



## An Early Diagnosis of Kwashiorkor and Its Successful Treatment in Urban Ludhiana - A Case Report Effective Dietary Counseling Saved Life

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### Abstract

*Protein energy malnutrition and Celiac disease presents during childhood as failure to thrive which are common in India. A 1 year and 10 months-old girl was admitted and managed in various hospitals as a case of protein-energy malnutrition. On evaluation, she had Celiac disease. Treatment of the condition in the form of gluten free diet resulted in good weight gain and normalization of milestones.*

### Introduction

Failure to thrive in infants and young children can be due to many causes and may be the only manifestation of an underlying systemic disease. Celiac disease is a permanent intolerance to ingested gluten that results in immunologically mediated inflammatory damage to the small-intestinal mucosa. The inflammation occurring in Celiac disease classically produces a malabsorption syndrome, with diarrhea, Steatorrhea, and loss of weight<sup>(1)</sup>. Kwashiorkor as one form of severe protein energy malnutrition (PEM) is clinically differentiated from Marasmus as another form of severe PEM according to the existence of predominate edema, fatty liver in kwashiorkor<sup>(2-4)</sup>.

Celiac disease presents with loose stools, recurrent infections similar as PEM, which are commonly seen in India. Unless there is a high degree of awareness, patients may go undiagnosed or may be incorrectly managed for protein-energy

malnutrition. Early diagnosis helps in improving the outcome by appropriate management.

### Case Report

A 1 yr and 10 month old girl presented with a history of fever, vomiting, loose stools and generalized weakness. In the past 6 months, the child had similar complaints and been admitted and treated in other hospitals as grade III protein-energy malnutrition. She is the youngest of their two girl children who was born at term by normal vaginal delivery at a hospital without any significant intranasal and post natal history. Her older sister was normal and healthy. She was apparently well until 9 months of age. Her mental and motor development was also normal till that age with appropriate dietary intake and immunization. Her weight at the time of presentation was 6.7 kg, height 77 cm (both <3rd centile), head circumference of 42cms and mid-arm circumference of 12cm.

She was very ill, febrile, irritable, with distended abdomen, swollen lower limbs. On examination her body temperature was 99<sup>0</sup> F, heart rate 100/min, respiratory rate was 26/min, sparse hair, dry oral cavity and sunken eyes, bilateral pitting pedal edema. There was no abnormality detected in CVS and respiratory system. Liver was palpable 3cms below the right costal margin. Investigations showed that her hemoglobin was 12.4 gm/dl, total leukocyte count was 24300/cmm with 70 neutrophils, 29 lymphocytes, and 1 eosinophil. Her serum sodium was 128 mEq/L, potassium 2.9 mEq/L, chloride 97 mg/dl and creatinine 0.9 mg/dl, urea 21mg/dl. With treatment, her vomiting subsided and hydration status improved but had persistent diarrhea. Screening for celiac disease showed raised anti TTG titers. As the child was normal till 9 months of age and had raised anti TTG titers, celiac disease was considered. The child was advised high calorie gluten free diet, vitamin supplements and followed up at home with regular house visits for motivating the mother. On four months follow up, she had good weight gain, and mental development. Her weight was 9kg, height 85cm, Head Circumference 47 cm, Mid Arm Circumference 14 cm. At one year follow up she looked active and was playful with lustrous hair and bright eyes. Her weight was 11kg, height was 91cm, head circumference was 50 cm, mid arm circumference was 16 cm. Her family and parents are very happy now.

### Discussion

According to WHO, a patient is called severe PEM if body weight for age < 60% or body weight for height < 70% to median standard of WHO-NCHS. The presence of anasarca, enlarged liver in severe PEM refers to kwashiorkor<sup>(2-4)</sup>. In this case her expected weight for age was 15 kg but her actual weight was 6.5 kg. Her BW/A was 43.3% and she was diagnosed as severe protein energy malnutrition with kwashiorkor. The patient was managed based on 10 steps approach of

severe PEM, i.e. to treat and to prevent hypoglycemia, hypothermia, dehydration, correct electrolyte imbalance, treat and prevent infection, correct micronutrient deficiency, start feeding, to achieve catch up growth, provide sensory stimulation and emotional support, and to prepare and plan follow up after recovery<sup>(5)</sup>.

The patient was managed accordingly and discharged. The interesting point in the Kwashiorkor management of this patient was the no response to standard therapy before starting gluten free diet. A simple understanding of the condition and diet counseling helped a child to quickly recover which was achieved by regular home visits.

### References

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