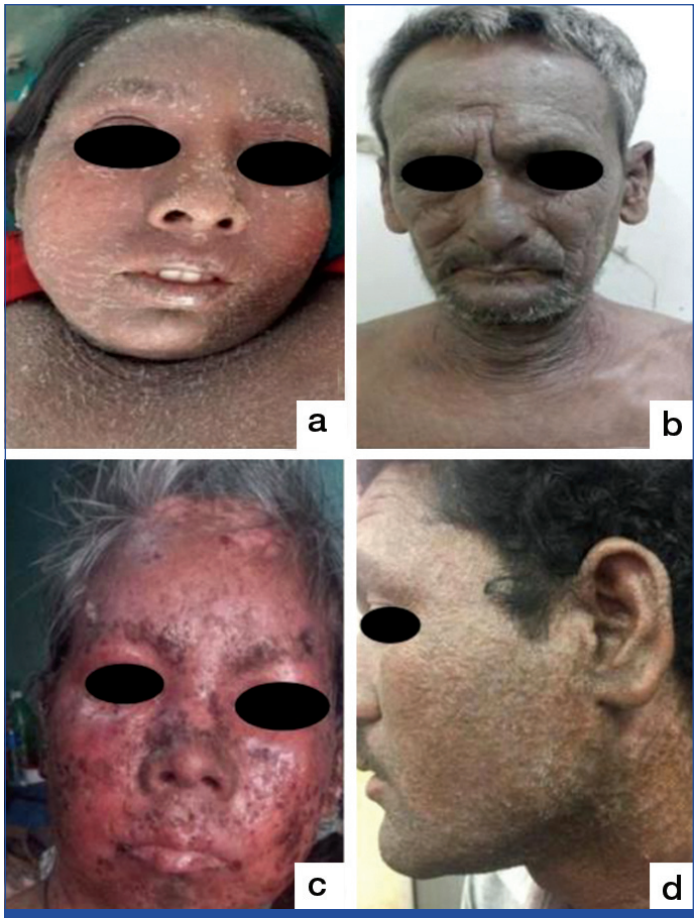
Disease duration	Name of disease	Number	(%)
1 (0-1 month)	Drug induced erythroderma	7	18.91
	Pemphigus foliaceous	1	2.70
	Pemphigus vulgaris	1	2.70
	Psoriasis	1	2.70
2 (1-6 months)	ABCD	1	2.70
	Drug induced erythroderma	1	2.70
	Pemphigus foliaceous	3	8.10
	Pemphigus erythematosus	1	2.70
	Psoriasis	9	24.32
	Non bullous ichthiosiform erythroderma	1	2.70
	Idiopathic	6	16.21
3 (>6 months)	Mycosis fungoides	1	2.70
	Drug induced erythroderma	1	2.70
	Psoriasis	2	5.40
	Darier disease	1	2.70
Total		37	100

[Table/Fig-1]: Aetiology and duration of presentation of the disease.
*ABCD: Airborne contact dermatitis

All the patients presented with certain specific complaints/symptoms as depicted in [Table/Fig-2]. All the 37 patients were showing scaling, redness and skin eruptions. Site of onset of the disease according to the cause of ED as depicted by [Table/Fig-3,4]. Three cases had more than one region of onset of the disease lesion. Majority (six cases) of drug induced ED started from face, psoriatic ED started from extremities (six cases), (three cases) of pemphigus foliaceous induced erythroderma started from seborrheic area such as head and neck [Table/Fig-3,4].



[Table/Fig-2]: Symptoms of erythroderma.



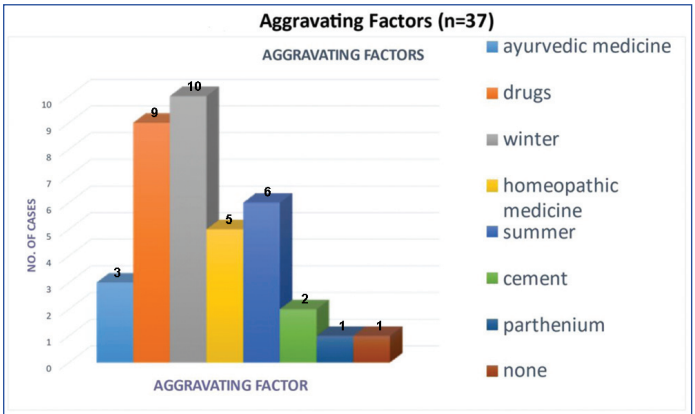
[Table/Fig-3]: Few rare type of erythrodermas; a) Pemphigus foliaceous induced erythroderma; b) Drug induced erythroderma; c) Erythroderma in a case of previously diagnosed Pemphigus vulgaris; d) Erythroderma due to Darier's disease.

