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Clinico-etiological study of erythroderma cases from tertiary care hospital, Chitradurga, Karnataka, India

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ABSTRACT

Background: Erythroderma is a cutaneous morphological reaction pattern of skin having many underlying causes and finding the etiology helps in the proper management of erythroderma cases.

Methods: A cross sectional study was performed at the department of dermatology, Basaveshwara Medical College, Hospital and Research center, Chitradurga. Authors studied 30 consecutive cases of erythroderma from July 2017 to June 2019 with respect to the epidemiological, clinical and histological data. Clinico-histological correlation was analyzed for etiology of erythroderma.

Results: The mean age of onset was 35.03 years with a male to female ratio of 3:2. In addition to erythrema and scaling that were present in all patinets, other co-existent features included were pruritus (43.3%), fever (23.3%), and edema (16.7%). Of the pre-existing dermatoses, psoriasis was the most common (36.6%) disease followed by eczema (26.7%), drug-induced erythroderma (16.7%), colloidan baby (3.3%), pityriasisrubrapilaris (3.3%) and in 13.3% of cases, etiology could not be ascertained. Clinico-histopathological cortain could be established in 73.3% of cases.

Conclusions: In all erythroderma cases cutaneous features were identical irrespective of etiology. Detailed history, clinico-histopathological examination and other necessary haematological investigations helps to establish the etiology of erythroderma which helps in further management.

Keywords: Clinical and histopathological examinations, Erythroderma

INTRODUCTION

Erythroderma or exfoliative dermatitis may be a rare skin disease characterized by erythema and scaling involving >90% of body surface area. The estimated annual incidence is 1 to 2 patients per 100,000 population. Erythroderma is a morphological reaction pattern of skin having various underlying causes which include pre-existing skin conditions such as psoriasis, atopic eczema, dermatitis and systemic skin conditions including malignancy and drug intake. ²

Erythroderma affects the skin also as other systems of the body, giving rise to haemodynamic disturbances, biochemical derangement, fever, tachycardia, hypoalbuminemia and pedal edema, additionally to varied cutaneous changes.³

Finding the etiology helps in the proper management of erythroderma cases.⁴ Thus the objective of the study is to find the clinic-etiology of erythroderma cases in tertiary care hospital, Chitradurga, Karnataka, India.

METHODS

The cross-sectional study was conducted between July 2017 and June 2019. Thirty successive erythrodermic patients, admitted in Basaveshwara Medical College and Hospital, Chitradurga, Karnataka, India were included in the study. Patients were clinically evaluated with detailed history and complete physical examination. A detail history included with necessary tests (patch test, photopatch test, drug challenge test, skin biopsy) were done. Early biopsy was done in all cases of erythroderma patients and sequential biopsy were done in idiopathic cases.

Thus, detailed epidemiological, clinical and histological data were obtained from all 30 cases of erythroderma patients and clinic-histological correlation was analysed for etiology of erythroderma.

Statistical analysis

All the details were entered in to a predesigned proforma and then was compiled using Microsoft excel spreadsheet. It was transferred and analyzed using statistical package for social services (SPSS version 20).

RESULTS

Among thirty cases of erythroderma, the mean age of presentation was 35.03 years with male to female ratio of 3:2, showing a high male predominance. Erythema and scaling were seen in all patients followed by pruritis (43.3%), fever (23.3%) and peripheral edema (16.7%). The onset of these symptoms was gradual, taking about 2-3 weeks to develop except in cases of drug reactions where it was acute and patients presented with complains developing within 24-48 hours. Of the pre-existing dermatoses, psoriasis was the most common (36.6%) disease followed by eczema (26.7%), drug-induced erythroderma (16.7%), colloidan baby (3.3%), pityriasis rubra pilaris (3.3%) and in 13.3% of cases, etiology could not be ascertained (Table 1).

Table 1: Causes of erythroderma (n=30).

