Scurvy in a Child with Cerebral Palsy-The Forgotten Vitamin Deficiency: A Case Report

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Abstract

Scurvy was the first vitamin deficiency disease to be described. However it is seldom seen in the pediatric age group. It is often missed, especially amongst physically and mentally disabled patients who form a high risk group for this disease. Scurvy can present with a varied spectrum of signs and symptoms. Here we present a case of scurvy in a child with cerebral palsy.

Index terms—

1 Introduction

deficiency of Vitamin C (ascorbic acid) results in the clinical presentation of Scurvy, the oldest nutritional deficiency to be recognized. A disease that was once rampant is now rarely seen, more so in the pediatric age group.

Scurvy presents with swelling of joints with characteristic radiological changes, gum bleeds, anemia, petechiae (perifollicular), muscle weakness, fractures and poor wound healing. Here we report a case of scurvy in a child with cerebral palsy and developmental delay.

2 II.

3 Case Report

Author ? ? ? ? ¥ § ?: Department of Pediatrics, Basaveshwara Medical College & Hospital, Chitradurga. -577501, India. e-mail: rajath.pejaver@gmail.com On examination, the child had acute malnutrition (wt= 6.5kg, IAP grade 3) and microcephaly (HC-34 cm). He was febrile, pale and had no hepatosplenomegaly or lymphadenopathy. The right knee joint was swollen and tender, with the skin on the joint appearing shiny, red and warm. There was minimal movement of the right lower limb. A possibility of septic arthritis was considered and intravenous antibiotic therapy initiated. Orthopedic opinion was sought and the limb was immobilized with a POP cast. The laboratory data results were as follows: Hb:10.6 g/dl ; TC:7200 cells/mm3 ; DC: P55%,L42%,E3%; ESR: 45 mm/hr;RBC Count: 4.7 million/mm3;MCV:68.5 fl;MCH:22.6 pg; MCHC:32.9 %; Platelet :2.31 Lakh/mm3 ; Calcium: 9.2 mg/dl; S.Alkaline Phosphatase:102 IU/dl ;S.Phosphate: 3.7mg/dl.

The radiograph of the knee (Figure 1) showed: Ground glass appearance of the shaft of the tibia, fibula and femur. White line of Frankel (irregular, thickened white line at the metaphysis) and a characteristic zone of rarefaction under the white line at the metaphysis (Trumerfeld zone). A lateral prolongation of the white line at the cortical ends, known as Pelkan spur was seen. Subperiosteal elevation suggestive of a subperiosteal hemorrhage was seen at the lower end of the femur. All radiological features pointed towards scurvy. The diagnosis was confirmed with serum levels of vitamin C being less than the lower limit of normal. A 18 month-old boy with quadriplegic cerebral palsy and pseudobulbar palsy due to perinatal asphyxia was admitted to the department of Pediatrics with history of swelling and pain of right knee joint with gum bleeds of 7 days duration. Child also had excessive irritability especially when picked up, along with fever. There was no history of trauma. The child was on a predominant milk based diet, with minimal intake of fruits and vegetables. He was on long-term phenytoin and phenobarbitone therapy for seizures.

4 Discussion

The diagnosis of scurvy was made, and the child was treated with 250mg of vitamin C daily. Vitamin D 6 lakh IU was also administered. His mother was educated about dietary modification. Two weeks after vitamin C administration, the child's general condition and joint swelling improved. Repeat X-ray of the knee joint showed features suggestive of healing. [4]. Scurvy is common in children with cerebral palsy as they subsist on predominant milk based diets (due to pseudobulbar palsy and difficulty swallowing solids) and boiled cows milk is a very poor source of vitamin C. deficiencies may be noted in preterm babies who are on prolonged TPN therapy, children with malnutrition and those with acute illnesses. Musculoskeletal manifestations are present in 80% of patients with scurvy and are prominent in pediatric population [3,5]. Musculoskeletal manifestations include sub-periosteal hemorrhages leading to bone pain and musculoskeletal complaints such as limb pain, limping, swelling over long bones, and progressive leg weakness and fractures [6]. Dermatological manifesttations include petechiae, ecchymoses, hyperkeratosis, and perifollicular hemorrhage [3,7]. Oral symptoms include gingival disease characterized by swelling, bleeding gums, and loosening of teeth [3,6,8]. Systemic symptoms of scurvy in children include lassitude and fatigue, failure to gain weight, loss of appetite, and irritability [6]. In addition to these symptoms, deficiency of ascorbic acid may lead to a hypochromic microcytic anemia because of decreased absorption of iron, bleeding, and dietary deficiencies [3,6].

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The diagnosis of scurvy is based on history of poor dietary intake of vitamin C, classic clinical features and radiological findings and response to treatment with vitamin C. [3, **??**4]. Weinstein et al. [3] recommend oral doses of 100 to 300 mg of vitamin C daily until body stores are replenished per serum levels. Daily fruit and vegetable intakes should include a good source of vitamin C such as citrus fruits, berries, green leafy vegetables and vegetables of brassica and crucifera family. Once a regimen of vitamin C is begun, improvement of symptoms usually begins in 24 hours, with pain diminishing in two to four days, and gingival lesions recovering in two to three weeks [6]. With vitamin C supplementation, metaphyseal abnormalities of scurvy will completely resolve [9]. The large shells of periosteal bone are common radiographic findings particularly during the healing phase of disease [12].

Various factors contribute to nutritional deficiencies in non ambulant children with severe spastic cerebral palsy like poor intake, oral motor dysfunction, feeding problems, and use of antiepileptic drugs [13]. [1]

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Figure 1: FFig 1 :

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Figure 2: Fig. 3 ,

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Figure 3: FFig. 4 :

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