Skin condition	Scalp	Head neck	Face	Extremities	Trunk	Generalised	Chest and back
Psoriasis (12)*	1			6	5		1
Drug reaction (9)			6		1	2	
Airborne contact dermatitis (1)			1				
Mycosis fungoides (1)					1		
Darier disease (1)		1					
Pemphigus rythematosus (1)					1		
Pemphigus foliacious (4)		3			1		
Pemphigus vulgaris (1)					1		
Non bullous ichthiosiform erythroderma (1)				1			
Idiopathic (6) *				2	2	2	2

[Table/Fig-4]: Site of onset according to disease (Final diagnosis) (N=37).
*more than one site of origin

Most common aggravating factor, was winter season (10/27.03%), followed by intake of drugs (9/24.32%), summer season (6/16.22%), homeopathic medication in 5 (13.51%) cases, ayurvedic medications in 3 (8.10%), contact with cement in 2 (5.41%), parthenium in 1 (2.70%). Phenytoin in 3 (8.10%) cases was the most common drug, followed by carbamazepine in 1 (2.70%) [Table/Fig-5]. Other drugs elicited were dapsone in 1 (2.70%), lamotrigine 1 (2.70%),

levetiracetam 3 (8.10%), valproate 2 (5.41%), oral hypoglycemic agent namely glipizide 1 (2.70%), metoprolol in 1 (2.70%) cases. There was history of intake of more than one drug in 4 (10.80%) cases. Also, there was precipitation of ED due to steroid withdrawal in 2 (5.40%) cases.



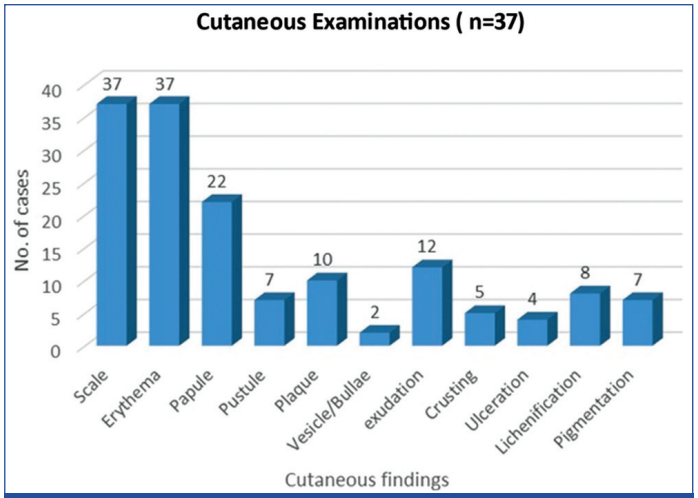
[Table/Fig-5]: Common aggravating factors of erythroderma.

On general examination, 7 (18.91%) patients had tachypnoea, 2 (5.41%) had tachycardia, and 11 (29.72%) had high blood pressure. Presence of pedal oedema 26 (70.27%) came as positive clinical finding [statistically significant, p=0.0214]. Anaemia was present in 21 (56.76%), jaundice in 6 (16.22%), enlarged lymphnode in 7 (18.29%) cases. Cervical and axillary lymphnodes were most commonly involved followed by inguinal (discrete, non tender and firm, dermatopathic lymphadenopathy), hepatomegaly (mild to moderate, mostly in drug induced erythroderma) in 6 (16.22%) cases. Pedal oedema of pitting type was observed in 26 (70.2%) of cases. However, among them, 24 (64.86%) patients had hypoalbuminemia. Lymphnode enlargement was a result of reactive hyperplasia, and regressed over a period of one to two weeks, as the ED was treated. Hepatomegaly was seen in 6 (16.22%) of cases and all were of drug induced ED. None of our patients had splenomegaly [Table/Fig-6].

