Case study

Kwashiorkor is a six-year-old, presenting as acrodermatitis enteropathica

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 for four months. He sustained burns on his legs four months back, and his general condition worsened at home. Protein-energy malnutrition (PEM) is common among children 6-59 months. The age of presentation in our patients 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 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, enhancing the child's recovery.

Keywords: 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. We report a case of Kwashiorkor, a six-year-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 the body, skin lesions, loss of appetite, extreme irritability, and lethargy for 20-25 days. Around four months back, he sustained burns on both legs. The child was under treatment with poor response. Due to extensive burns, parents thought of restricting food items that they thought were heavy, like pulses, eggs, meat, etc. Since then, parents have fed only mashed rice with salt with an occasional helping of vegetables. As the child did not like the food, the total quantity of food and calories were less.

On admission, the child was irritable, with desquamative lesions, leaving the skin hyper-pigmented(fig 1). Active lesions were bleeding. The distribution was mainly in flexural areas though it 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 edema. He was hemodynamically stable with HR-90/min, RR-20/min, BP-96/60 mm of Hg on admission. The child weighed 14 kgs and stood 110 cms tall; the age was 77%(grade 1 malnutrition according to the Indian Academy of Pediatrics, IAP). As per the Wellcome trust classification, he had Kwashiorkor. (2)

Systemic examination was regular. 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

Fig 2: Burns

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

Diagnosis of severe acute malnutrition with edema was confirmed, and the 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 six days. After the transition, oral hematinic and Vitamin C was given. Lesions began to heal within seven days of starting oral zinc. His appetite improved after transitioning to f-100, and he was given the same formula for another five days. Initially, Feeding was done through a tube, which was removed later. The edema disappeared, and the patient was discharged and advised to come for a 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 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 the common age is six months to 2 when complementary feeds are introduced, and it can be seen up to 5 years.[4]

In our case, , the child's age 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 the role of free oxygen radicals 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 the 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 adding 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.
Several factors affect the nutritional status of children in the 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 mainly addressed in terms 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 the 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 counseled well about the role of dietary management during such complicated situations, which will improve the outcome.

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