Erythrodermic atopic dermatitis in infancy associated with fair hair and complexion – a marker for hypoalbuminaemia – analysis of 20 patients

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Sri Lanka Journal of Dermatology, 2007, **11**, 12-13

Abstract

Atopic dermatitis is the commonest acquired inflammatory skin disease in paediatric practice. The clinical manifestations of atopic dermatitis vary from single patch of eczema to erythroderma. Early atopic dermatitis in infancy can lead to malnutrition.

We describe 20 infants with erythrodermic atopic dermatitis and their nutritional status.

Introduction

Atopic dermatitis (AD) is the commonest inflammatory childhood skin disease encountered in paediatric practice in Sri Lanka. The incidence of atopic dermatitis has been increasing in the recent past. AD is a chronic relapsing illness with acute exacerbations. Both genetic and environmental factors are implicated in its pathogenesis. The disease is characterized by pruritus, cutaneous inflammation and a tendency to develop *Staphylococcal* infections and a strong association with other atopic manifestations.

Atopic dermatitis presents with varied cutaneous manifestations. They differ in their morphology, and anatomical localization. The disease presents in different stages of evolution. Severity of the disease vary from individual to individual. Not uncommonly it can present as severe erythroderma. If present since early infancy, unlike in young children, it could cause malnutrition, growth retardation or in advanced cases even death.

Method

The study was carried out at the Dermatology Out Patient Department at Lady Ridgeway Hospital for Children over a period of 9 months from 1st of October 2007 to 30th of June 2008. This is a descriptive study. All children with erythrodermic atopic dermatitis were enrolled in the study. A careful history and a complete physical examination was carried out, and following were noted; age at onset, feeding habits, prior treatment, weight and length, disease severity, serum protein level, and liver enzyme level.

Parents of all patients were interviewed and all patients were examined by the chief investigator at enrolment. A comprehensive data sheet dealing with all above aspects of the study was filled for each patient. All the patients were managed by the same investigator during the follow up visits.

Results

Out of 16000 of new clinic visits 20 infants had erythrodermic atopic dermatitis. 14 patients had fair complexion visible through the erythrodermic skin. 6 had normal complexion. Those who had fair complexion had low levels of albumin. Albumin level was-normal in children who had normal complexion. Out of 14 there were 8 males and 6 females. 6 had developed disease at 4 months of age. 7 at 2 months of age and 1 at 3 months. Fair complexion was in contrast to the dark complexion of their parents. 4 of the children had fair hair. The three children with pedal oedema and fair complexion also had very low levels of serum albumin. None had evidence of cardiac failure. Serum albumin was very low (<20-30g/dl) in three patients. 11 children had albumin levels of 30-35g/dl. Liver enzymes were elevated in 2 children with very severe disease and very low albumin. SGPT was 205 and 245 iu in those two badly affected children. Those who had very low albumin required fresh frozen plasma to correct the albumin level. All patients were started on dietary supplementation.

Atopic dermatitis was managed with daily bathing, liberal use of emollients, soap substitutes, topical steroids, and when necessary oral antibiotics.

Despite our effort one defaulted child died due to severe malnutrition and related infections.

Emerging of normal complexion observed by 4-6 months. Complete pigmentation observed by one year. But atopic dermatitis dragged for a longer period.

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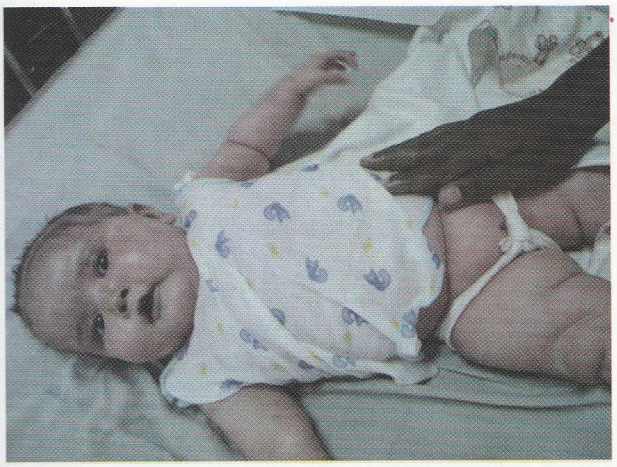