Skin conditions	Status	Percentage	p-value
Anaemia	Present-21	56.7%	p=0.5108
	Absent-16	43.2%	
Cyanosis	Present-1	2.7%	p<0.0001*
	Absent-36	97.3%	
Jaundice	Present-6	16.2%	p=0.0001*
	Absent-31	83.8%	
Lymphnode enlargement	Present-7	18.9%	p=0.0003*
	Absent-30	81.1%	
Oedema	Present-26	70.3%	p=0.0214*
	Absent-11	29.7%	
Spleen	Enlarged-0	0%	
	Not enlarged-37	100%	
Hepatomegaly	Present-6	16.2%	p=0.0001*
	Absent-31	83.8%	

[Table/Fig-6]: General systemic examination.
Chi-square test, *p<0.05: significant

On cutaneous examination, erythema and scaling was observed in 100% of the patients. Scales were large, easily detachable in acute cases whereas smaller size in chronic cases. Papules in 22 (59.45%) cases, pustules in 7 (18.91%) cases, plaques in 10 (27.02%) cases, 2 (5.40%) cases showed vesicles and bulla. Exudation was present in 12 (32.43%) cases, 5 (13.51%) showed crusting and 4 (10.81%) showed ulcerations, 8 (21.62%) patients had lichenification and 7 (18.91%) patients had pigmentation [Table/Fig-7]. Nose sign of erythroderma was present in 11 (29.7%) of cases and Deck chair sign in 1 (2.70%) of cases.



[Table/Fig-7]: Cutaneous examination findings.

Nail surface change included smooth shiny nails, pitted nails or longitudinally ridged nails. Colour change seen were opaque nails, blackish nails and yellowish nails. Nail dystrophy was observed in 7 (18.91%) patients. Hyperkeratosis was seen in 6 (16.21%) patients and nail infection, namely onychomycosis in 6 (16.21%).

The average hair density was 120.54±37.33 per sq. cm., lower than the average normal hair density in asian that is 175±54 hairs/cm^2 [8]. Chronic scaling led to loss of body hair with or without madarosis, was observed in 16 (43.24%) patients. In this study, hair colour change was hypopigmentation (brown hair) or depigmentation (grey hair) was observed in 8 (21.62%) patients. Hair texture was dull, lustreless, brittle hair while some had greasy frizzy hair.

Anaemia was found in 25 (67.56%) patients, leucocytosis in 13 (35.13%) patients, 12 (32.43%) patients had eosinophilia whereas 5 (13.51%) patients had low eosinophil count. Raised Erythrocyte Sedimentation Rate (ESR) was seen in 15 (40.54%) patients.

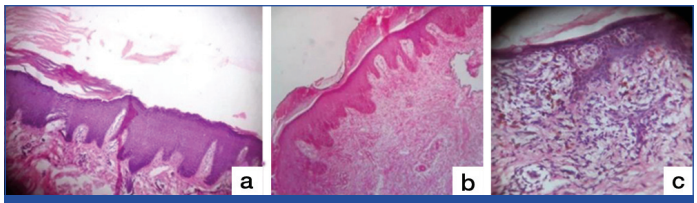
Decrease in total serum protein level was seen in 6 (16.21%) and low albumin in 24 (64.86%), 2 (5.40%) patients had increased and 1 (2.70%) patient has low serum globulin. Total 5 (13.51%) patients showed altered Albumin:Globulin (A:G) ratio despite normal total serum protein. Liver enzymes was deranged in 12 (32.43%), altered lipid profile was in 31 (83.87%) patients. Of them, 8 (21.62%) had elevated serum total cholesterol, 18 (48.64%) had lowered serum High Density Lipid (HDL) and 20 (54.05%) had elevated serum triglyceride. More than one variable was deranged in most patients, 32 (86.48%) out of 37. Low serum sodium level was seen in 16 (43.24%) patients, 6 (16.21%) patients had low serum potassium levels. No significant result for chest radiograph, abdominal ultrasound was found in any patient.

Histopathological examination: Biopsy for histopathological examination was done in all cases, in an attempt to confirm the provisional diagnosis. Histopathological examination was helpful for diagnosis in 21 (56.76%) out of 37 cases. Whereas the rest 16 (43.24%) showed non specific histopathological features and a final diagnosis was made based on combined clinical and histopathological findings [Table/Fig-8,9].

