

Case Report

Case Report: Radiographic Evidence of Nutritional Rickets with Healing Fracture in a 17-Month-Old Child

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Abstract

We present the case of a 17-month-old female who was brought to an urgent care centre with refusal to bear weight on her left leg following a fall in her cot. Radiographic findings revealed classic signs of nutritional rickets, including metaphyseal changes and a suspected healing fracture. Biochemical investigations confirmed severe vitamin D deficiency. Early recognition and management of nutritional rickets are crucial in preventing long-term skeletal deformities and complications⁴.

Keywords

Nutritional rickets, vitamin D deficiency, parathyroid hormone, skeletal deformities

Introduction

Nutritional rickets, resulting from vitamin D deficiency, remains a significant global health issue, particularly in infants and toddlers¹. It leads to impaired mineralization of the growing bone matrix, causing characteristic skeletal abnormalities⁶. Clinical presentation may include delayed motor milestones, bone pain, deformities, or in some cases, unexplained fractures⁸. This case underscores the importance of radiologic and biochemical correlation in the timely diagnosis of rickets.

Case Presentation

A 17-month-old previously healthy female was brought to urgent care centre by her parents due to refusal to bear weight on her left leg. The child had reportedly fallen in her cot the previous day but did not appear distressed at the time. Over the next 24 hours, she became increasingly reluctant to mobilize. On examination, alert and interactive child with no external signs of injury or bruising, Left leg held flexed; discomfort on passive movement of the left lower limb, no swelling or deformity noted, normal cardiorespiratory and abdominal findings. Plain radiographs of the left femur and tibia/fibula demonstrated: Widening, fraying, and cupping of the metaphyseal regions of the distal femur and proximal tibia (consistent with rickets). Cortical irregularity and periosteal reaction at the mid-shaft of the fibula, suggestive of a healing fracture. No acute fractures identified in the femur or tibia.

Laboratory Investigations revealed vit D (25-OH) level <15 nmol/L, Alkaline Phosphatase 1684



IU/L, Parathyroid hormone 53.6 pmol/L, normal Calcium and low normal phosphate.

These results are consistent with nutritional rickets secondary to vitamin D deficiency,

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with secondary hyperparathyroidism and elevated alkaline phosphatase indicative of increased bone turnover.

The child was referred to pediatric endocrinology and started on high-dose oral vitamin D supplementation (ergocalciferol). A nutritional assessment and safeguarding evaluation were conducted. There were no concerns of non-accidental injury, and the fracture was attributed to metabolic bone weakness.

Discussion

This case highlights the classical radiographic and biochemical findings in vitamin D deficiency rickets. The presence of a healing fibular fracture raises the index of suspicion for pathological fractures in the setting of metabolic bone disease. In infants and toddlers, non-weight bearing or limp should prompt evaluation for both trauma and underlying metabolic conditions³. Differentiating between accidental injury, pathological fracture, and non-accidental injury is crucial⁵. Vitamin D deficiency is preventable through adequate sun exposure, dietary intake, and supplementation in at-risk populations⁷. Public health strategies remain vital in combating resurgence in developed countries⁹.

Conclusion

Early diagnosis of rickets through a combination of clinical suspicion, radiologic features, and biochemical analysis is essential for timely treatment and prevention of complications¹⁰. This case serves as a reminder of the skeletal fragility associated with vitamin D deficiency in young children and underscores the importance of a multidisciplinary approach in diagnosis and management.

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Conflicts of interest

There are no conflicts of interest.

Author's contributions

All authors have critically reviewed and approved the final draft and are responsible for the content of the article

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