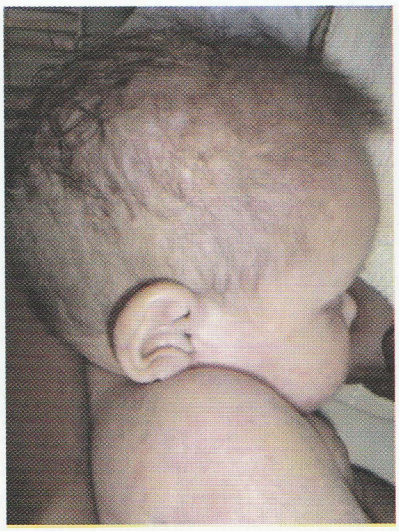

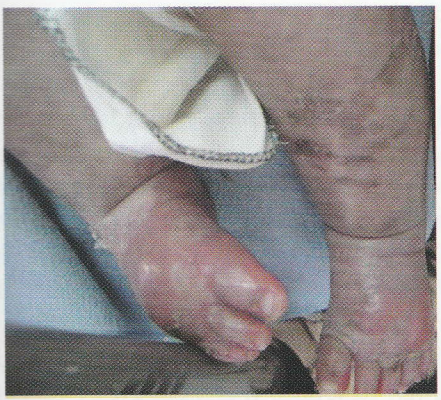

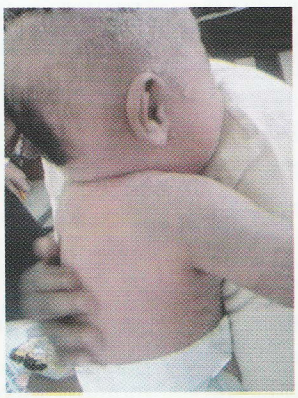

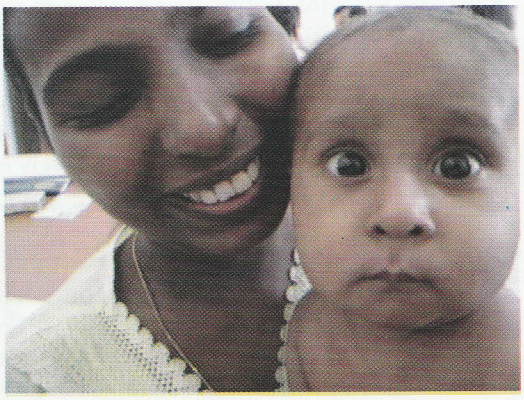

Before and after treatment

Discussion

Atopic dermatitis is a common childhood dermatoses. As expected early onset of severe disease will lead to severe malnutrition in exclusively breast fed infants. Widespread inflammation, exudation, widespread scaling, secondary infection and persistent pruritus attribute to the marked catabolic nature of the illness. Irritability and anorexia of acute flares, infections are contributory. If continued for sufficient period of time this leads to severe malnutrition.

Hypoalbuminaemia had been described in severe AD. However, severe malnutrition as described by us had not been described previously.

In this study early onset of severe disease in exclusively breast fed infants led to the development of a phenotype characterized by a fair complexion, sparse fair hair, peripheral oedema and hepatomegaly indicating severe malnutrition. The probable explanations are excessive loss of energy and protein in the setting of limited intake. This is further supported by the correction of this phenotype with control of inflammation and malnutrition related issues by replacing the albumin and dietary supplementation. However, the fair complexion which corrects with treatment need to be explained. The role of copper as essential metal moiety required for melanogenesis need to be investigated.

References

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