Aetiology of erythroderma: Clinical diagnosis was supported by histopathology in 10 cases (83.33%) of Psoriasis, 1 (100%) in air borne contact dermatitis, 1 (100%) in pemphigus erythemetosus, and 4 (80%) in pemphigus foliacius. In rest of 5 cases histopathological report was inconclusive but not against the clinical diagnosis was considered as the aetiological factor. After thorough clinical and histopathological evaluation, 31 (83.78%) cases could be brought to a diagnosis. Psoriasis was the most common aetiology (12/32.43%), followed by drugs (9/24.32%), pemphigus foliaceous (4/10.84%),

Provisional diagnosis	No. of cases	Biopsy report	Percentage of cases	Positive correlation of H/P with clinical diagnosis (%)	Final diagnosis	No. of cases	Percentage of cases
Psoriasis	12	Psoriasis -10 Non specific - 2	32.4%	83.33	Psoriatic erythroderma	12	32.4%
Drug induced erythroderma	9	Inflammatory Dermatosies - 1 Drug reaction -1 Non specific - 7	24.3%		Drug induced erythrodrma	9	24.3%
Air borne contact dermatitis	1	Contact dermatitis-1	2.7%	100	Airborne contact dermatitis	1	2.7%
Atopic dermatitis	1	Non specific-1	2.7%				
Disseminated eczema	4	Inflammatory Dermatosis-1, Non specific-2, Mycosis fungoides- 1	10.8%		Mycosis fungoides	1	2.7%
Epidermolytic hyperkeratosis	1	Darier Disease-1	2.7%		Darier's disease	1	2.7%
Pemphigus erythematosus	1	Pemphigus Erythematosus-1	2.7%	100	Pemphigus erythematosus	1	2.7%
Pemphigus foliaceous	5	Pemphigus foliaceous-4, Non specific -1	13.5%	80	Pemphigus foliaceous	4	10.8%
Pemphigus vulgaris	1	Non specific-1	2.7%		Pemphigus vulgaris	1	2.7%
Pityriasis rubra pilaris	1	Non specific- 1	2.7%				
Reactive dermatitis	1	Non specific- 1	2.7%		Non bullous ichthyosiform erythroderma	1	2.7%
					Could not be diagnosed	6	16.2%
	37		100%			37	100%

[Table/Fig-8]: Comparative relation between provisional diagnosis, histopathological report, and final diagnosis.



[Table/Fig-9]: Histopathology of erythrodermas; a) HPE of psoriatic erythroderma, H&E stain (10X); b) HPE of erythroderma due to pemphigus foliacious (10X); c) HPE of erythroderma due to mycosis fungoides, epidermis showing pautrier's microabscesses H&E stain (40X).

contact dermatitis (1/2.70%), Non bullous Ichthyosiform Erythroderma (NBIE) (1/2.70%), Darier disease (1/2.70%), pemphigus vulgaris (1/2.70%) and mycosis fungoides (1/2.70%). However, in 6 (16.21%) no diagnosis reached and so it was called Idiopathic. Broadly classifying, chronic dermatoses 21 (56.75%) were the most common cause of erythroderma, followed by drug induced (9/24.32%), (6/16.21%) were idiopathic and (1/2.70) was malignancy (mycosis fungoides) [Table/Fig-8,9].

DISCUSSION

Exfoliative dermatitis is a potentially life-threatening dermatoses with significant risk of morbidity [9]. It is very difficult to identify the cause in fully involved state, and hence its management. A detailed and prompt history, clinical and histological examination and other relevant laboratory investigations are required to know the aetiology. In this study, the most common age group was 40 to 60 years (43.24%), which is similar to other studies of [4-6]. The average age of the patient in this study being 47.7±18.09 years, which is similar to earlier studies [7,10,11].

Male to female ratio was 2.1:1 in this study which was in accordance with the earlier studies [10,12,13]. Reason for male predominance may be the higher treatment seeking attitude in the current socio-economic scenario whereas female are hesitant for taking institutional management. Thirteen patients (35.14%) had acute onset of condition, among them 7 (18.91%) were cases of drug induced ED. Remaining 24 (64.86%) patients had insidious onset, most common of them were ED due to psoriasis. An acute onset was seen in 32% of patients in one study and in another 69% [12,14]. Most common symptoms like scaling, redness, itching and skin rash, fever, arthralgia etc present in the present study were comparable to other studies [12,13,15]. Most common aggravating factor was winter season 10 (27.03%). This maybe because majority of cases of ED turned out to be psoriatic in origin and psoriasis is known to aggravate in winter season [3].

