Physseal Closure from Chronic Vitamin A Intoxication

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Abstract

In recent years vitamin A has been a focus of public health efforts to improve child nutrition globally. A recent report suggests global dietary guidance should be reviewed to ensure appropriate vitamin A intake. We report the case of a child who was given high doses of vitamin A for 6 years.

Introduction

Deficiency in vitamin A has been recognized for its role in visual function, and more recently for bone health. Vitamin A deficiency is a global problem. Excess vitamin A, on the other hand, is rare.

Case Report

An 8-year-old boy was referred for evaluation of chronic growth plate closure. He had a history of receiving high doses of vitamin A for 6 years. His parents reportedly received him for treatment of a runny nose at age 2, when he was given 3 million units (M) of vitamin A over 16 days, followed by 60,000 U/d except when he developed minor illnesses in which case he received a tapering dose starting at 300,000 units each time. He was seen at age 2-9/12 years and each subsequent visit for medical attention and for minor illnesses.

Discussion

Physeal closure due to vitamin A toxicity is not as well known as the painful periostitis leading to undulating diaphyseal fractures. Vitamin A toxicity can lead to growth plate arrest. However, radiographs obtained 6 months later demonstrated closure of the proximal fibular epiphysis, a delayed effect of exposure. The typical histological changes of vitamin A toxicity in bone include growth plate intergrowth, decreased chondrocyte activity, increased osteoclast activity, and decreased fibrocartilage. Six months after withdrawal, growth plates had completely ossified and disappeared centrally.

Discussion (cont)

It is important to note that vitamin A is essential for normal growth and development. Excess vitamin A can lead to growth plate closure, and it is important for clinicians to be aware of the potential risks associated with vitamin A supplementation.

References