Case study

Kwashiorkor in a 6 year old, presenting as acrodermatitis enteropathica

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ABSTRACT:

Background: Protein energy malnutrition (PEM) is commonly seen in developing countries, especially in infants and young children up to 5 years of age. Edema is one of the characteristic features, which occurs due to excessive protein loss or decreased protein intake. It is one of the rising concerns of parents and leads to mortality if untreated.

Case Presentation: A 6 year old male child was brought with complaints of excessive skin lesions and loss of appetite since 4 months. He sustained burns on his legs 4 months back and his general condition worsened at home. Protein energy malnutrition (PEM) is common among children 6-59 months of age. The age of presentation in our patient is unusual. We stepped up his nutritive intake, added micronutrients and trace elements and he recovered with our efforts.

Conclusion: We recognized the child's underlying condition well in time and started the apt treatment. The child responded well to the nutritional intervention and showed signs of recovery. The age of presentation was rare, which has made us report the case. The parents were counseled well to step up the child's protein and calorie intake and ensure a tender and stress free environment at home which will enhance the child's recovery.

Key words: malnutrition, proteins, zinc, edema

Introduction-

Malnutrition is commonly seen in developing countries and its occurrence comes down with development. Severe forms become rare and gradually milder forms also disappear.(1) India is in this situation now and we don't usually see severe forms. Herewith we report a case of Kwashiorkor in a 6 years old child, a manifestation of dietary restriction by parents with good intention. The child responded to stepwise management of severe acute malnutrition .

CASE PRESENTATION:

A 6 year old boy was brought to the hospital with c/o swelling over body ,skin lesions ,loss of appetite and extreme irritability and lethargy since 20-25 days. Around 4 months back he sustained burns on both legs. Child was under treatment with poor response. Due to extensive burns ,parents thought of restricting food items which they thought heavy like pulses, eggs, meat etc. Parents fed only mashed rice with salt with occasional helping of vegetables since then. As child did not like the food, total quantity of food and calories both were less.

On admission, the child was irritable, with lesions which were desquamative, leaving the skin hyper-pigmented(fig 1). Active lesions were bleeding. The distribution was mainly in flexural areas though was present in other areas also, including palms and soles. He had sparse bronze-red hair and had extensive cheilosis. There was no pallor, icterus or clubbing but had generalized oedema. On admission, he was hemo-dynamically stable with HR-90/min,RR-20/min,BP-96/60 mm of Hg. The child weighed 14 kgs, stood 110 cms tall; weight for age being 77%(grade 1 malnutrition according to Indian academy of Pediatrics, IAP) . As per Wellcome trust classification, he had Kwashiorkor. (2)

Systemic examination was normal. There were non-healing huge eroded areas on both lower limbs resulting from burns(fig no 2).

Given below are photographs on admission:-

Fig. 1: The Case of Kwashiorkor

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Fig 2: Burns

Significantly abnormal laboratory values were ,Hb-7.9g%,WBC-15,000 cells/mm3,Albumin: <1 gm%. Urine routine and microscopy was normal, ruling out evidence of nephrotic syndrome.

Diagnosis of severe acute malnutrition with edema was confirmed and Child was started on antibiotics , emollients ,elemental zinc at therapeutic doses @ 3 mg/kg/day and feeding with RTUF F-75 . Initially, he did not tolerate the feeds well. So the period for transition from f-75 to f-100 was 6 days. After transition, oral hematinic and Vitamin C was given. Lesions began to heal within 7 days of starting oral zinc. His appetite improved after transition to f-100 and he was given the same formula for another 5 days. Initially Feeding was through tube which was removed later. The edema disappeared and patient was discharged and advised to come for follow up after a week.

Discussion:

Milestones in a child's diet like breastfeeding and weaning, if not done with caution and care especially lack of proper diet during periods of illness, hamper the growth and development of the children [3]. Kwashiorkor is a severe form of Protein-energy malnutrition (PEM); where common age is 6 months to 2 when complimentary feeds are introduced and it can be seen up to 5 years.[4]

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In our case the age of child was 6 years and malnutrition was caused by sudden cessation of proteins by the parents which has led to malnutrition at an unusual age.
The reason for edema was thought to be protein deficiency [5] but now role of free oxygen radical is thought of.
During infections, oxidative stress increases which may be a reason for edema [6] .Our patient sustained burns which led to superadded infection so the bacterial endotoxins must have triggered oxidative stress causing edema.
Extensive tissue destruction following burns also must have increased protein requirement which further added to appearance of edema.

PEM also involves poor intake of many essential nutrients. Low serum levels of zinc have been studied as the cause of skin lesions in many patients; serum zinc levels correlated closely with the presence of edema, stunted growth, and severe wasting[7] . The classic "mosaic skin" and "flaky paint" dermatosis of kwashiorkor bears considerable resemblance to the skin changes of acrodermatitis enteropathica, the dermatosis of zinc deficiency [8].
While we were unable to obtain serum zinc levels, the patient responded well after the addition of zinc in therapeutic doses.
After making a transition in his feeds, his appetite improved and he was less irritable. Special attention was given to avoid re-feeding syndrome which may complicate the acute nutritional rehabilitation.
A number of factors affect the nutritional status of children in early childhood period [9-11]. Reviews on causal chain analysis[12] and systematic reviews [13-15] from this region are available. Socio-cultural determinants of infant and young child feeding practice and care seeking behavior of families for their sick infants in this region were particularly addressed in terms of status of child nutritional deficiencies and associated deficiency disorders [16-18].

Conclusion:
From this clinical presentation, we conclude that malnutrition at this age can occur if diet is poor and infections make it worse. Proper diet and stringent management of infections will improve the prognosis in such children. Parents should be educated and counselled well about role of dietary management during such complicated situations, which will improve the outcome.

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