In 24.3% of ED cases, drugs were the offending factor. Drugs implicated were phenytoin, carbamazepine, lamotrigine, metoprolol, glipizide and dapsone. In two cases rampant intake of steroids and its withdrawal in patients with psoriasis precipitated the condition. Though percentage of drug as aetiology is higher in our study it exactly corroborates with study of Mathew R and Sreedevan V [15]. This may be because drug hypersensitivity syndromes usually progress to ED and the above mentioned drugs mostly causes drug hypersensitivity. Lymphadenopathy was seen in 7(18.9%) of cases, in other studies it was ranged from 21% to 80% of cases [5,10,13,14,16]. Lymphnodes were a result of reactive hyperplasia, and regressed over a period of 1 to 2 weeks, as the ED was treated. In a series by Pal S and Haroon TS lymphadenopathy was present in 55.5% of cases and in all cases it was dermatopathic lymphadenopathy except in one which showed Hodgkin's lymphnode. Pedal oedema of pitting type was observed in 26 (70.27%) of cases [13]. However, among them, 24 (64.86%) patients had hypoalbuminemia. Pedal oedema has been reported in the range of 36% to 80% of cases in previous studies [10,12,15,17]. With gradual control of erythroderma and supplementation of high protein diet, oedema subsided in all cases.

Hepatomegaly was seen in 16.2% of cases and all were of drug induced ED. The studies by Botella-Estrada R et al., Pal S and Haroon TS, and Sudha R et al., hepatomegaly was reported in 14%, 25.5% and 8% respectively [13,18,19]. None of the patients had splenomegaly in the present study. However, a few previous studies have presented splenomegaly in 8% and 14% respectively [18,19]. Significance of splenomegaly in ED is not known.

Cutaneous signs: Irrespective of aetiology, clinical feature of ED includes scaling and erythema, were seen in all patients. Scales were large, easily detachable in acute cases whereas smaller size in chronic cases. These findings corroborates with Previous studies, where generalised erythema and scaling seen in upto 100% of cases [13,15,19].

The 'Nose Sign' of ED has been reported by Pavithran K [20]. In our study it was present in 29.7% of cases, as compared to 53.5%

Study parameters	Chaudhary A and Gupte PD 1997 [12]	Pal S and Haroon TS, 1998 [13]	Bandyopadhyay D et al., 1999 [15]	Hulmani M et al., 2014 [21]	Sudha R et al., 2003 [19]	Rym BM et al., 2005 [23]	Present study 2016
Place of study	Mumbai, India	Lahore, Pakistan	Kolkata, India	Mangalore, India	Chennai, India	Dakar, Africa	Kolkata, India
Sample size	30 cases (1 year)	90 cases (3 years)	75 cases (3 years)	30 cases (2 years)	57 cases (2 years)	80 cases (1 years)	37 cases (1 year)
Psoriasis	40	37.8	33.33	33.3	32	51.25	32.43
Eczema	20	12.2	4.4	20.0	12	07.5	0
Ichthyosis	0	07.8	01.33	0	0	0	2.70
Pityriasis rubra pilaris	0	02.2	05.33	03.3	0	01.25	0
Scabies	0	02.2	01.33	0	0	01.25	0
Pemphigus foliaceous/ erythmatosus	0	05.6	05.33	0	04	06.25	16.2%
Lichen planus	0	0	0	0	00	01.25	0
Darrier disease	0	0	0	0	0	0	2.70
Atopic dermatitis	6.66	0	13.33	06.6	08	0	0
Other dermatoses	0	06.6	0	0	08	03.75	5.41
Drug reaction	10	05.5	12.00	16.6	24	11.25	24.32
Malignancy	6.66	05.5	02.67	03.3	04	08.75	2.70
Idiopathic	16.66	14.6	21.33	16.6	08	07.5	16.21
Total	100%	100%	100%	100%	100%	100%	100%

[Table/Fig-10]: Comparison of earlier studies with present study for aetiology of erythroderma [12,13,15,19,21,23].