Causes	Frequency (%)			
Psoriasis	11 (36.6)			
Eczema	8 (26.7)			
Drug-induced erythroderma	5 (16.7)			
Colloidan baby	1 (3.3)			
Pityriasis rubra pilaris	1 (3.3)			
Idiopathic	4 (13.3)			

Erythrodermic psoriasis (n=11, 36.6%) was seen in patients with pre-existing psoriasis who gave a history of irregular use of medications or stoppage of all treatment (Figure 1). Among 26.7% of eczematic had erythroderma, in which 3 cases were of photodermatitis and 5 cases had contact dermatitis. Drug induced

erythroderma (16.7%) was seen in patients who were on following drugs ethambutol, rifampicin, phenytoin and carbamazepine. The clinico-histopathological correlation could be established in 73.3% of cases.

DISCUSSION

Erythroderma may be a rare exfoliative skin disease, truth incidence of which remains unknown. There is a male predominance in most studies with a male-to-female ratio ranging from 2:1 to 4:1 and the mean age between 40 to 60 years.⁵ This is similar to this study where the male-to-female ratio was 3:2 with mean age of 35.03 years. Pruritus (43.3%) was the most common symptom present in this study, similar findings were also found in Rym et al and Akhyani et al.^{6,7}



Figure 1: Erythroderma secondary to psoriasis.

A major challenge lies in determining the etiology of erythroderma. A pre-existing dermatosis is the single most common cause of erythroderma as determined by most published series (Table 2).3,4,6-8 The most common cause of these dermatosis in various Indian studies include psoriasis and eczema.3,4,6-8 The triggers for precipitating erythroderma in psoriatic patients are withdrawal of systemic or topical glucocorticoids, use of systemic medications like lithium and antimalarials, phototherapy burns, infection and systemic illnesses.9 Drug reactions leading to erythroderma were seen in 21.6% cases in study by Akhyani et al, 16.6% cases in study by Hulmani et al and 11.2% cases in study by Rym et al, however in this study authors found drug reactions in 16.7% cases.^{4,6,7} Drugs implicated were ethambutol, rifampicin, phenytoin and carbamazepine. In 13.3% of cases, eiological factor for erythroderma could not be determined in spite of thorough clinical and histopathological examinations. The incidence of idiopathic erythroderma ranged from 10% to 18% in various previous studies.^{3,4,6-8} Among the 30 patients on whom biopsy was done, the histopathology helped in correlating and confirming the diagnosis in 73.3% cases, which was similar to the study conducted in Mangalore, Karnataka.⁴ Despite the clinical presentation of erythroderma being relatively uniform, histopathological characteristics of underlying lesion are usually distinctive. 10

Table 2: Comparison of earlier studies with present study for etiology of erythroderma.

Name of disease	Hulmani et al ⁴ (n=30) (%)	Pal et al ³ (n=90) (%)	Akhyani et al ⁷ (n=97) (%)	Rym et al ⁶ (n=80) (%)	Mathew et al ⁸ (n=370) (%)	Present series (n=30) (%)
Pre-existing disease	63	74.4	59.8	72.5	74.6	66.6
Psoriasis	33.3	37.8	27.8	51.25	32.7	36.6
Atopic dermatitis	6.6	3.3	13.4	0	6.5	0
Contact dermatitis	20	3.3	3.1	2.5	15.9	16.6
Chronic atinic dermatitis	0	1.1	1	0	8.1	10
Drug induced	16.6	5.5	21.6	11.25	6.5	16.7
Idiopathic	16.6	14.6	7.2	7.5	15.7	13.3
Pityriasis rubra pilaris	3.3	2.2	8.2	1.25	3.2	3.3
Crusted scabies	0	2.2	1	1.25	0.3	0
Pemphigus foliaceus	0	5.6	1	6.25	1.4	0
Congenital icthyosiform erythroderma	0	7.8	1	0	0.5	3.3
Malignancy	3.3	5.5	11.3	8.75	3.2	0

CONCLUSION

Erythroderma is a cutaneous morphological inflammatory reaction pattern of skin manifesting with erythema and scaling affecting more than 90% of the skin surface having many underlying causes. Finding the etiology helps in the proper management of erythroderma and estimation of prognosis and avoid complications. A detail history with necessary tests (patch test, photo-patch test, drug challenge test, skin biopsy) helps in identifying diagnosis. Early, biopsy is essential in all cases, sequential biopsies are essential in idiopathic cases. Secondary erythroderma is most common in many studies in which psoriasis is most common. In primary erythroderma drug induced is most common.

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