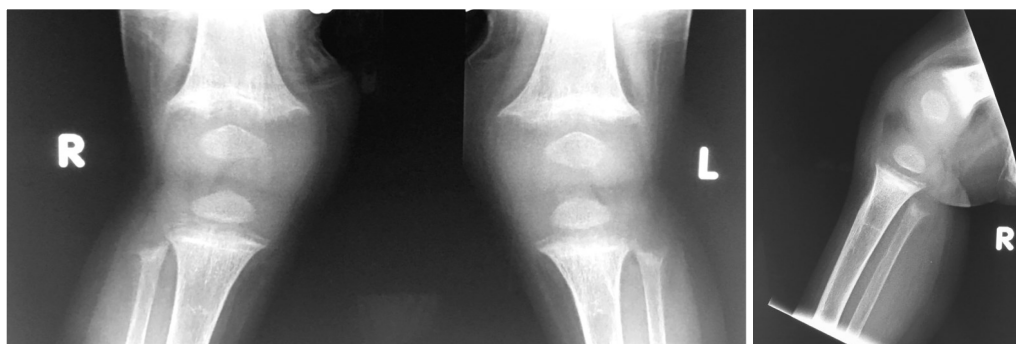


Ian BICKLE



This 2-year-old boy was referred to paediatrics for bilateral genu valgum noticed for the past year. On further history, he is exclusively breastfed and rarely spends time outdoors. Radiography investigation was and is shown (**Panels**).

What is diagnosis?

Answer: refer to page 210

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(Refer to page 196)

Answer: Rickets

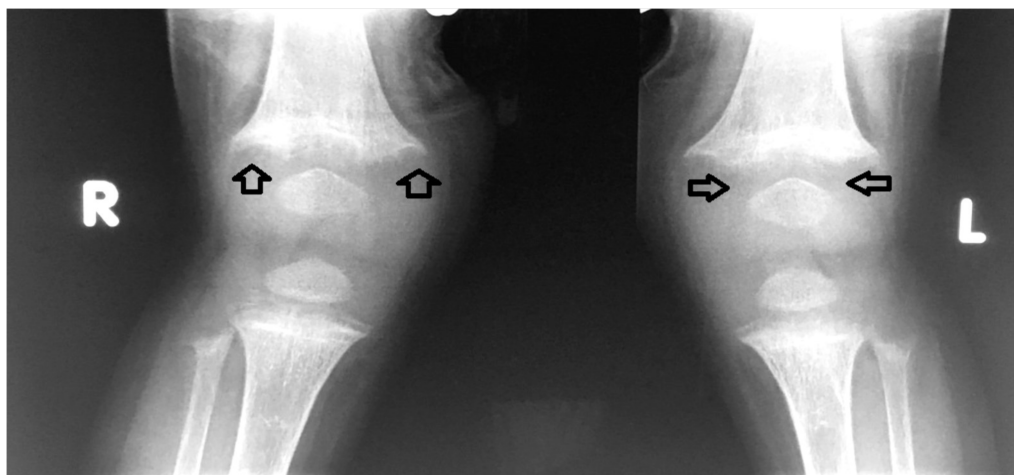
Rickets (paediatric osteomalacia) is mainly caused by vitamin D deficiency. Other causes include calcium deficiency and acquired and inherited disorders of vitamin D, calcium, and phosphorus metabolism.¹ These biochemical changes in calcium and phosphorus metabolism lead to a defect in bone mineralisation. Rickets can have symptoms and signs of growth retardation, muscle weakness, skeletal deformities, hypocalcaemia, tetany, and seizures.

The diagnosis of rickets is based on clinical, biochemical and radiological findings. Laboratory investigations include; serum parathyroid hormone level, calcium, phosphorus, alkaline phosphatase, urea, nitrogen, creatinine and calcidiol.

Radiological bone manifestations are typically evident in the knees, wrist and anterior rib ends (rachitic rosary). Classical radiological findings include; angular deformities of the arm and leg bones, widening of the distal physis and fraying, cupping and widening of the metaphysis.²

In this particular patient, bilateral knee radiographs were undertaken which showed fraying, splaying, sclerosis and cupping of the femoral, tibial and fibular epiphyses (**Panel**) in keeping with advanced rickets.

Treatment involves correction of the metabolic and nutritional imbalances, but surgical intervention may be needed for severe bony abnormalities.



REFERENCES

- 1: Holick MF. Resurrection of vitamin D deficiency and rickets. *J Clin Investigation.* 2006; 116:2062-72.
 - 2: Nield LS, Mahajan P, Joshi A, Kamat D. Rickets: not a disease of the past. *Am Fam Physician.* 2006; 74:619-26.
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