in another study [21]. The reason for this phenomena is suggested as greater exposure of area to sunlight, with its presumptive antimitotic activity [20]. 'Deck chair sign' described in papulo-erythroderma of Ofuji, was seen in 2.70% of our patients, which was a case of Parthenium dermatitis. This was in accordance with Pal S and Haroon TS who described this sign in 5.5% of their patients [13]. Chronic scaling leads to loss of body hair with or without madarosis, was observed in 43.24% in the present study. Hair loss was observed in 53.3%, 30% and 24%, cases in different studies [13,19,21]. Lichenification of skin was seen in 21.62% of our patients, it was reported in 23.3% and 34.4% of the cases in other studies [13,22]. May be due to continous scratching. Usual Nail changes of ED is polished or shiny nails of chronic friction, other changes like pitting of nails, subungual hyperkeratosis (may be the changes due to psoriasis), nail discoloration, beau's lines and nail dystrophy were observed in 51.35% of cases supported by similar findings in earlier studies [12,15]. But these changes are non specific as ED of long duration may cause hair loss or nail dystrophy regardless of its origin.

Laboratory findings: Different studies on ED shows mild anaemia, leucocytosis, eosinophilia, increased ESR, hypoproteinemia, altered albumin to globulin ratio, elevated levels of blood urea and creatinine [12,13,15,16,18,21,23,24]. Laboratory findings of the present study were comparable with these studies. Laboratory evaluation of patients with ED is generally not helpful in determining a specific diagnosis. Mild anaemia is relatively common and has been attributed to the chronic inflammatory process.

Other frequently reported non specific findings include leukocytosis, eosinophilia, elevated erythrocyte sedimentation rate, abnormal serum protein, electrophoresis with a polyclonal elevation in the gamma globulin region, and elevated IgE levels, though other study have been found a possible association of eosinophilia and high levels of LDH with paraneoplastic ED (PE) [11,25]. Hypoproteinemia could be due to protein loss through scaling, chronic malnutrition or dilution due to hypervolumia, raised enzymes were more specific to ED with maximum patients have drug induced ED [26]. Serum electrolyte imbalance usually in the form of hyponatremia, hypokalaemia, hypocalcaemia [26]. This highlights the importance of correction of fluid and electrolyte imbalance in the management of ED. Comparison of earlier studies with present study for etiology of ED is shown in [Table/Fig-10] [12,13,15,19,21,23].

Psoriasis was the most common cause accounting for 32.4% of cases. Similar findings were shown in the previous Indian studies [Table/Fig-10] [12,15,19,21]. Pemphigus group of disorders as a cause of ED was seen in 16.2% of cases, this incidence was slightly higher than the shown in previous studies [12,13,15]. Among them, four cases were due to pemphigus foliaceous, one was due to Pemphigus erythematosus and one was a case of previously diagnosed pemphigus vulgaris under treatment with high dose long term corticosteroid who presented with ED following sudden injudicious withdrawal of the steroid.

Contact dermatitis and Mycosis fungoides as cause was seen in 2.7% of the study sample size, which was correlating with previous studies [12,13]. In 16.21% of cases, aetiological factor for ED could not be determined inspite of thorough history, clinical examination, blood investigations and skin biopsy for histopathological examination. Patients in this group were elderly with a long duration of ED having severe itching. To rule out cutaneous lymphoma as the cause, it is advised to do multiple biopsies in such cases and it is also imperative to have long term follow-up.

Histopathology helped in correlating and confirming the aetiology of ED in 56.75% of cases and did not help in 43.24% of cases. In a study by Hulmani M et al., histopathological correlation was found in 80% cases [21], Rym BM et al., histopathological correlation was found in 74% patients [23], and in Bandyopadhyay D et al., correlation was found in 52% of cases [15]. Histopathologically identification of psoriasis as the underlying cause of ED is more successful than elucidation of other aetiologies. In our study 83.33% of psoriasis patients were confirmed histologically.

Limitation(s)

As the study period was short, the sample size obtained was small, observational studies must have larger number of cases to get more realistic inference.

CONCLUSION(S)

In erythroderma, the main challenge lies in identifying the underlying cause and managing it. In this study psoriasis was the most common aetiology followed by drug reactions. Histopathological finding was helpful in 56.75% of cases. Combination of detail clinical history, thorough examination combined with histopathological evaluation confirms the majority of cases as well as guiding for proper management. Idiopathic causes of erythroderma reduced with combination of these three approaches, which leads to improved prognosis.

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