

Vitamin D deficiency rickets in resource-limited countries

María Inguanzo-Ortiz

CASE REPORT

A 13-year-old girl came to an Ethiopian clinic for the first time because of progressive limp and recurrent knee pain over several years. She came from a very poor family in a rural and remote area. She was dark-skinned and due to cultural beliefs, her clothes used to cover almost all of her skin. Her diet was strictly vegetarian resulting from lack of access to dairy or meat products. On physical examination, deformity in genu valgum (Figure 1) and severe widening of both knees (Figure 2) were both noteworthy and circumduction gait pattern was identified. She presented a Tanner stage 3. Based on anamnesis and clinical findings, rickets was suspected and patient was referred to a national hospital where diagnosis was biochemically confirmed. She received oral calcium and vitamin D supplements along with orthopedic treatment.

DISCUSSION

Rickets is the most common non-infectious disease in children in developing countries. The most frequent cause is vitamin D deficiency secondary to inadequate vitamin D intake or insufficient exposure to sunlight [1, 2].

Vitamin D deficiency causes hypocalcemia, which stimulates the activity of parathormone, causing bone resorption, thus altering the mineralization of growth cartilage and osteoid tissue, deforming them [3].



Figure 1: Bilateral genu valgum in relation to vitamin D deficiency rickets.



Figure 2: Severe widening of both knees in the same patient.

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The diagnosis of rickets is suspected upon anamnesis, physical examination (long bone deformity, widening of the wrists, knees and chondrocostal junctions, growth retardation, craniotabes) and biochemical findings (deficits of 25-hydroxycalciferol and parathormone and elevated alkaline phosphatase with normal or decreased calcium) and is confirmed by radiology (growth plate widening and metaphyseal cupping and fraying). The

treatment is vitamin D and adequate supplies of calcium and phosphorus [1, 2, 3, 4, 5].

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CONCLUSION

Nutritional rickets is a worldwide public health problem and is completely preventable through the universal supplementation of infants under one year of age, pregnant women and individuals in all risk groups. In many developing countries, access to laboratory tests and radiology is unavailable; therefore, the diagnosis must be based on the clinical history and physical examination.

Author Contributions

María Inguanzo-Ortiz – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

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Consent Statement

Written informed consent was obtained from the patient for publication of this clinical image.

Conflict of Interest

Author declares no conflict of interest.

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